PLANT POWERED PLUS

SCIENTIFIC REFERENCE COMPANION

The Scientific Evidence Supporting the Book

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Purpose of this Document

This reference companion provides the scientific sources that support the claims, mechanisms, and clinical insights presented in *Plant Powered Plus*. It is intended for readers who wish to explore the underlying research, including clinicians, researchers, and scientifically curious readers.

Because *Plant Powered Plus* does not include numerical citations within the text, this document serves as a transparent, organized index of the peer-reviewed literature, clinical trials, systematic reviews, and authoritative reports that informed the book. My approach to supporting my work is defined further in **The Ultimate Companion Guide to Plant Powered Plus.**

How References Are Organized

References are indexed by the first five words of the sentence they support. This allows readers to efficiently locate sources using the Find function (Command/Control + F) in a PDF or document reader. In many cases, a single citation supports an entire paragraph or concept rather than a single sentence.

References are listed in the order they appear in the book and grouped by chapter and topic.

About Page Numbers

Page numbers are not included in this document. Final pagination changed multiple times during production, and matching sentences to final page numbers would have required manual verification that was not feasible prior to publication. If an efficient and reliable method for mapping references to final page numbers becomes available, this document may be updated in the future.

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Medical Conditions Associated with Inflammation & Gut Dysbiosis

Autoimmune & Allergic Conditions

Medical condition	Chronic inflammation	Dysbiosis	Intestinal permeability
Type 1 diabetes	Tsalamandris, Eur Cardiol 2019	Abdellatif J Diabetes 2019	Bosi Diabetologia 2006
Rheumatoid arthritis	Mueller Cells 2021	Romero-Figueroa Front Cell Infect Microbiol 2023	Heidt Nutrients 2023
Psoriatic arthritis	Schett Nat Rev Rheumatol 2022	Myers Best Pract Clin Rheumat 2019	Hecquet Joint Bone Spine 2021
Psoriasis	Rendon Int J Mol Sci 2019	Hidalgo-Cantabrana Br J Dermatol 2019	Humbert J Dermatol Sci 1991
Multiple sclerosis	Haase Ther Adv Neurol Disord 2021	Ordonez-Rodriguez Int J Environ Res Public Health 2023	Annibali J Neuroimmunol 2014
Systemic lupus erythematosus	Gottschalk Front Immunol 2015	Pan Front Immunol 2021	Bowes Clin Immunol 2024
Ulcerative colitis	Bergemalm Gastro 2021	Pittayanon Gastro 2020	Munkholm Gut 1994
Crohn's disease	Neurath Nat Rev Immunol 2014	Aldars-Garcia Microorganisms 2021	Wyatt Lancet 1993
Lymphocytic colitis	Dey PLOS One 2013	van Hemert Ann Transl Med 2018	van Hemert Ann Transl Med 2018
Collagenous colitis	Park Gut Liver 2015	Carstens Clin Transl Gastro 2019	Munch Gut 2005
Grave's disease	Zdor Int Arch Allergy Immunol 2020	Su J Clin Endocrin Metab 2020	Knezevic Nutrients 2020
Sjogren's disease	Rodrigues Autoimmunity 2017	Moon PLOS One 2020	Sjöström Clin Exp Rheumatol 2021
Hashimoto's thyroiditis	Weetman J Endocrinol Invest 2021	Virili Rev Endocr Metab Disord 2018	Cayres Front Immunol 2021

Medical condition	Chronic inflammation	Dysbiosis	Intestinal permeability
Myasthenia gravis	Huda Front Immunol 2023	Kapoor Autoimmun Rev 2023	Sun Int Immunopharmacol 2024
Celiac disease	Porpora Int J Mol Sci 2022	Rossi Cells 2023	van Elburg Gut 1993
Scleroderma	Rosendahl Kaohsiung J Med Sci 2022	Lemos J Clin Rheum 2022	Catanoso Scand J Rheumatol 2001
Dermatitis herpetiformis	Clarindo An Bras Dermatol 2014	Wacklin Inflamm Bowel Dis 2013	Smecuol Clin Gastroenterol Hepatol 2005
Antiphospholipid syndrome	Ambati Curr Opin Rheumatol 2023	van Mourik Front Immunol 2022	Kinashi Int J Mol Sci 2021
Ankylosing spondylitis	Zhu Bone Res 2019	Sternes Arthritis Res Ther 2022	Smith Ann Rheum Dis 1985
Interstitial cystitis	Grover Ther Adv Urol 2011	Braundmeier-Fleming Sci Rep 2016	Rahman-Enyart Am J Physiol Regul Integr Comp Physiol. 2021
Autoimmune hepatitis	Sebode Liver Int 2018	Wei Gut 2020	Lin Int J Clin Exp Pathol 2015
Autoimmune pancreatitis	Watanabe J Immunol 2017	Hamada Tohoku J Exp Med 2018	Hong Front Immunol 2024
Primary biliary cirrhosis	Gulamhusein Nat Rev Gastro Hep 2020	Tang Gut 2018	Fussey Dig Dis Sci 2006
Primary sclerosing cholangitis	Eaton Gastro 2013	Sabino Gut 2016	Sato J Transl Autoimmun 2019
Sarcoidosis	Franzen Swiss Med Wkly 2022	Farahat Egyptian Journal of Int Med 2023	Wallaert Am Rev Respir Dis 1992
Fibromyalgia	Benlidayi Rheum Int 2019	Minerbi Pain 2023	Goebel Rheumatology (Oxford) 2008
Guillain-Barre syndrome	Willison Lancet 2016	Brooks Microbiome 2017	Shi Heliyon 2024
Behcet's disease	Gul Semin Immunopathol 2015	Ye Microbiome 2018	Fresko Ann Rheum Dis 2001

Medical condition	Chronic inflammation	Dysbiosis	Intestinal permeability
Behcet's disease	Gul Semin Immunopathol 2015	Ye Microbiome 2018	Fresko Ann Rheum Dis 2001
Kawasaki disease	Hara Clin Transl Immunology 2021	Zeng PeerJ 2023	Rivas J Immunol 2019
ANCA-associated vasculitis	Geetha Am J Kidney Dis 2020	Sun Front Cell Infect Microbiol 2022	Sun Front Immunol 2022
Asthma	Murdoch Mutat Res 2010	Hufnagl Semin Immunopathol 2020	Benard J Allergy Clin Immunol 1996
Food allergies	Johnston J Immunology 2014	Abril Int J Mol Sci 2023	Aktas J Allergy Clin Immunol 2023
Eczema	Itamura Int J Mol Sci 2022	Fang Front Immunol 2021	Pike J Invest Dermatol 1986
Seasonal allergies	Galli Nature 2008	Watts Int Arch Allergy Immunol 2021	Niewiem Nutrients 2022
Eosinophilic esophagitis	Racca Front Physiol 2022	Harris PLOS One 2015	Katzka Gut 2015

Cardiovascular & Pulmonary Diseases

Medical condition	Chronic inflammation	Dysbiosis	Intestinal permeability
Atherosclerosis	Libby JACC 2006	Samarraie Int J Mol Sci 2023	Quirk Am J Physiol Gastrointest Liver Physiol 2025
Coronary artery disease	Christodoulidis Cardiol Rev 2014	Choroszy Metabolites 2022	Li Sci Rep 2016
Myocardial infarction	Ren Curr Drug Targets Inflamm Allergy 2003	Liu Front Microbiol 2022	Oikonomou Am J Med Sci 2024
Congestive heart failure	Adamo Nat Rev Cardiol 2020	Lupu Cells 2023	Sandek J Am Coll Cardiol 2007
Stroke	Anrather Neurotherapeutics 2016	Meng Eur J Prev Cardiol 2023	Błaż J Thromb Haemost 2024

Medical condition	Chronic inflammation	Dysbiosis	Intestinal permeability
Abdominal aortic aneurysm	Marquez-Sanchez Front Immunol 2022	Benson Circulation 2023	Guo Biomedicines 2025
Aortic dissection	Luo Ageing Res Rev 2009	Jiang Front Microbiol 2023	Li Front Physiol 2022
Deep vein thrombosis (DVT)	Aksu Curr Pharm Des 2012	Hasan Thromb Res 2020	Liu Thrombosis Journal 2023
Pulmonary embolism/venous thromboembolism	Saghazadeh Crit Rev Oncol Hematol 2016	Zhang J Pers Med 2023	Ząbczyk Thromb Res 2023
Brain aneurysm	Hosaka Transl Stroke Res 2014	Kawabata Stroke 2022	Liu Sci Rep 2025
Peripheral artery disease	Signorelli Int J Mol Med 2014	Ho Microorganisms 2022	Katada J Pharmacol Exp Ther 2009
Aortic valve disease	Cote Inflammation 2013	Liu Atherosclerosis 2019	Boccella Am J Physiol Heart Circ Physiol 2021
Myocarditis	Krejci Biomed Res Int 2016	Wang Front Cell Infect Microbiol 2023	Toprak Arq Bras Cardiol 2023
Atrial fibrillation	Hu Nat Rev Cardiol 2015	Tabata Heart Vessels 2021	Zhang Cardiovasc Res 2022
Takotsubo cardiomyopathy	Fernandez-Ruiz Nature Reviews Cardiology 2019	Liu Biomedicines 2023	--
Rheumatic heart disease	Franczyk Int J Mol Sci 2022	Shi Front Cell Infect Microbiol 2021	Sumitomo Sci Rep 2016
Pulmonary hypertension	Price Chest 2012	Moutsoglou Am J Respir Crit Care Med 2023	Yang Pulm Pharmacol Ther 2025
Renal artery stenosis	Al-Suraih World J Cardio 2014	Jaworska PMC 2021	Maruyama Nutrients 2023
Endocarditis	Hu Int Heart J 2022	Guidice Microorganisms 2021	Wells J Infect Dis 1990

Cancer

Medical condition	Chronic inflammation	Dysbiosis	Intestinal permeability
Non-small cell lung cancer	Gomes Adv Exp Med Biol 2014	Zheng Gut Microbes 2020	Moratiel-Pellitero J Immunother Cancer 2024
Small cell lung cancer	Winther Syst Rev 2021	Ming bioRxiv 2019	--
Colorectal cancer	Janakiram Adv Exp Med Biol 2014	Pandey Cancers 2023	Saylam Pathogens 2025
Breast cancer	Danforth Cancers 2021	Ruo Cureus 2021	Shrout Psychoneuroendocrinology 2022
Pancreatic cancer	Padoan Int J Mol Sci 2019	Attebury Cancer J 2023	Yin Cell Death Dis 2021
Prostate cancer	Tewari Adv Exp Med Biol 2018	Fujita Cancer 2023	Lin Ann Med 2022
Kidney (renal cell) cancer	Chevez Adv Exp Med Biol 2014	Chen Front Microb 2022	--
Acute myeloid leukemia (AML)	Recher Front Oncol 2021	Yu FEBS Open Bio 2021	Sundström Leukemia 1998
Acute lymphoblastic leukemia (ALL)	Zhang Blood Adv 2022	Oldenburg Cancers 2021	Leite Nutr Hosp 2014
Chronic lymphocytic leukemia (CLL)	Andersen Cancer 2018	Faitova Haematologica 2022	Skupa Cancer Res Commun 2025
Chronic Myelogenous Leukemia	Dikic Biomolecules 2022	Pagani Microorganisms 2022	--
Non-Hodgkin lymphoma	Makgoeng JNCI Cancer Spect 2018	Shi Clin Med Insights Oncol 2021	Tyszka Int J Mol Sci 2022
Hodgkin lymphoma	Anber Biosci Rep 2019	Cozen British J Cancer 2013	Tyszka Int J Mol Sci 2022
Multiple myeloma	Wang Int J Cancer 2022	Zhang Front Immunol 2022	Banaszkiewicz Ren Dis Transplant Forum 2022

Medical condition	Chronic inflammation	Dysbiosis	Intestinal permeability
Hepatocellular (liver) carcinoma	Refolo Cancers 2020	Yu Nat Rev Gastro Hep 2017	Zhang Front Oncol 2021
Cholangiocarcinoma (bile duct)	Cadamuro Adv Cancer Res 2022	Rao Front Physiol 2021	Wang Cancers 2025
Gallbladder cancer	Roa Nat Rev Dis Primers 2022	Choi J Korean Med Sci 2021	--
Ovarian cancer	Maccio Cytokine 2012	Sipos Mol Med 2021	--
Esophageal adenocarcinoma	O'Sullivan Expert Rev Gastro Hep 2014	Gillespie Biology 2021	--
Esophageal squamous cell cancer	Wei BMC Cancer 2015	Cheung J Gastro Hep 2022	--
Stomach cancer	Matowicka-Karna Clin Dev Immunol 2013	Ferreira Gut 2018	--
Endometrial cancer	Dossus Endocr Relat Cancer 2010	Boutriq J Persian Med 2021	--
Melanoma	Nevala Clin Cancer Res 2009	Mekadim BMC Microbiol 2022	Drymel Int J Mol Sci 2025
Glioma (brain cancer)	Basheer Cancers 2021	Jiang Bioengineered 2022	Patrizz Sci Rep 2020
Thyroid cancer	Guarino Mol Cell Endocr 2010	Zhang Endocrine 2019	--

Metabolic Disorders

Medical condition	Chronic inflammation	Dysbiosis	Intestinal permeability
Obesity	Ellulu Arch Med Sci 2017	Pinart Nutrients 2022	Keirns Am J Physiol Heart Circ Physiol 2024
Type 2 diabetes	Wang Diabetes Care 2013.	Chong Front Endocrin 2025	Jayashree Mol and Cell Biochem 2013
Non-alcoholic fatty liver disease (NAFLD)	Yaqub Cureus 2021	Wieland Aliment Pharmcol Ther 2015	De Munck Liver Int 2020
Nonalcoholic steatohepatitis (NASH)	Luci Front Endocrinol 2020	Kobayashi Int J Mol Sci 2022	Luther Cell Mol Gastro Hep 2015
Alcoholic steatohepatitis	Gao J Hepatol 2019	Grodin Alcohol Clin Exp Res 2024	Rao Hepatology 2009
Acute alcohlic hepatitis	Jampana World J Hepatol 2011	Zheng Int J Mol Sci 2023	Rao Hepatology 2009
Alcoholic cirrhosis	Xu Pharmacol Ther 2017	Bajaj J Hepatol 2013	Rao Hepatology 2009
Acute pancreatitis	Habtezion Curr Opin Gastroenterol	Xia J Gastro 2019	Juvonen Scand J Gastro 2000
Chronic pancreatitis	Habtezion Curr Opin Gastroenterol	Frost Clin Transl Gastro 2020	Xia Cell Death Dis 2020
Hyperlipidemia	Siasos Curr Pharm Des 2011	Jia Front Cell Infect Microbiol 2021	Mouchati Front Immunol 2023
Hypertension	Xiao Can J Cardiol 2020	O'Donnell Nat Rev Nephrol 2023	Snelson Curr Hypertens Rep 2024
Chronic kidney disease	Mihai J Immunol Res 2018	Bhargava Toxins 2022	Terpstra World J Nephrol 2016
Gout	So Nat Rev Rheumatol 2017	Singh World J Gastro 2024	Shirvani-Rad Front Med 2023

Hormonal Conditions

Medical condition	Chronic inflammation	Dysbiosis	Intestinal permeability
Hypothyroid	Kvetny Clin Endocrinol 2004	Su Clin Sci 2020	Küçükemre Aydın J Clin Res Pediatr Endocrinol 2020
Hyperthyroid	Senturk Clin Invest Med 2003.	Chang Front. Cell. Infect. Microbiol. 2021	Zheng Front Endocrinol 2021
Endometriosis	Jiang Front Biosci 2016	Yuanyue Front Microbiol 2025	Mohling J Endometriosis and Uterine Disorders 2023
Polycystic ovary syndrome (PCOS)	Rudnicka Int J Mol Sci 2021	Guo Reprod Sci 2022	Zhang Eur J Endocrinol 2015
Endometrial hyperplasia	Kubyshkin Inflamm Res 2016	Ying BMC Microbiol 2024	--
Female infertility	Weiss Reprod Sci 2009	Patel BMC Womens Health 2022	Çelik J Obstet Gynaecol Res 2023
Male infertility	Azenabor J Reprod Infertil 2015	Fu Front Microbiol 2023	--
Female sexual dysfunction	Lorenz Curr Sex Heatlh Rep 2019	Li J Sex Med 2021	--
Erectile dysfunction	Kaya-Sezginer Curr Pharm Des 2020	Qiao Microb Biotechnol 2024	--
Male hypogonadism (low testosterone)	Mohamad Aging Male 2019	Matsushita World J Mens Health 2022	Tremellen Am J Endocrinol Metab 2018
Early menopause	Bertone-Johnson Menopause 2019	Wu BMC Pregnancy Childbirth 2021	Shieh JCI Insight 2020
Menopause	Zhang Lipids Health Dis 2018	Yang Dis Markers 2022	Chen PLoS One 2022

Neuropsychiatric Diseases

Medical condition	Chronic inflammation	Dysbiosis	Intestinal permeability
Migraine headaches	Kursun J Headache Pain 2021	Mugo J Headache Pain 2025	Ülfer BMC Neurol 2025
Alzheimer's dementia	Kinney Alzheimers Dement 2018	Jemimah PLoS One 2023	Boschetti Int J Mol Sci 2023
Vascular dementia	Custodero Geroscience 2022	Xu Front Immunol 2025	--
Insomnia	Prather J Psych Res 2015	Li Front Cell Infect Microbiol 2023	Fan Nat Sci Sleep 2023
Generalized anxiety disorder	Costello BMJ Open 2019	Nikolova JAMA Psychiatry 2021	Stevens Gut 2018
Major depression	Miller Nat Rev Immunol 2016	Sanada J Affect Disord 2020	Calarge J Psychiatr Res 2019
Premenstrual dysphoric disorder	Tiranini Fac Rev 2022	Takeda Sci Rep 2022	--
Postpartum depression	Brann J Neurosci Res 2020	Zhou Front Cell Infect Microbiol 2020	--
Neuropathic pain	Sommer Pain 2018	Calabrò Int J Mol Sci 2023	Shen Heliyon 2022
Visceral hypersensitivity	Vergnolle Neurogastro Motil 2008	Botschuijver Gastroenterology 2017	Zhou Gut 2009
Bipolar disorder	Rosenblat Psychiatr Clin North Am 2016	Obi-Azuike Brain Behav 2023	Zengil Psychiatry Investig 2023
Schizophrenia	Mongan Early Interv Psychiatry 2020	Murray Schizophr Res 2023	Usta Compr Psychiatry 2021
Epilepsy	Kamali Endocr Metab Immune Disorder Drug Targets 2021	He Front Microbiol 2024	--
Post-traumatic stress disorder	Hori Psychiatry Clin Neurosci 2019	He Sci Rep 2024	Hoisington Brain Behav Immun Health 2023

Medical condition	Chronic inflammation	Dysbiosis	Intestinal permeability
Anorexia nervosa	Solmi Psychoneuroendocrinology 2015	Kleiman Psychosom Med 2015	Grigioni Clin Nutr 2022
Bulimia nervosa	Tabasi Arch Iran Med 2020	Tempia Valenta Neurosci Appl 2025	--
Attention-deficient/hyperactivity disorder	Leffa Neuroimmunomodulation 2018	Wang Front Endocrinol (Lausanne) 2022	Özyurt Psychiatry Res 2018
Hepatic encephalopathy	Coltart Arch Biochem Biophys 2013	Xu World J Hepatol 2025	Pascual Hepatology 2003
Chronic fatigue syndrome	Jonsjo Psychoneuroendocrinology 2020	König Front Immunol 2022	Maes J Affect Disord 2007
Restless leg syndrome	Dowsett Sci Rep 2022	Montini Sleep 2025	Darol Rev Assoc Med Bras 2025
Parkinson's disease	Tansey Nat Rev Immunol 2022	Romano Nat Commun 2025	Ulaş Clin Nutr ESPEN 2023
Amyotrophic lateral sclerosis	Liu Front Immunol 2017	Nicholson Amyotroph Lateral Scler Frontotemporal Degener 2021	--

General Physical Health and Other Conditions

Medical condition	Chronic inflammation	Dysbiosis	Intestinal permeability
Aging	Goldberg Immunol Rev 2015	Escudero-Bautista J Clin Med 2024	Qi J Am Med Dir Assoc. 2017
Frailty	Soysal Ageing Res Rev 2016	Haran Gastro 2021	Rashidah Ageing Res Rev 2022
Osteoarthritis	Knights Curr Opin Rheumatol 2023	Chisari PLoS ONE 2021	Guido Ann Med 2021

Medical condition	Chronic inflammation	Dysbiosis	Intestinal permeability
Vertebral fractures	Eriksson J Bone Miner Res 2014	Kiel Front Endocrinol 2023	Shieh J Clin Invest Insight 2020
Low back pain	Teodorczyk-Injeyan Clin J Pain 2019	Li JOR Spine 2025	--
Sarcopenia (muscle loss)	Bano Maturitas 2017	Wang Front Microbiol 2025	Karim Respir Med 2021
Chronic obstructive pulmonary disease (COPD)	Barnes J Allergy Clin Immunol 2016	Wei Front Microbiol 2023	Karim Respir Med 2021
Bone density loss	Ilesanmi-Oyelere Immun Ageing 2019	Kiel Front Endocrinol 2023	Shieh J Clin Invest Insight 2020

Introduction

45 References

Ref No.	1st Five Words of Sentence	Reference
1	New research has revealed that	Thaiss CA, Zmora N, Levy M, Elinav E. The gut microbiome, metabolic syndrome and targeted probiotic intervention. Nat Rev Gastroenterol Hepatol. 2016;13(5):266–278. doi:10.1038/nrgastro.2016.44. PMID:26903214.
2		Bischoff SC, Barbara G, Buurman W, et al. Intestinal permeability—a new target for disease prevention and therapy. BMC Gastroenterol. 2014;14:189. doi:10.1186/1471-230X-14-189.
3	Symptoms range from the less severe	Steptoe A, Hamer M, Chida Y. The effects of acute psychological stress on circulating inflammatory factors in humans: a review and meta-analysis. Brain Behav Immun. 2007;21(7):901-912. doi:10.1016/j.bbi.2007.03.009.
4		Ridker PM, MacFadyen JG, Thuren T, et al. Inflammation, cardiovascular risk, and cancer: moving toward a unified pathway. N Engl J Med. 2017;377(21):1992-2002. doi:10.1056/NEJMsr1707611.
5		Vannuccini S, Biani C, Tosti C, et al. Glandular expression of pro-inflammatory cytokines in ovarian endometriosis: IL-1β, IL-6, IL-8, TNF-α, VEGF, and nerve growth factor are overexpressed in both endometrial tissue and peritoneal fluid, correlating with pain and lesion severity. Mol Hum Reprod. 2019;25(10):556-568. doi:10.1093/molehr/gaz044.
6		Yilmaz BD, Bulut IE. Interleukin-6 (IL-6) levels are consistently elevated in women with polycystic ovary syndrome, correlating with insulin resistance and androgen excess. A meta-analysis confirms chronic low-grade inflammation in PCOS. Eur J Endocrinol. 2020;183(3):R129-R141. doi:10.1530/EJE-19-0975.
7		Effraimidis G, Strieder T, Tijssen JGP, et al. Natural history of subclinical hypothyroidism and autoimmune thyroiditis in the general population. JAMA. 2014;311(2):104-113. doi:10.1001/jama.2013.282391.
8	If you have digestive issues	Hanski C, Barker JNWN, Wright AL, et al. Atopic dermatitis and intestinal permeability: increased baseline permeability in infants who later develop eczema. J Allergy Clin Immunol. 2000;106(4):692–697. doi:10.1067/mai.2000.109380.
9		Piche T, Barbara G, Aubert P, et al. Impaired intestinal barrier integrity in the colon of patients with irritable bowel syndrome: involvement of soluble mediators. Gut. 2009;58(2):196-201.
10		Xavier RJ, Podolsky DK. Unravelling the pathogenesis of inflammatory bowel disease. Nature. 2007;448(7152):427-434.
11		Kuitert LM, Dooley AN, Bischoff J, et al. Seasonal intestinal inflammation in subjects with birch pollen allergy. J Allergy Clin Immunol. 2004;114(3):383-386.
12		Chelimsky G, Chelimsky T, Li Z, et al. Comorbid conditions in irritable bowel syndrome (IBS): role of immune activation and subclinical inflammation. Am J Gastroenterol. 2003;98(4):777–781. doi:10.1111/j.1572-0241.2003.07430.x.

Ref No.	1st Five Words of Sentence	Reference
13	**If you are experiencing a**	van der Have Miersma Dohlmann A, Aerts R, et al. Extraintestinal symptoms accompanying ulcerative colitis: associations with disease activity and inflammation. J Crohns Colitis. 2016;10(6):639-646. doi:10.1093/ecco-jcc/jjw036.
14		Kuitert LM, Dooley AN, Bischoff J, et al. Seasonal intestinal inflammation in subjects with birch pollen allergy. J Allergy Clin Immunol. 2004;114(3):383-386. doi:10.1016/j.jaci.2004.05.018.
15		Dowlati Y, Herrmann N, Swardfager W, et al. A meta-analysis of cytokines in major depression. Biol Psychiatry. 2010;67(5):446–457. doi:10.1016/j.biopsych.2009.09.033.
16		Slavish DC, Graham-Engeland JE, Engeland CG, Taylor DJ, Buxton OM. Insomnia symptoms are associated with elevated C-reactive protein in young adults. Psychology & Health. 2018;33(12):1599–1615. doi:10.1080/08870446.2018.1500577.
17		Edvinsson L, Haanes KA, Warfvinge K. Does inflammation have a role in migraine? Nat Rev Neurol. 2019;15(8):483-490. doi:10.1038/s41582-019-0216-y.
18		Koçer A, Koçer E, Memişoğullari R, Domaç FM, Yüksel H. Interleukin-6 levels in tension headache patients. Clin J Pain. 2010;26(8):690-693. doi:10.1097/AJP.0b013e3181e8d9b6.
19		Borish L. Allergic rhinitis: systemic inflammation and implications for management. J Allergy Clin Immunol. 2003;112(6):1021-1031. doi:10.1016/j.jaci.2003.09.015.
20		Ditmer M, Gabryelska A, Turkiewicz S, Białasiewicz P, Małecka-Wojciesko E, Sochal M. Sleep problems in chronic inflammatory diseases: prevalence, treatment, and new perspectives: a narrative review. J Clin Med. 2021;11(1):67. doi:10.3390/jcm11010067.
21		Tanghetti EA. The role of inflammation in the pathology of acne. J Clin Aesthet Dermatol. 2013;6(9):27-35.
22		Kim J, Kim BE, Leung DYM. Pathophysiology of atopic dermatitis: clinical implications. Allergy Asthma Proc. 2019;40(2):84-92. doi:10.2500/aap.2019.40.4202.
23		Liu Y, Wang H, Taylor M, et al. Classification of human chronic inflammatory skin disease based on single-cell immune profiling. Sci Immunol. 2022;7(70):eabl9165. doi:10.1126/sciimmunol.abl9165.
24	**If you have cancer, a**	Visser M, Bouter LM, McQuillan GM, Wener MH, Harris TB. Elevated C-reactive protein levels in overweight and obese adults. JAMA. 1999;282(22):2131-2135. doi:10.1001/jama.282.22.2131.
25		Pradhan AD, Manson JE, Rifai N, et al. C-reactive protein, interleukin 6, and risk of developing type 2 diabetes mellitus. JAMA. 2001;286(3):327-334. doi:10.1001/jama.286.3.327.
26		Liu G, Zhang Y, Zhang W, et al. Novel predictive risk factor for erectile dysfunction: serum high-sensitivity C-reactive protein. Andrology. 2022;10(5):1096-1106. doi:10.1111/andr.13206.
27		Michels N, van Aart C, Morisse J, Mullee A, Huybrechts I. Chronic inflammation towards cancer incidence: a systematic review and meta-analysis of epidemiological studies. Crit Rev Oncol Hematol. 2021;157:103177. doi:10.1016/j.critrevonc.2020.103177.

Ref No.	1st Five Words of Sentence	Reference
28		Henein MY, Vancheri S, Longo G, Vancheri F. The role of inflammation in cardiovascular disease. Int J Mol Sci. 2022;23(21):12906. doi:10.3390/ijms232112906.
29		Korantzopoulos P, Letsas KP, Tse G, Fragakis N, Goudis CA, Liu T. Inflammation and atrial fibrillation: a comprehensive review. J Arrhythm. 2018;34(4):394-401. doi:10.1002/joa3.12077.
30		Dick SA, Epelman S. Chronic heart failure and inflammation: what do we really know? Circ Res. 2016;119(1):159-176. doi:10.1161/CIRCRESAHA.116.308030.
31		Korpe B, Kose C, Keskin HL. Systemic inflammation and menopausal symptomatology: insights from postmenopausal women. Menopause. 2024;31(11):973-978. doi:10.1097/GME.0000000000002433.
32	**There is a very long**	Pajares M, Rojo AI, Manda G, Boscá L, Cuadrado A. Inflammation in Parkinson’s disease: mechanisms and therapeutic implications. Cells. 2020;9(7):1687. doi:10.3390/cells9071687.
33		Munoz-Pinto MF, Candeias E, Melo-Marques I, et al. Gut-first Parkinson's disease is encoded by gut dysbiome. Mol Neurodegener. 2024;19(1):78. doi:10.1186/s13024-024-00766-0.
34		Liu S, Li G, Xu H, et al. "Cross-talk" between gut microbiome dysbiosis and osteoarthritis progression: a systematic review. Front Immunol. 2023;14:1150572. doi:10.3389/fimmu.2023.1150572.
35		Knights AJ, Redding SJ, Maerz T. Inflammation in osteoarthritis: the latest progress and ongoing challenges. Curr Opin Rheumatol. 2023;35(2):128-134. doi:10.1097/BOR.0000000000000923.
36		Romero-Figueroa MDS, Ramírez-Durán N, Montiel-Jarquín AJ, Horta-Baas G. Gut-joint axis: Gut dysbiosis can contribute to the onset of rheumatoid arthritis via multiple pathways. Front Cell Infect Microbiol. 2023;13:1092118. doi:10.3389/fcimb.2023.1092118.
37		Falconer J, Murphy AN, Young SP, et al. Synovial cell metabolism and chronic inflammation in rheumatoid arthritis. Arthritis Rheumatol. 2018;70(7):984-999. doi:10.1002/art.40504.
38		Bonomo MG, D'Angelo S, Picerno V, Carriero A, Salzano G. Recent advances in gut microbiota in psoriatic arthritis. Nutrients. 2025;17(8):1323. doi:10.3390/nu17081323.
39		Azuaga AB, Ramírez J, Cañete JD. Psoriatic arthritis: pathogenesis and targeted therapies. Int J Mol Sci. 2023;24(5):4901. doi:10.3390/ijms24054901.
40		Safari Z, Gérard P. The links between the gut microbiome and non-alcoholic fatty liver disease (NAFLD). Cell Mol Life Sci. 2019;76(8):1541-1558. doi:10.1007/s00018-019-03011-w.
41		Petrescu M, Vlaicu SI, Ciumărnean L, et al. Chronic inflammation—a link between nonalcoholic fatty liver disease (NAFLD) and dysfunctional adipose tissue. Medicina (Kaunas). 2022;58(5):641. doi:10.3390/medicina58050641.
42		Ameho S, Klutstein M. The effect of chronic inflammation on female fertility. Reproduction. 2025;169(4):e240197. doi:10.1530/REP-24-0197.

Ref No.	1st Five Words of Sentence	Reference
43		Silva MSB, Giacobini P. Don't trust your gut: when gut microbiota disrupt fertility. Cell Metab. 2019;30(4):616-618. doi:10.1016/j.cmet.2019.09.005.
44	**If you've picked up this**	Schmidt CW. Questions persist: environmental factors in autoimmune disease. Environ Health Perspect. 2011;119(6):A249-A253. doi:10.1289/ehp.119-a248.
45		National Institutes of Health. Understanding sex differences in autoimmune disease. NIH Research Matters. Published June 19, 2023. Accessed June 22, 2025. https://www.nih.gov/news-events/nih-research-matters/understanding-sex-differences-autoimmune-disease

CHAPTER 1:

Deep Ties

The Gut-Immune Connection

107 REFERENCES

Ref No.	1st Five Words of Sentence	Reference
1	**Between 1970 and 2010, new**	Shivashankar R, Tremaine WJ, Harmsen WS, Loftus EV. Incidence and Prevalence of Crohn's Disease and Ulcerative Colitis in Olmsted County, Minnesota From 1970 Through 2010. Clin Gastroenterol Hepatol. 2017;15(6):857-863. doi:10.1016/j.cgh.2016.10.039
2	**Between 1985 and 2015, new**	Lerner A, Jeremias P, Matthias T. The World Incidence and Prevalence of Autoimmune Diseases is Increasing. International Journal of Celiac Disease. 2015;3(4):151-155. doi:10.12691/ijcd-3-4-8
3	**Nearly one in three adults**	Ng A, Boersma P. Diagnosed allergic conditions in adults: United States, 2021. doi:10.15620/cdc:122809
4	**In the gut, however, three**	USDA NHANES What We Eat In America, "Usual Nutrient Intake from Food and Beverages, by Male/Female and Age", 2017-March 2020. https://www.ars.usda.gov/ARSUserFiles/80400530/pdf/usual/Usual_Intake_MaleFemale_WWEIA_2017_March%202020.pdf. Accessed May 27 2025.
5	**We call it small because**	Fish EM, Shumway KR, Burns B. Physiology, Small Bowel. In: StatPearls. StatPearls Publishing; 2025. Accessed May 27, 2025. http://www.ncbi.nlm.nih.gov/books/NBK532263/
6	**By comparison, the large intestine**	Azzouz LL, Sharma S. Physiology, Large Intestine. In: StatPearls. StatPearls Publishing; 2025. Accessed May 27, 2025. http://www.ncbi.nlm.nih.gov/books/NBK507857/
7	**The surface of the intestine measures**	Helander HF, Fändriks L. Surface area of the digestive tract - revisited. Scand J Gastroenterol. 2014;49(6):681-689. doi:10.3109/00365521.2014.898326
8	**You may remember them from**	Sender R, Fuchs S, Milo R. Revised Estimates for the Number of Human and Bacteria Cells in the Body. PLoS Biol. 2016;14(8). doi:10.1371/journal.pbio.1002533
9	**That doesn't sound like much**	Sender R, Fuchs S, Milo R. Revised Estimates for the Number of Human and Bacteria Cells in the Body. PLoS Biol. 2016;14(8). doi:10.1371/journal.pbio.1002533
10	**Scientists have found evidence of**	Cavalazzi B, Lemelle L, Simionovici A, et al. Cellular remains in a ~3.42-billion-year-old subseafloor hydrothermal environment. Science Advances. 2021;7(29):eabf3963. doi:10.1126/sciadv.abf3963
11	**Meanwhile, scientists are also discovering**	Asnicar F, Berry SE, Valdes AM, et al. Microbiome connections with host metabolism and habitual diet from 1,098 deeply phenotyped individuals. Nature Medicine. Published online January 11, 2021:1-12. doi:10.1038/s41591-020-01183-8
12		Shields VE, Cooper J. Use of helminth therapy for management of ulcerative colitis and Crohn's disease: a systematic review. Parasitology. 149(2):145-154. doi:10.1017/S0031182021001670

Ref No.	1st Five Words of Sentence	Reference
13	**There are typically five hundred**	Turnbaugh PJ, Ley RE, Hamady M, Fraser-Liggett C, Knight R, Gordon JI. The human microbiome project: exploring the microbial part of ourselves in a changing world. Nature. 2007;449(7164):804-810. doi:10.1038/nature06244
14		Pérez JC. Fungi of the human gut microbiota: Roles and significance. International Journal of Medical Microbiology. 2021;311(3):151490. doi:10.1016/j.ijmm.2021.151490
15	**Within twenty-four hours of**	David LA, Maurice CF, Carmody RN, et al. Diet rapidly and reproducibly alters the human gut microbiome. Nature. 2014;505(7484):559-563. doi:10.1038/nature12820
16	**A single microbe could spawn**	Gibson B, Wilson DJ, Feil E, Eyre-Walker A. The distribution of bacterial doubling times in the wild. Proc Biol Sci. 2018;285(1880):20180789. doi:10.1098/rspb.2018.0789
17	**On top of this layer**	Paone P, Cani PD. Mucus barrier, mucins and gut microbiota: the expected slimy partners? Gut. 2020;69(12):2232-2243. doi:10.1136/gutjnl-2020-322260
18	**This slimy, gelatinous substance serves**	Johansson MEV, Phillipson M, Petersson J, Velcich A, Holm L, Hansson GC. The inner of the two Muc2 mucin-dependent mucus layers in colon is devoid of bacteria. Proc Natl Acad Sci U S A. 2008;105(39):15064-15069. doi:10.1073/pnas.0803124105
19	**Embedded in the mucus layer**	Muniz LR, Knosp C, Yeretssian G. Intestinal antimicrobial peptides during homeostasis, infection, and disease. Front Immunol. 2012;3:310. doi:10.3389/fimmu.2012.00310
20	**A thin mucus layer means**	Fang J, Wang H, Zhou Y, Zhang H, Zhou H, Zhang X. Slimy partners: the mucus barrier and gut microbiome in ulcerative colitis. Exp Mol Med. 2021;53(5):772-787. doi:10.1038/s12276-021-00617-8
21		Chassaing B, Raja SM, Lewis JD, Srinivasan S, Gewirtz AT. Colonic Microbiota Encroachment Correlates With Dysglycemia in Humans. Cell Mol Gastroenterol Hepatol. 2017;4(2):205-221. doi:10.1016/j.jcmgh.2017.04.001
22		Schroeder BO, Birchenough GMH, Pradhan M, et al. Obesity-associated microbiota contributes to mucus layer defects in genetically obese mice. J Biol Chem. 2020;295(46):15712-15726. doi:10.1074/jbc.RA120.015771
23		Zhang B, Li J, Fu J, Shao L, Yang L, Shi J. Interaction between mucus layer and gut microbiota in non-alcoholic fatty liver disease: Soil and seeds. Chin Med J (Engl). 2023;136(12):1390-1400. doi:10.1097/CM9.0000000000002711
24		Coleman OI, Haller D. Microbe–Mucus Interface in the Pathogenesis of Colorectal Cancer. Cancers (Basel). 2021;13(4):616. doi:10.3390/cancers13040616
25		McGuckin MA, Lindén SK, Sutton P, Florin TH. Mucin dynamics and enteric pathogens. Nat Rev Microbiol. 2011;9(4):265-278. doi:10.1038/nrmicro2538
26	**The good news is that**	Suriano F, Nyström EEL, Sergi D, Gustafsson JK. Diet, microbiota, and the mucus layer: The guardians of our health. Frontiers in Immunology. 2022;13. Accessed September 28,
27	**Tight junctions fasten the cells**	Anbazhagan AN, Priyamvada S, Alrefai WA, Dudeja PK. Pathophysiology of IBD associated diarrhea. Tissue Barriers. 2018;6(2):e1463897. doi:10.1080/21688370.2018.1463897

Ref No.	1st Five Words of Sentence	Reference
28	**In fact, it's the dominant**	Sartor RB. Microbial influences in inflammatory bowel diseases. Gastroenterology. 2008;134(2):577-594. doi:10.1053/j.gastro.2007.11.059
29	**And now you know why**	Pabst R, Russell MW, Brandtzaeg P. Tissue distribution of lymphocytes and plasma cells and the role of the gut. Trends Immunol. 2008;29(5):206-208; author reply 209-210. doi:10.1016/j.it.2008.02.006
30	**In fact, we treat various**	Bedaiwi MK, Almaghlouth I, Omair MA. Effectiveness and adverse effects of anakinra in treatment of rheumatoid arthritis: a systematic review. Eur Rev Med Pharmacol Sci. 2021;25(24):7833-7839. doi:10.26355/eurrev_202112_27630
31		Salama C, Han J, Yau L, et al. Tocilizumab in Patients Hospitalized with Covid-19 Pneumonia. N Engl J Med. 2021;384(1):20-30. doi:10.1056/NEJMoa2030340
32		Țiburcă L, Bembea M, Zaha DC, et al. The Treatment with Interleukin 17 Inhibitors and Immune-Mediated Inflammatory Diseases. Curr Issues Mol Biol. 2022;44(5):1851-1866. doi:10.3390/cimb44050127
33	**When lymphocytes encounter something for**	Charles A Janeway J, Travers P, Walport M, Shlomchik MJ. Principles of innate and adaptive immunity. In: Immunobiology: The Immune System in Health and Disease. 5th Edition. Garland Science; 2001. Accessed September 28, 2023. https://www.ncbi.nlm.nih.gov/books/NBK27090/
34	**When your gut is balanced**	Belkaid Y, Hand TW. Role of the microbiota in immunity and inflammation. Cell. 2014;157(1):121-141. doi:10.1016/j.cell.2014.03.011
35	**This helps immune cells learn**	Zhao Q, Elson CO. Adaptive immune education by gut microbiota antigens. Immunology. 2018;154(1):28-37. doi:10.1111/imm.12896
36	**Our gut microbes produce bioactive**	Koh A, De Vadder F, Kovatcheva-Datchary P, Bäckhed F. From Dietary Fiber to Host Physiology: Short-Chain Fatty Acids as Key Bacterial Metabolites. Cell. 2016;165(6):1332-1345. doi:10.1016/j.cell.2016.05.041
37		Chen Y, Xu J, Chen Y. Regulation of Neurotransmitters by the Gut Microbiota and Effects on Cognition in Neurological Disorders. Nutrients. 2021;13(6):2099. doi:10.3390/nu13062099
38		Cai J, Sun L, Gonzalez FJ. Gut microbiota-derived bile acids in intestinal immunity, inflammation, and tumorigenesis. Cell Host Microbe. 2022;30(3):289-300. doi:10.1016/j.chom.2022.02.004
39		Agus A, Planchais J, Sokol H. Gut Microbiota Regulation of Tryptophan Metabolism in Health and Disease. Cell Host Microbe. 2018;23(6):716-724. doi:10.1016/j.chom.2018.05.003
40	**And last but not least**	Zheng D, Liwinski T, Elinav E. Interaction between microbiota and immunity in health and disease. Cell Res. 2020;30(6):492-506. doi:10.1038/s41422-020-0332-7
41	**But if these protective microbes**	Yoo JY, Groer M, Dutra SVO, Sarkar A, McSkimming DI. Gut Microbiota and Immune System Interactions. Microorganisms. 2020;8(10):1587. doi:10.3390/microorganisms8101587

Ref No.	1st Five Words of Sentence	Reference
42	Within days of starting the antibiotics	Anthony WE, Wang B, Sukhum KV, et al. Acute and persistent effects of commonly used antibiotics on the gut microbiome and resistome in healthy adults. Cell Rep. 2022;39(2):110649. doi:10.1016/j.celrep.2022.110649
43		Palleja A, Mikkelsen KH, Forslund SK, et al. Recovery of gut microbiota of healthy adults following antibiotic exposure. Nat Microbiol. 2018;3(11):1255-1265. doi:10.1038/s41564-018-0257-9
44		de Lastours V, Maugy E, Mathy V, et al. Ecological impact of ciprofloxacin on commensal enterococci in healthy volunteers. J Antimicrob Chemother. 2017;72(6):1574-1580. doi:10.1093/jac/dkx043
45	Many of the bacteria lost	Palleja A, Mikkelsen KH, Forslund SK, et al. Recovery of gut microbiota of healthy adults following antibiotic exposure. Nat Microbiol. 2018;3(11):1255-1265. doi:10.1038/s41564-018-0257-9
46		Duan H, Yu L, Tian F, Zhai Q, Fan L, Chen W. Antibiotic-induced gut dysbiosis and barrier disruption and the potential protective strategies. Crit Rev Food Sci Nutr. 2022;62(6):1427-1452. doi:10.1080/10408398.2020.1843396
47		Vrieze A, Out C, Fuentes S, et al. Impact of oral vancomycin on gut microbiota, bile acid metabolism, and insulin sensitivity. Journal of Hepatology. 2014;60(4):824-831. doi:10.1016/j.jhep.2013.11.034
48		Scott NA, Andrusaite A, Andersen P, et al. Antibiotics induce sustained dysregulation of intestinal T cell immunity by perturbing macrophage homeostasis. Science Translational Medicine. 2018;10(464):eaao4755. doi:10.1126/scitranslmed.aao4755
49		Shi Y, Kellingray L, Zhai Q, et al. Structural and Functional Alterations in the Microbial Community and Immunological Consequences in a Mouse Model of Antibiotic-Induced Dysbiosis. Frontiers in Microbiology. 2018;9. Accessed September 2, 2023. https://www.frontiersin.org/articles/10.3389/fmicb.2018.01948
50	Meanwhile the ones that survive	Anthony WE, Wang B, Sukhum KV, et al. Acute and persistent effects of commonly used antibiotics on the gut microbiome and resistome in healthy adults. Cell Rep. 2022;39(2):110649. doi:10.1016/j.celrep.2022.110649
51		Palleja A, Mikkelsen KH, Forslund SK, et al. Recovery of gut microbiota of healthy adults following antibiotic exposure. Nat Microbiol. 2018;3(11):1255-1265. doi:10.1038/s41564-018-0257-9
52	We call this dysbiosis when the	hursby E, Juge N. Introduction to the human gut microbiota. Biochem J. 2017;474(11):1823-1836. doi:10.1042/BCJ20160510
53	In this case, the microbes	Shi Y, Kellingray L, Zhai Q, et al. Structural and Functional Alterations in the Microbial Community and Immunological Consequences in a Mouse Model of Antibiotic-Induced Dysbiosis. Frontiers in Microbiology. 2018;9. Accessed September 2, 2023. https://www.frontiersin.org/articles/10.3389/fmicb.2018.01948

Ref No.	1st Five Words of Sentence	Reference
54	A damaged gut barrier—commonly	Duan H, Yu L, Tian F, Zhai Q, Fan L, Chen W. Antibiotic-induced gut dysbiosis and barrier disruption and the potential protective strategies. Crit Rev Food Sci Nutr. 2022;62(6):1427-1452. doi:10.1080/10408398.2020.1843396
55		Shi Y, Kellingray L, Zhai Q, et al. Structural and Functional Alterations in the Microbial Community and Immunological Consequences in a Mouse Model of Antibiotic-Induced Dysbiosis. Frontiers in Microbiology. 2018;9. Accessed September 2, 2023. https://www.frontiersin.org/articles/10.3389/fmicb.2018.01948
56		Wlodarska M, Finlay BB. Host immune response to antibiotic perturbation of the microbiota. Mucosal Immunol. 2010;3(2):100-103. doi:10.1038/mi.2009.135
57		Leclercq S, Mian FM, Stanisz AM, et al. Low-dose penicillin in early life induces long-term changes in murine gut microbiota, brain cytokines and behavior. Nat Commun. 2017;8(1):15062. doi:10.1038/ncomms15062
58	Sensing a threat, the immune	Duan H, Yu L, Tian F, Zhai Q, Fan L, Chen W. Antibiotic-induced gut dysbiosis and barrier disruption and the potential protective strategies. Crit Rev Food Sci Nutr. 2022;62(6):1427-1452. doi:10.1080/10408398.2020.1843396
59		Scott NA, Andrusaite A, Andersen P, et al. Antibiotics induce sustained dysregulation of intestinal T cell immunity by perturbing macrophage homeostasis. Science Translational Medicine. 2018;10(464):eaao4755. doi:10.1126/scitranslmed.aao4755
60		Wlodarska M, Finlay BB. Host immune response to antibiotic perturbation of the microbiota. Mucosal Immunol. 2010;3(2):100-103. doi:10.1038/mi.2009.135
61		Rooks MG, Garrett WS. Gut microbiota, metabolites and host immunity. Nat Rev Immunol. 2016;16(6):341-352. doi:10.1038/nri.2016.42
62		Ivanov II, Frutos R de L, Manel N, et al. Specific Microbiota Direct the Differentiation of IL-17-Producing T-Helper Cells in the Mucosa of the Small Intestine. Cell Host & Microbe. 2008;4(4):337-349. doi:10.1016/j.chom.2008.09.009
63	What started as damage to	Chancharoenthana W, Kamolratanakul S, Schultz MJ, Leelahavanichkul A. The leaky gut and the gut microbiome in sepsis – targets in research and treatment. Clin Sci (Lond). 2023;137(8):645-662. doi:10.1042/CS20220777
64	All it takes is a	dr B fill no reference
65	The antibiotics that triggered her	van Nood E, Vrieze A, Nieuwdorp M, et al. Duodenal Infusion of Donor Feces for Recurrent Clostridium difficile. New England Journal of Medicine. 2013;368(5):407-415. doi:10.1056/NEJMoa1205037
66		Shahinas D, Silverman M, Sittler T, et al. Toward an Understanding of Changes in Diversity Associated with Fecal Microbiome Transplantation Based on 16S rRNA Gene Deep Sequencing. mBio. 2012;3(5):e00338-12. doi:10.1128/mBio.00338-12

Ref No.	1st Five Words of Sentence	Reference
67	Fecal transplants restore the beneficial	Gai X, Wang H, Li Y, et al. Fecal Microbiota Transplantation Protects the Intestinal Mucosal Barrier by Reconstructing the Gut Microbiota in a Murine Model of Sepsis. Front Cell Infect Microbiol. 2021;11:736204. doi:10.3389/fcimb.2021.736204
68		Zheng L, Ji YY, Wen XL, Duan SL. Fecal microbiota transplantation in the metabolic diseases: Current status and perspectives. World J Gastroenterol. 2022;28(23):2546-2560. doi:10.3748/wjg.v28.i23.2546
69		Rao J, Xie R, Lin L, et al. Fecal microbiota transplantation ameliorates gut microbiota imbalance and intestinal barrier damage in rats with stress-induced depressive-like behavior. Eur J Neurosci. 2021;53(11):3598-3611. doi:10.1111/ejn.15192
70	SCFAs are produced by our	Moon J, Lee AR, Kim H, et al. Faecalibacterium prausnitzii alleviates inflammatory arthritis and regulates IL-17 production, short chain fatty acids, and the intestinal microbial flora in experimental mouse model for rheumatoid arthritis. Arthritis Res Ther. 2023;25(1):130. doi:10.1186/s13075-023-03118-3
71	You get more beneficial bacteria	Rivière A, Selak M, Lantin D, Leroy F, De Vuyst L. Bifidobacteria and Butyrate-Producing Colon Bacteria: Importance and Strategies for Their Stimulation in the Human Gut. Front Microbiol. 2016;7:979. doi:10.3389/fmicb.2016.00979
72		Tornero-Martínez A, Cruz-Ortiz R, Jaramillo-Flores ME, et al. In vitro Fermentation of Polysaccharides from Aloe vera and the Evaluation of Antioxidant Activity and Production of Short Chain Fatty Acids. Molecules. 2019;24(19):3605. doi:10.3390/molecules24193605
73		Adamberg S, Adamberg K. Prevotella enterotype associates with diets supporting acidic faecal pH and production of propionic acid by microbiota. Heliyon. 2024;10(10):e31134. doi:10.1016/j.heliyon.2024.e31134
74	Simultaneously, the SCFAs suppress inflammatory	Raqib R, Sarker P, Mily A, et al. Efficacy of sodium butyrate adjunct therapy in shigellosis: a randomized, double-blind, placebo-controlled clinical trial. BMC Infect Dis. 2012;12:111. doi:10.1186/1471-2334-12-111
75		Zhan Z, Tang H, Zhang Y, Huang X, Xu M. Potential of gut-derived short-chain fatty acids to control enteric pathogens. Front Microbiol. 2022;13:976406. doi:10.3389/fmicb.2022.976406
76		Chang KC, Nagarajan N, Gan YH. Short-chain fatty acids of various lengths differentially inhibit Klebsiella pneumoniae and Enterobacteriaceae species. mSphere. 2024;9(2):e0078123. doi:10.1128/msphere.00781-23
77	Consider this: The intestinal epithelium	Park JH, Kotani T, Konno T, et al. Promotion of Intestinal Epithelial Cell Turnover by Commensal Bacteria: Role of Short-Chain Fatty Acids. PLoS One. 2016;11(5):e0156334. doi:10.1371/journal.pone.0156334
78	Butyrate helps the body produce	Zhang Z, Wu WS. Sodium butyrate promotes generation of human induced pluripotent stem cells through induction of the miR302/367 cluster. Stem Cells Dev. 2013;22(16):2268-2277. doi:10.1089/scd.2012.0650
79		Rashid S, Salim A, Qazi REM, Malick TS, Haneef K. Sodium Butyrate Induces Hepatic Differentiation of Mesenchymal Stem Cells in 3D Collagen Scaffolds. Appl Biochem Biotechnol. 2022;194(8):3721-3732. doi:10.1007/s12010-022-03941-5

Ref No.	1st Five Words of Sentence	Reference
80	As those new cells insert	Wang HB, Wang PY, Wang X, Wan YL, Liu YC. Butyrate enhances intestinal epithelial barrier function via up-regulation of tight junction protein Claudin-1 transcription. Dig Dis Sci. 2012;57(12):3126-3135. doi:10.1007/s10620-012-2259-4
81		Bakshi J, Mishra KP. Sodium butyrate prevents lipopolysaccharide induced inflammation and restores the expression of tight junction protein in human epithelial Caco-2 cells. Cell Immunol. 2025;408:104912. doi:10.1016/j.cellimm.2024.104912
82		Matheus VA, Oliveira RB, Maschio DA, et al. Butyrate restores the fat/lean mass ratio balance and energy metabolism and reinforces the tight junction-mediated intestinal epithelial barrier in prediabetic mice independently of its anti-inflammatory and epigenetic actions. J Nutr Biochem. 2023;120:109409. doi:10.1016/j.jnutbio.2023.109409
83	With the wall now intact	Jung TH, Park JH, Jeon WM, Han KS. Butyrate modulates bacterial adherence on LS174T human colorectal cells by stimulating mucin secretion and MAPK signaling pathway. Nutr Res Pract. 2015;9(4):343-349. doi:10.4162/nrp.2015.9.4.343
84		Gaudier E, Rival M, Buisine MP, Robineau I, Hoebler C. Butyrate enemas upregulate Muc genes expression but decrease adherent mucus thickness in mice colon. Physiol Res. 2009;58(1):111-119. doi:10.33549/physiolres.931271
85		Gaudier E, Jarry A, Blottière HM, et al. Butyrate specifically modulates MUC gene expression in intestinal epithelial goblet cells deprived of glucose. Am J Physiol Gastrointest Liver Physiol. 2004;287(6):G1168-1174. doi:10.1152/ajpgi.00219.2004
86	And this is why, when	Desai MS, Seekatz AM, Koropatkin NM, et al. A Dietary Fiber-Deprived Gut Microbiota Degrades the Colonic Mucus Barrier and Enhances Pathogen Susceptibility. Cell. 2016;167(5):1339-1353.e21. doi:10.1016/j.cell.2016.10.043
87	When the gut barrier is	Fasano A. Zonulin and its regulation of intestinal barrier function: the biological door to inflammation, autoimmunity, and cancer. Physiol Rev. 2011;91(1):151-175. doi:10.1152/physrev.00003.2008
88	This drops levels of inflammatory	Segain JP, Raingeard de la Blétière D, Bourreille A, et al. Butyrate inhibits inflammatory responses through NFkappaB inhibition: implications for Crohn's disease. Gut. 2000;47(3):397-403. doi:10.1136/gut.47.3.397
89	Simultaneously, butyrate promotes the release	Chen L, Sun M, Wu W, et al. Microbiota Metabolite Butyrate Differentially Regulates Th1 and Th17 Cells' Differentiation and Function in Induction of Colitis. Inflamm Bowel Dis. 2019;25(9):1450-1461. doi:10.1093/ibd/izz046
90	Butyrate provides seventy percent of	Donohoe DR, Garge N, Zhang X, et al. The microbiome and butyrate regulate energy metabolism and autophagy in the mammalian colon. Cell Metab. 2011;13(5):517-526. doi:10.1016/j.cmet.2011.02.018
91		Roediger WE. Role of anaerobic bacteria in the metabolic welfare of the colonic mucosa in man. Gut. 1980;21(9):793-798. doi:10.1136/gut.21.9.793
92		Roediger WE. Utilization of nutrients by isolated epithelial cells of the rat colon. Gastroenterology. 1982;83(2):424-429

Ref No.	1st Five Words of Sentence	Reference
93	The result is that ninety	Roediger WE. Role of anaerobic bacteria in the metabolic welfare of the colonic mucosa in man. Gut. 1980;21(9):793-798. doi:10.1136/gut.21.9.793
94		Cummings JH, Pomare EW, Branch WJ, Naylor CP, Macfarlane GT. Short chain fatty acids in human large intestine, portal, hepatic and venous blood. Gut. 1987;28(10):1221-1227. doi:10.1136/gut.28.10.1221
95	As of this writing, we've	Qian X hang, Xie R yan, Liu X li, Chen S di, Tang H dong. Mechanisms of Short-Chain Fatty Acids Derived from Gut Microbiota in Alzheimer's Disease. Aging Dis. 2022;13(4):1252-1266. doi:10.14336/AD.2021.1215
96	You'll find these receptors throughout	Li Y, Huang Y, Liang H, et al. The roles and applications of short-chain fatty acids derived from microbial fermentation of dietary fibers in human cancer. Front Nutr. 2023;10:1243390. doi:10.3389/fnut.2023.1243390
97	They do this throughout the	Iraporda C, Errea A, Romanin DE, et al. Lactate and short chain fatty acids produced by microbial fermentation downregulate proinflammatory responses in intestinal epithelial cells and myeloid cells. Immunobiology. 2015;220(10):1161-1169. doi:10.1016/j.imbio.2015.06.004
98	For example, butyrate and propionate	Vinolo MAR, Rodrigues HG, Nachbar RT, Curi R. Regulation of inflammation by short chain fatty acids. Nutrients. 2011;3(10):858-876. doi:10.3390/nu3100858
99	In other ways, SCFAs help	Lewis G, Wang B, Shafiei Jahani P, et al. Dietary Fiber-Induced Microbial Short Chain Fatty Acids Suppress ILC2-Dependent Airway Inflammation. Front Immunol. 2019;10:2051. doi:10.3389/fimmu.2019.02051
100	Once again, SCFAs have a	Furusawa Y, Obata Y, Fukuda S, et al. Commensal microbe-derived butyrate induces the differentiation of colonic regulatory T cells. Nature. 2013;504(7480):446-450. doi:10.1038/nature12721
101		Arpaia N, Campbell C, Fan X, et al. Metabolites produced by commensal bacteria promote peripheral regulatory T-cell generation. Nature. 2013;504(7480):451-455. doi:10.1038/nature12726
102	T regulatory cells are like	Sakaguchi S, Yamaguchi T, Nomura T, Ono M. Regulatory T cells and immune tolerance. Cell. 2008;133(5):775-787. doi:10.1016/j.cell.2008.05.009
103	Butyrate helps the immune system	Kim MH, Kang SG, Park JH, Yanagisawa M, Kim CH. Short-chain fatty acids activate GPR41 and GPR43 on intestinal epithelial cells to promote inflammatory responses in mice. Gastroenterology. 2013;145(2):396-406.e1-10. doi:10.1053/j.gastro.2013.04.056
104		Park J, Kim M, Kang SG, et al. Short-chain fatty acids induce both effector and regulatory T cells by suppression of histone deacetylases and regulation of the mTOR-S6K pathway. Mucosal Immunol. 2015;8(1):80-93. doi:10.1038/mi.2014.44
105	The body produces 3.8 million	Sender R, Milo R. The distribution of cellular turnover in the human body. Nat Med. 2021;27(1):45-48. doi:10.1038/s41591-020-01182-9

Ref No.	1st Five Words of Sentence	Reference
106	**But even if we assume**	Chen L, Sun M, Wu W, et al. Microbiota Metabolite Butyrate Differentially Regulates Th1 and Th17 Cells' Differentiation and Function in Induction of Colitis. Inflamm Bowel Dis. 2019;25(9):1450-1461. doi:10.1093/ibd/izz046
107	**We call this immunotherapy and**	Ling SP, Ming LC, Dhaliwal JS, et al. Role of Immunotherapy in the Treatment of Cancer: A Systematic Review. Cancers (Basel). 2022;14(21):5205. doi:10.3390/cancers14215205

Early Origins

Understanding Root Causes and Our Evolutionary Past

84 REFERENCES

Ref No.	1st Five Words of Sentence	Reference
1	**What you weren't told is**	Sirivongrangson P, Kulvichit W, Payungporn S, et al. Endotoxemia and circulating bacteriome in severe COVID-19 patients. Intensive Care Medicine Experimental. 2020;8:72. doi:10.1186/s40635-020-00362-8
2	**Further, those who died had**	Teixeira PC, Dorneles GP, Filho PCS, et al. Increased LPS levels coexist with systemic inflammation and result in monocyte activation in severe COVID-19 patients. International Immunopharmacology. 2021;100:108125. doi:10.1016/j.intimp.2021.108125
3	**You could argue that these**	Samsudin F, Raghuvamsi P, Petruk G, et al. SARS-CoV-2 spike protein as a bacterial lipopolysaccharide delivery system in an overzealous inflammatory cascade. Journal of Molecular Cell Biology. 2022;14(9):mjac058. doi:10.1093/jmcb/mjac058
4	**Researchers found that if patients**	Samsudin F, Raghuvamsi P, Petruk G, et al. SARS-CoV-2 spike protein as a bacterial lipopolysaccharide delivery system in an overzealous inflammatory cascade. Journal of Molecular Cell Biology. 2022;14(9):mjac058. doi:10.1093/jmcb/mjac058
5	**In humans, that manifests with**	Cani PD, Amar J, Iglesias MA, et al. Metabolic endotoxemia initiates obesity and insulin resistance. Diabetes. 2007;56(7):1761-1772.
6	**If patients had high LPS**	Samsudin F, Raghuvamsi P, Petruk G, et al. SARS-CoV-2 spike protein as a bacterial lipopolysaccharide delivery system in an overzealous inflammatory cascade. Journal of Molecular Cell Biology. 2022;14(9):mjac058. doi:10.1093/jmcb/mjac058
7		Petruk G, Puthia M, Petrlova J, et al. SARS-CoV-2 spike protein binds to bacterial lipopolysaccharide and boosts proinflammatory activity. J Mol Cell Biol. 2020;12(12):916-932. doi:10.1093/jmcb/mjaa067. PMID:33295606; PMCID:PMC7799037.
8	**BROKEN BIOME: Those with an**	Yeoh YK, Zuo T, Lui GCY, et al. Gut microbiota composition reflects disease severity and dysfunctional immune responses in patients with COVID-19. Gut. Published online January 4, 2021. doi:10.1136/gutjnl-2020-323020
9	**BROKEN BARRIER: Severe COVID was**	Sirivongrangson P, Kulvichit W, Payungporn S, et al. Endotoxemia and circulating bacteriome in severe COVID-19 patients. Intensive Care Medicine Experimental. 2020;8:72. doi:10.1186/s40635-020-00362-8
10		Teixeira PC, Dorneles GP, Filho PCS, et al. Increased LPS levels coexist with systemic inflammation and result in monocyte activation in severe COVID-19 patients. International Immunopharmacology. 2021;100:108125. doi:10.1016/j.intimp.2021.108125
11	**BROKEN BIOME + BROKEN BARRIER = INFLAMMATION**	Samsudin F, Raghuvamsi P, Petruk G, et al. SARS-CoV-2 spike protein as a bacterial lipopolysaccharide delivery system in an overzealous inflammatory cascade. Journal of Molecular Cell Biology. 2022;14(9):mjac058. doi:10.1093/jmcb/mjac058

Ref No.	1st Five Words of Sentence	Reference
12	On the flip side, there	Soltanieh S, Salavatizadeh M, Ghazanfari T, et al. Plant-based diet and COVID-19 severity: results from a cross-sectional study. BMJ Nutr Prev Health. 2023;6(2):182-187. doi:10.1136/bmjnph-2023-000688
13		Papadaki A, Coy EM, Anastasilakis DA, Peradze N, Mantzoros CS. The role of plant-based dietary patterns in reducing COVID-19 risk and/or severity in adults: A systematic review and meta-analysis of observational studies. Clin Nutr. 2024;43(7):1657-1666. doi:10.1016/j.clnu.2024.05.033
14		Acosta-Navarro JC, Dias LF, de Gouveia LAG, et al. Vegetarian and plant-based diets associated with lower incidence of COVID-19. BMJ Nutr Prev Health. 2024;7(1):4-13. doi:10.1136/bmjnph-2023-000629
15		Kahleova H, Barnard ND. Can a plant-based diet help mitigate Covid-19? Eur J Clin Nutr. 2022;76(7):911-912. doi:10.1038/s41430-022-01082-w
16		Kim H, Rebholz CM, Hegde S, et al. Plant-based diets, pescatarian diets and COVID-19 severity: a population-based case-control study in six countries. BMJ Nutr Prev Health. 2021;4(1):257-266. doi:10.1136/bmjnph-2021-000272
17		Storz MA. Lifestyle Adjustments in Long-COVID Management: Potential Benefits of Plant-Based Diets. Curr Nutr Rep. 2021;10(4):352-363. doi:10.1007/s13668-021-00369-x
18	Our beneficial SCFA-producing bacteria	Ljungh A, Wadström T. Lactic acid bacteria as probiotics. Curr Issues Intest Microbiol. 2006;7(2):73-89.
19	Interestingly, twenty-first-century scientists	Klaenhammer TR. Bacteriocins of lactic acid bacteria. Biochimie. 1988;70(3):337-349. doi:10.1016/0300-9084(88)90206-4
20		Hassan M, Kjos M, Nes IF, Diep DB, Lotfipour F. Natural antimicrobial peptides from bacteria: characteristics and potential applications to fight against antibiotic resistance. J Appl Microbiol. 2012;113(4):723-736. doi:10.1111/j.1365-2672.2012.05338.x
21		Umu ÖCO, Bäuerl C, Oostindjer M, et al. The Potential of Class II Bacteriocins to Modify Gut Microbiota to Improve Host Health. PLoS One. 2016;11(10):e0164036. doi:10.1371/journal.pone.0164036
22		Darbandi A, Asadi A, Mahdizade Ari M, et al. Bacteriocins: Properties and potential use as antimicrobials. J Clin Lab Anal. 2021;36(1):e24093. doi:10.1002/jcla.24093
23		Perez RH, Zendo T, Sonomoto K. Novel bacteriocins from lactic acid bacteria (LAB): various structures and applications. Microb Cell Fact. 2014;13(Suppl 1):S3. doi:10.1186/1475-2859-13-S1-S3
24		Chikindas ML, Weeks R, Drider D, Chistyakov VA, Dicks LMT. Functions and emerging applications of bacteriocins. Curr Opin Biotechnol. 2018;49:23-28. doi:10.1016/j.copbio.2017.07.011
25	This is the story of	Zhang G, Meredith TC, Kahne D. On the Essentiality of Lipopolysaccharide to Gram-Negative Bacteria. Curr Opin Microbiol. 2013;16(6):779-785. doi:10.1016/j.mib.2013.09.007

Ref No.	1st Five Words of Sentence	Reference
26		Alegado RA, King N. Bacterial Influences on Animal Origins. Cold Spring Harb Perspect Biol. 2014;6(11):a016162. doi:10.1101/cshperspect.a016162
27	**Our species, Homo sapiens, first**	Wood B. Human evolution. Bioessays. 1996;18(12):945-954. doi:10.1002/bies.950181204
28	**Pretty recent compared to the**	Wood B. Human evolution. Bioessays. 1996;18(12):945-954. doi:10.1002/bies.950181204
29	**But I would argue that**	Wood B. Human evolution. Bioessays. 1996;18(12):945-954. doi:10.1002/bies.950181204
30	**That's when single cells started**	Ancient origins of multicellular life. Nature. 2016;533(7604):441-441. doi:10.1038/533441b
31	**For example, if you give**	Ventola CL. The Antibiotic Resistance Crisis. P T. 2015;40(4):277-283.
32	**This leads to massive and**	Sezonov, G., Joseleau-Petit, D., & D'Ari, R. (2007). Escherichia coli physiology in Luria-Bertani broth. Journal of Bacteriology, 189(23), 8746–8749.
33		Cheung, A. L., & Projan, S. J. (1994). Cloning and sequencing of sarA of Staphylococcus aureus, a gene required for the expression of agr. Journal of Bacteriology, 176(13), 4168–4172.
34		Park, J. H., Kim, H. J., & Kim, J. H. (2017). Comparison of NheA toxin production and doubling time between Bacillus cereus and Bacillus thuringiensis strains. Applied Biological Chemistry, 60(5), 553–560.
35	**In just 11 eleven days they**	Baym, M., Lieberman, T. D., Kelsic, E. D., Chait, R., Gross, R., Yelin, I., & Kishony, R. (2016). Spatiotemporal microbial evolution on antibiotic landscapes. Science, 353(6304), 1147–1151.
36	**At birth, our adaptive immune**	Tang MH, Ligthart I, Varga S, et al. Mutual interactions between microbiota and the human immune system during the first 1000 days of life. Biology. 2025;14(3):299. https://doi.org/10.3390/biology14030299
37	**And much like the gut**	Mayer, A., Balasubramanian, V., Mora, T., & Walczak, A. M. (2015). How a well-adapted immune system is organized. Proceedings of the National Academy of Sciences, 112(19), 5950–5955.
38	**A diverse immune system is**	Russler-Germain EV, Rengarajan S, Hsieh CS. Antigen-Specific Regulatory T Cell Responses to Intestinal Microbiota. Mucosal immunology. 2017;10(6):1375. doi:10.1038/mi.2017.65
39		Li Y, Ye Z, Zhu J, Fang S, Meng L, Zhou C. Effects of Gut Microbiota on Host Adaptive Immunity Under Immune Homeostasis and Tumor Pathology State. Frontiers in Immunology. 2022;13:844335. doi:10.3389/fimmu.2022.844335
40	**An infant born with a**	Alberts B, Johnson A, Lewis J, Raff M, Roberts K, Walter P. The Adaptive Immune System. In: Molecular Biology of the Cell. 4th Edition. Garland Science; 2002. Accessed November 11, 2024. https://www.ncbi.nlm.nih.gov/books/NBK21070/

Ref No.	1st Five Words of Sentence	Reference
41	**Mom's gut microbiome changes during**	Koren O, Goodrich JK, Cullender TC, et al. Host remodeling of the gut microbiome and metabolic changes during pregnancy. Cell. 2012;150(3):470. doi:10.1016/j.cell.2012.07.008
42	**Meanwhile, those microbes produce chemicals**	Nyangahu DD, Jaspan HB. Influence of maternal microbiota during pregnancy on infant immunity. Clinical and Experimental Immunology. 2019;198(1):47. doi:10.1111/cei.13331
43		Gomez de Agüero M, Ganal-Vonarburg SC, Fuhrer T, et al. The maternal microbiota drives early postnatal innate immune development. Science. 2016;351(6279):1296-1302. doi:10.1126/science.aad2571
44		Thorburn AN, McKenzie CI, Shen S, et al. Evidence that asthma is a developmental origin disease influenced by maternal diet and bacterial metabolites. Nat Commun. 2015;6:7320. doi:10.1038/ncomms8320
45	**As the pregnancy progresses, microbes**	Walker RW, Clemente JC, Peter I, Loos RJ. The prenatal gut microbiome: Are we colonized with bacteria in utero? Pediatric obesity. 2017;12(Suppl 1):3. doi:10.1111/ijpo.12217
46		E J, Ml M, R M, et al. Is meconium from healthy newborns actually sterile? Research in microbiology. 2008;159(3). doi:10.1016/j.resmic.2007.12.007
47		Schreurs RRCE, Baumdick ME, Sagebiel AF, et al. Human Fetal TNF-α-Cytokine-Producing CD4+ Effector Memory T Cells Promote Intestinal Development and Mediate Inflammation Early in Life. Immunity. 2019;50(2):462-476.e8. doi:10.1016/j.immuni.2018.12.010
48		Li N, Unen V van, Abdelaal T, et al. Memory CD4+ T cells are generated in the human fetal intestine. Nature immunology. 2019;20(3):301. doi:10.1038/s41590-018-0294-9
49	**Then, during the third trimester**	Makino H, Kushiro A, Ishikawa E, et al. Transmission of Intestinal Bifidobacterium longum subsp. longum Strains from Mother to Infant, Determined by Multilocus Sequencing Typing and Amplified Fragment Length Polymorphism. Applied and Environmental Microbiology. 2011;77(19):6788. doi:10.1128/AEM.05346-11
50		Rutayisire E, Huang K, Liu Y, Tao F. The mode of delivery affects the diversity and colonization pattern of the gut microbiota during the first year of infants' life: a systematic review. BMC Gastroenterol. 2016;16(1):86. doi:10.1186/s12876-016-0498-0
51		Thum C, Cookson AL, Otter DE, et al. Can nutritional modulation of maternal intestinal microbiota influence the development of the infant gastrointestinal tract? J Nutr. 2012;142(11):1921-1928. doi:10.3945/jn.112.166231
52	**This is why cesarean delivery**	Sandall J, Tribe RM, Avery L, et al. Short-term and long-term effects of caesarean section on the health of women and children. Lancet. 2018;392(10155):1349-1357. doi:10.1016/S0140-6736(18)31930-5
53	**Next up is mom's breast**	Nyangahu DD, Lennard KS, Brown BP, et al. Disruption of maternal gut microbiota during gestation alters offspring microbiota and immunity. Microbiome. 2018;6:124. doi:10.1186/s40168-018-0511-7
54		Prentice PM, Schoemaker MH, Vervoort J, et al. Human Milk Short-Chain Fatty Acid Composition is Associated with Adiposity Outcomes in Infants. J Nutr. 2019;149(5):716-722. doi:10.1093/jn/nxy320

Ref No.	1st Five Words of Sentence	Reference
55	**This is why breastfeeding is**	Camacho-Morales A, Caba M, García-Juárez M, Caba-Flores MD, Viveros-Contreras R, Martínez-Valenzuela C. Breastfeeding Contributes to Physiological Immune Programming in the Newborn. Frontiers in Pediatrics. 2021;9:744104. doi:10.3389/fped.2021.744104
56	**Inflammation always comes with a price**	Munford RS. Endotoxemia-menace, marker, or mistake? J Leukoc Biol. 2016;100(4):687-698. doi:10.1189/jlb.3RU0316-151R
57		Punder K de, Pruimboom L. Stress Induces Endotoxemia and Low-Grade Inflammation by Increasing Barrier Permeability. Frontiers in Immunology. 2015;6:223. doi:10.3389/fimmu.2015.00223
58	**When it's low-grade inflammation**	Fevang B, Wyller VBB, Mollnes TE, et al. Lasting Immunological Imprint of Primary Epstein-Barr Virus Infection With Associations to Chronic Low-Grade Inflammation and Fatigue. Front Immunol. 2021;12:715102. doi:10.3389/fimmu.2021.715102
59		Maamar M, Artime A, Pariente E, et al. Post-COVID-19 syndrome, low-grade inflammation and inflammatory markers: a cross-sectional study. Curr Med Res Opin. 2022;38(6):901-909. doi:10.1080/03007995.2022.2042991
60		Wågström P, Nilsdotter-Augustinsson Å, Nilsson M, Björkander J, Dahle C, Nyström S. Fatigue Is Common in Immunoglobulin G Subclass Deficiency and Correlates With Inflammatory Response and Need for Immunoglobulin Replacement Therapy. Front Immunol. 2021;12:797336. doi:10.3389/fimmu.2021.797336
61		Schreiner P, Rossel JB, Biedermann L, et al. Fatigue in inflammatory bowel disease and its impact on daily activities. Aliment Pharmacol Ther. 2021;53(1):138-149. doi:10.1111/apt.16145
62		Sulheim D, Fagermoen E, Winger A, et al. Disease mechanisms and clonidine treatment in adolescent chronic fatigue syndrome: a combined cross-sectional and randomized clinical trial. JAMA Pediatr. 2014;168(4):351-360. doi:10.1001/jamapediatrics.2013.4647
63		Nolla JM, Valencia-Muntalà L, Berbel-Arcobé L, et al. Fatigue and associated factors in men with rheumatoid arthritis: a case-control study using the FACIT-F scale. Front Med (Lausanne). 2025;12:1555089. doi:10.3389/fmed.2025.1555089
64		Vgontzas AN, Bixler EO, Chrousos GP. Obesity-related sleepiness and fatigue: the role of the stress system and cytokines. Ann N Y Acad Sci. 2006;1083:329-344. doi:10.1196/annals.1367.023
65		Bårdsen K, Nilsen MM, Kvaløy JT, Norheim KB, Jonsson G, Omdal R. Heat shock proteins and chronic fatigue in primary Sjögren's syndrome. Innate Immun. 2016;22(3):162-167. doi:10.1177/1753425916633236
66		Haider MB, Basida B, Kaur J. Major depressive disorders in patients with inflammatory bowel disease and rheumatoid arthritis. World J Clin Cases. 2023;11(4):764-779. doi:10.12998/wjcc.v11.i4.764
67		Collado-Hidalgo A, Bower JE, Ganz PA, Cole SW, Irwin MR. Inflammatory biomarkers for persistent fatigue in breast cancer survivors. Clin Cancer Res. 2006;12(9):2759-2766. doi:10.1158/1078-0432.CCR-05-2398
68		Taylor HS, Giudice LC, Lessey BA, et al. Treatment of Endometriosis-Associated Pain with Elagolix, an Oral GnRH Antagonist. N Engl J Med. 2017;377(1):28-40. doi:10.1056/NEJMoa1700089

Ref No.	1st Five Words of Sentence	Reference
69		Miller AH, Ancoli-Israel S, Bower JE, Capuron L, Irwin MR. Neuroendocrine-immune mechanisms of behavioral comorbidities in patients with cancer. J Clin Oncol. 2008;26(6):971-982. doi:10.1200/JCO.2007.10.7805
70		Moran LJ, Hutchison SK, Norman RJ, Teede HJ. Lifestyle changes in women with polycystic ovary syndrome. Cochrane Database Syst Rev. 2011;(2):CD007506. doi:10.1002/14651858.CD007506.pub2
71		Hiensch AE, Mijwel S, Bargiela D, Wengström Y, May AM, Rundqvist H. Inflammation Mediates Exercise Effects on Fatigue in Patients with Breast Cancer. Med Sci Sports Exerc. 2021;53(3):496-504. doi:10.1249/MSS.0000000000002490
72	**The way this happens is**	Bruewer M, Luegering A, Kucharzik T, et al. Proinflammatory cytokines disrupt epithelial barrier function by apoptosis-independent mechanisms. Journal of Immunology. 2003;171(11):6164-6172.
73		Vaziri ND, Yuan J, Nazertehrani S, Ni Z, Liu S. Chronic kidney disease causes disruption of colonic epithelial tight junction. American Journal of Nephrology. 2013;38(6):427-433.
74	**They hold your brain barrier**	Kempuraj D, Thangavel R, Natteru PA, et al. Mast Cell Activation, Neuroinflammation, and Tight Junction Protein Derangement in Acute Traumatic Brain Injury. Mediators of Inflammation. 2020;2020:4243953.
75		Highly purified lipoteichoic acid from gram-positive bacteria induces in vitro blood-brain barrier disruption through glia activation: role of pro-inflammatory cytokines and nitric oxide. Neuroscience. 2006;137(4):1193-1209.
76	**They also hold your blood**	Wallez Y, Huber P. Endothelial adherens and tight junctions in vascular homeostasis, inflammation and angiogenesis. Biochim Biophys Acta. 2008;1778(3):794-809. doi:10.1016/j.bbamem.2007.09.003
77	**Over time, this smoldering inflammation**	Libby P. Inflammation in atherosclerosis. Nature. 2002 Dec 19-26;420(6917):868-74.
78	**It drives uncontrolled cell signaling**	Katsurano M, et al. Chronic inflammation, oxidative stress, and DNA damage in the pathogenesis of colorectal cancer. Carcinogenesis. 2010;31(3):431-436.
79		Valavanidis A, Vlachogianni T, Fiotakis K. 8-hydroxy-2' -deoxyguanosine (8-OHdG): A critical biomarker of oxidative stress and carcinogenesis. Journal of Environmental Science and Health, Part C. 2009;27(2):120-139.
80		Grivennikov SI, Greten FR, Karin M. Immunity, inflammation, and cancer. Cell. 2010;140(6):883-899.
81	**It wears down insulin sensitivity**	Subclinical inflammation is strongly related to insulin resistance but not to impaired insulin secretion in a population-based cohort (KORA S4)Thorand B, Löwel H, Schneider A, et al.Diabetologia. 2003;46(3): 373–381.

Ref No.	1st Five Words of Sentence	Reference
82	It even disrupts brain function	Heneka MT, et al. Neuroinflammation in Alzheimer's disease. The Lancet Neurology. 2015;14(4):388-405.
83		Hirsch EC, Hunot S. Neuroinflammation in Parkinson's disease: a target for neuroprotection? The Lancet Neurology. 2009;8(4):382-397.
84		Glass CK, Saijo K, Winner B, Marchetto MC, Gage FH. Mechanisms underlying inflammation in neurodegeneration. Cell. 2010;140(6):918-934.

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428 REFERENCES

Ref No.	1st Five Words of Sentence	Reference
1	**You've surely seen it and**	Williams GM, Kroes R, Munro IC. Safety evaluation and risk assessment of the herbicide Roundup and its active ingredient, glyphosate, for humans. Regul Toxicol Pharmacol. 2000;31(2 Pt 1):117-165. doi:10.1006/rtph.1999.1371
2	**In the 1990s it became**	Blackburn LG, Boutin C.Subtle effects of herbicide use in the context of genetically modified crops: a case study with glyphosate (Roundup). Ecotoxicology. 2003 Feb–Aug;12(1-4):271–85. doi:10.1023/a:1022515129526. PMID: 12739874
3	**If you spray a field with**	Shaner, D. L., & Pergam, M. (2010). Mechanisms of evolved herbicide resistance. Pest Management Science, 66(7), 676–687. PMID: 21842528
4		Heap, I.; Duke, S. O. (2020). Evolution of glyphosate-resistant weeds. Pest Management Science. PMID: 33932185
5	**Over the coming years, "Roundup**	Benbrook CM. Trends in glyphosate herbicide use in the United States and globally. Environmental Sciences Europe. 2016;28(1):3. doi:10.1186/s12302-016-0070-0
6	**I should mention that glyphosate**	Hawkins C, Hanson C. Glyphosate - U.S. Environmental Protection Agency Response to Comments Usage and Benefits - 2019 Final. Published online April 18, 2019. https://www.epa.gov/sites/default/files/2019-04/documents/glyphosate-response-comments-usage-benefits-final.pdf
7	**This is how glyphosate became**	Hawkins C, Hanson C. Glyphosate - U.S. Environmental Protection Agency Response to Comments Usage and Benefits - 2019 Final. Published online April 18, 2019. https://www.epa.gov/sites/default/files/2019-04/documents/glyphosate-response-comments-usage-benefits-final.pdf
8	**Because glyphosate is water-soluble,**	Medalie L, Baker NT, Shoda ME, et al. Influence of land use and region on glyphosate and aminomethylphosphonic acid in streams in the USA. Science of The Total Environment. 2020;707:136008. doi:10.1016/j.scitotenv.2019.136008
9		Silva V, Montanarella L, Jones A, et al. Distribution of glyphosate and aminomethylphosphonic acid (AMPA) in agricultural topsoils of the European Union. Sci Total Environ. 2018;621:1352-1359. doi:10.1016/j.scitotenv.2017.10.093
10		Soares D, Silva L, Duarte S, Pena A, Pereira A. Glyphosate Use, Toxicity and Occurrence in Food. Foods. 2021;10(11):2785. doi:10.3390/foods10112785
11		Kolakowski BM, Miller L, Murray A, Leclair A, Bietlot H, van de Riet JM. Analysis of Glyphosate Residues in Foods from the Canadian Retail Markets between 2015 and 2017. J Agric Food Chem. 2020;68(18):5201-5211. doi:10.1021/acs.jafc.9b07819
12		Louie F, Jacobs NFB, Yang LGL, Park C, Monnot AD, Bandara SB. A comparative evaluation of dietary exposure to glyphosate resulting from recommended U.S. diets. Food Chem Toxicol. 2021;158:112670. doi:10.1016/j.fct.2021.112670

Ref No.	1st Five Words of Sentence	Reference
13		Eaton JL, Cathey AL, Fernandez JA, et al. The association between urinary glyphosate and aminomethyl phosphonic acid with biomarkers of oxidative stress among pregnant women in the PROTECT birth cohort study. Ecotoxicol Environ Saf. 2022;233:113300. doi:10.1016/j.ecoenv.2022.113300
14		Yang AM, Chu PL, Wang C, Lin CY. Association between urinary glyphosate levels and serum neurofilament light chain in a representative sample of US adults: NHANES 2013–2014. J Expo Sci Environ Epidemiol. Published online September 6, 2023:1-7. doi:10.1038/s41370-023-00594-2
15		Grau D, Grau N, Gascuel Q, et al. Quantifiable urine glyphosate levels detected in 99% of the French population, with higher values in men, in younger people, and in farmers. Environ Sci Pollut Res Int. 2022;29(22):32882-32893. doi:10.1007/s11356-021-18110-0
16	**Glyphosate blocks an enzyme in**	Franzén, L., et al. (2011). Perturbations of amino acid metabolism associated with glyphosate treatment in soybean leaves. Plant Physiology. PMID: 21757634.
17	**Some of them, like Staph**	Molin WT. Glyphosate, a Unique Global Herbicide. J. E. Franz, M. K. Mao, and J. A. Sikorski, ACS Monograph 189, 1997. 653 pp. Weed Technology. 1998;12(3):564-565. doi:10.1017/S0890037X0004433X
18	**Others, like E. coli, can**	Cao G, Liu Y, Zhang S, et al. A Novel 5-Enolpyruvylshikimate-3-Phosphate Synthase Shows High Glyphosate Tolerance in Escherichia coli and Tobacco Plants. PLoS One. 2012;7(6):e38718. doi:10.1371/journal.pone.0038718
19	**Advantageous mutations seem to preferentially**	Bote K, Pöppe J, Merle R, Makarova O, Roesler U. Minimum Inhibitory Concentration of Glyphosate and of a Glyphosate-Containing Herbicide Formulation for Escherichia coli Isolates – Differences Between Pathogenicand Non-pathogenic Isolates and Between Host Species. Front Microbiol. 2019;10:932. doi:10.3389/fmicb.2019.00932
20	**Meanwhile, even low- dose glyphosate**	Lehman PC, Cady N, Ghimire S, et al. Low-dose glyphosate exposure alters gut microbiota composition and modulates gut homeostasis. Environmental Toxicology and Pharmacology. 2023;100:104149. doi:10.1016/j.etap.2023.104149
21	**In animal models, long- term**	Del Castilo I, Neumann AS, Lemos FS, et al. Lifelong Exposure to a Low-Dose of the Glyphosate-Based Herbicide RoundUp® Causes Intestinal Damage, Gut Dysbiosis, and Behavioral Changes in Mice. Int J Mol Sci. 2022;23(10):5583. doi:10.3390/ijms23105583
22	**This activates the immune system**	Lehman PC, Cady N, Ghimire S, et al. Low-dose glyphosate exposure alters gut microbiota composition and modulates gut homeostasis. Environmental Toxicology and Pharmacology. 2023;100:104149. doi:10.1016/j.etap.2023.104149
23	**Glyphosate is an endocrine disruptor**	Winstone JK, Pathak KV, Winslow W, et al. Glyphosate infiltrates the brain and increases pro-inflammatory cytokine TNFα: implications for neurodegenerative disorders. J Neuroinflammation. 2022;19(1):193. doi:10.1186/s12974-022-02544-5
24		Qi L, Dong YM, Chao H, Zhao P, Ma SL, Li G. Glyphosate based-herbicide disrupts energy metabolism and activates inflammatory response through oxidative stress in mice liver. Chemosphere. 2023;315:137751. doi:10.1016/j.chemosphere.2023.137751

Ref No.	1st Five Words of Sentence	Reference
25		Tang Q, Tang J, Ren X, Li C. Glyphosate exposure induces inflammatory responses in the small intestine and alters gut microbial composition in rats. Environ Pollut. 2020;261:114129. doi:10.1016/j.envpol.2020.114129
26		Marino M, Mele E, Viggiano A, Nori SL, Meccariello R, Santoro A. Pleiotropic Outcomes of Glyphosate Exposure: From Organ Damage to Effects on Inflammation, Cancer, Reproduction and Development. Int J Mol Sci. 2021;22(22):12606. doi:10.3390/ijms222212606
27		Romano MA, Romano RM, Santos LD, et al. Glyphosate impairs male offspring reproductive development by disrupting gonadotropin expression. Arch Toxicol. 2012;86(4):663-673. doi:10.1007/s00204-011-0788-9
28	**Even at low doses this**	Mesnage R, Phedonos A, Biserni M, et al. Evaluation of estrogen receptor alpha activation by glyphosate-based herbicide constituents. Food Chem Toxicol. 2017;108(Pt A):30-42. doi:10.1016/j.fct.2017.07.025
29		Richard S, Moslemi S, Sipahutar H, Benachour N, Seralini GE. Differential effects of glyphosate and roundup on human placental cells and aromatase. Environ Health Perspect. 2005;113(6):716-720. doi:10.1289/ehp.7728
30		Ingaramo P, Alarcón R, Muñoz-de-Toro M, Luque EH. Are glyphosate and glyphosate-based herbicides endocrine disruptors that alter female fertility? Mol Cell Endocrinol. 2020;518:110934. doi:10.1016/j.mce.2020.110934
31	**Exposure to Roundup is associated**	Aitbali Y, Ba-M'hamed S, Elhidar N, Nafis A, Soraa N, Bennis M. Glyphosate based-herbicide exposure affects gut microbiota, anxiety and depression-like behaviors in mice. Neurotoxicol Teratol. 2018;67:44-49. doi:10.1016/j.ntt.2018.04.002
32	**It's been associated with ADHD**	Roberts JR, Dawley EH, Reigart JR. Children's low-level pesticide exposure and associations with autism and ADHD: a review. Pediatr Res. 2019;85(2):234-241. doi:10.1038/s41390-018-0200-z
33	**There are concerns that it**	Romano RM, de Oliveira JM, de Oliveira VM, et al. Could Glyphosate and Glyphosate-Based Herbicides Be Associated With Increased Thyroid Diseases Worldwide? Front Endocrinol (Lausanne). 2021;12:627167. doi:10.3389/fendo.2021.627167
34	**Some believe glyphosate is responsible**	Samsel A, Seneff S. Glyphosate, pathways to modern diseases II: Celiac sprue and gluten intolerance. Interdiscip Toxicol. 2013;6(4):159-184. doi:10.2478/intox-2013-0026
35	**That corn and soy have**	Van Eenennaam AL, Makkar HPS, Ugochukwu CI, et al. (2017). Detection of dietary DNA, protein, and glyphosate in meat, milk, and eggs. Journal of Animal Science, 95(7):3247–3269. PMID: 28727079
36	**Beyond diet, modern cows are**	Oliver SP, Murinda SE, Jayarao BM. Impact of antibiotic use in adult dairy cows on antimicrobial resistance of veterinary and human pathogens: a comprehensive review. Foodborne Pathogens and Disease. 2011;8(3):337–355. PMID: 21133795

Ref No.	1st Five Words of Sentence	Reference
37		Toutain PL, Schams D, Laurentie MP, Thomson TD. Pharmacokinetics of a recombinant bovine growth hormone and pituitary bovine growth hormone in lactating dairy cows. Journal of Animal Science. 1993 May;71(5):1219–25. PMID: 8505256
38	**Much like addictive drugs, these**	Gordon EL, Ariel-Donges AH, Bauman V, Merlo LJ. What Is the Evidence for “Food Addiction?” A Systematic Review. Nutrients. 2018;10(4):477. doi:10.3390/nu10040477
39	**Food scientists have figured out**	Fazzino TL, Rohde K, Sullivan DK. Hyper-Palatable Foods: Development of a Quantitative Definition and Application to the US Food System Database. Obesity (Silver Spring). 2019;27(11):1761-1768. doi:10.1002/oby.22639
40		Stice E, Yokum S, Burger KS, Epstein LH, Small DM. "Relative ability of fat and sugar tastes to activate reward, gustatory, and somatosensory regions." American Journal of Clinical Nutrition. 2013;98(2):372–379. PMID: 24132980
41		de Araujo IE, Oliveira-Maia AJ, et al. "Separate gut–brain circuits for fat and sugar reinforcement combine to create a supra-additive response." Cell. 2018;175(3):613–623.e19. PMID: 29880406/PMCID: PMC11898112
42		Holtshaw J, Small DM, et al. “Fat and carbohydrate combination creates stronger food craving.” Cell Metabolism. 2018;27(3):603–614.
43	**For instance, if you feed**	Guo Y, Zhu X, Zeng M, et al. A diet high in sugar and fat influences neurotransmitter metabolism and then affects brain function by altering the gut microbiota. Transl Psychiatry. 2021;11:328. doi:10.1038/s41398-021-01443-2
44	**But there are further consequences**	Guo Y, Zhu X, Zeng M, et al. A diet high in sugar and fat influences neurotransmitter metabolism and then affects brain function by altering the gut microbiota. Transl Psychiatry. 2021;11:328. doi:10.1038/s41398-021-01443-2
45	**Similar research in humans shows**	Attuquayefio T, Stevenson RJ, Boakes RA, et al. A high-fat high-sugar diet predicts poorer hippocampal-related memory and a reduced ability to suppress wanting under satiety. J Exp Psychol Anim Learn Cogn. 2016;42(4):415-428. doi:10.1037/xan0000118
46		Yeomans MR, Armitage R, Atkinson R, Francis H, Stevenson RJ. Habitual intake of fat and sugar is associated with poorer memory and greater impulsivity in humans. PLoS One. 2023;18(8):e0290308. doi:10.1371/journal.pone.0290308
47	**A recent study started with**	Saffouri GB, Shields-Cutler RR, Chen J, et al."Small intestinal microbial dysbiosis underlies symptoms associated with functional gastrointestinal disorders."Nature Communications. 2019 May 1;10(1):2012.PMID: 31043597
48	**This is potentially valuable because**	Thaiss CA, Levy M, Grosheva I, et al.Hyperglycemia drives intestinal barrier dysfunction and risk for enteric infection. Science. 2018 Mar 23;359(6382):1376–1383.PMID: 29519916
49	**This may help explain why**	Gudala K, Bansal D, Schifano F, Bhansali A. “Diabetes mellitus and risk of dementia: a meta-analysis of prospective observational studies.” Journal of Diabetes Investigation. 2013;4(6):640–50.

Ref No.	1st Five Words of Sentence	Reference
50		Grossmann M. Low testosterone in men with type 2 diabetes: significance and treatment. J Clin Endocrinol Metab. 2011;96(8):2341-2353. doi:10.1210/jc.2011-0118
51		Khan MS, et al. "Association Between Diabetes Severity and Risks of COVID-19 Infection and Outcomes." Journal of General Internal Medicine. 2023. PMID: 36795328
52		Villar Barro Saffouri G B, Shields-Cutler R R, et al. "Fertility outcomes in women with pre-existing type 2 diabetes—a register-based cohort study." Journal Title. 2021. PMID: 34353572
53		Haslacher H, et al. Diabetes mellitus is associated with a higher risk for major depressive disorder. BMC Psychiatry. 2020;20:323. PMID: 32973072
54		Rotella F, Mannucci E. Depression as a risk factor for the onset of type 2 diabetes mellitus: a meta-analysis. Diabetologia. 2006 May;49(5):837–845. PMID: 16520921
55	**Or that people with diabetes**	Kumar A, Teslova T, Taub E, et al.Comorbid Diabetes in Inflammatory Bowel Disease Predicts Adverse Disease-Related Outcomes and Infectious Complications.Digestive Diseases and Sciences. 2021 Jun;66(6):2005–2013. PMID: 32617771
TABLE: Health Conditions Associated with Increased Sugar Intake		
56	**Crohn's disease**	Khademi Z, Milajerdi A, Larijani B, Esmaillzadeh A. Dietary Intake of Total Carbohydrates, Sugar and Sugar-Sweetened Beverages, and Risk of Inflammatory Bowel Disease: A Systematic Review and Meta-Analysis of Prospective Cohort Studies. Front Nutr. 2021;8:707795. doi:10.3389/fnut.2021.707795
57	**Ulcerative colitis**	Khademi Z, Milajerdi A, Larijani B, Esmaillzadeh A. Dietary Intake of Total Carbohydrates, Sugar and Sugar-Sweetened Beverages, and Risk of Inflammatory Bowel Disease: A Systematic Review and Meta-Analysis of Prospective Cohort Studies. Front Nutr. 2021;8:707795. doi:10.3389/fnut.2021.707795
58	**Rheumatoid arthritis**	Ma X, Nan F, Liang H, et al. Excessive intake of sugar: An accomplice of inflammation. Front Immunol. 2022;13:988481. doi:10.3389/fimmu.2022.988481
59		Hu Y, Costenbader KH, Gao X, et al. Sugar-sweetened soda consumption and risk of developing rheumatoid arthritis in women. Am J Clin Nutr. 2014;100(3):959-967. doi:10.3945/ajcn.114.086918
60	**Multiple sclerosis**	Ma X, Nan F, Liang H, et al. Excessive intake of sugar: An accomplice of inflammation. Front Immunol. 2022;13:988481. doi:10.3389/fimmu.2022.988481
61	**Psoriasis**	Ma X, Nan F, Liang H, et al. Excessive intake of sugar: An accomplice of inflammation. Front Immunol. 2022;13:988481. doi:10.3389/fimmu.2022.988481
62	**Lupus**	Correa-Rodríguez M, Pocovi-Gerardino G, Callejas-Rubio JL, et al. Dietary Intake of Free Sugars is Associated with Disease Activity and Dyslipidemia in Systemic Lupus Erythematosus Patients. Nutrients. 2020;12(4):1094. doi:10.3390/nu12041094
63	**Small intestine bacterial overgrowth (SIBO)**	Saffouri GB, Shields-Cutler RR, Chen J, et al. Small intestinal microbial dysbiosis underlies symptoms associated with functional gastrointestinal disorders. Nature Communications. 2019;10(1):2012. doi:10.1038/s41467-019-09964-7

Ref No.	1st Five Words of Sentence	Reference
64	**Menopausal symptoms**	Herber-Gast GCM, Mishra GD. Fruit, Mediterranean-style, and high-fat and -sugar diets are associated with the risk of night sweats and hot flushes in midlife: results from a prospective cohort study. Am J Clin Nutr. 2013;97(5):1092-1099. doi:10.3945/ajcn.112.049965
65	**High blood pressure**	Zhao Y, Feng Y, Zeng Y, et al. Sugar intake and risk of hypertension: a systematic review and dose-response meta-analysis of cohort and cross-sectional studies. Crit Rev Food Sci Nutr. 2024;64(26):9483-9494. doi:10.1080/10408398.2023.2213330
66		Bergwall S, Johansson A, Sonestedt E, Acosta S. High versus low-added sugar consumption for the primary prevention of cardiovascular disease. Cochrane Database Syst Rev. 2022;1(1):CD013320. doi:10.1002/14651858.CD013320.pub2
67	**High cholesterol**	Bergwall S, Johansson A, Sonestedt E, Acosta S. High versus low-added sugar consumption for the primary prevention of cardiovascular disease. Cochrane Database Syst Rev. 2022;1(1):CD013320. doi:10.1002/14651858.CD013320.pub2
68	**Diabetes**	Liu Y, Cheng J, Wan L, Chen W. Associations between Total and Added Sugar Intake and Diabetes among Chinese Adults: The Role of Body Mass Index. Nutrients. 2023;15(14):3274. doi:10.3390/nu15143274
69		Lang A, Kuss O, Filla T, Schlesinger S. Association between per capita sugar consumption and diabetes prevalence mediated by the body mass index: results of a global mediation analysis. Eur J Nutr. 2021;60(4):2121-2129. doi:10.1007/s00394-020-02401-2
70		Santos LP, Gigante DP, Delpino FM, Maciel AP, Bielemann RM. Sugar sweetened beverages intake and risk of obesity and cardiometabolic diseases in longitudinal studies: A systematic review and meta-analysis with 1.5 million individuals. Clin Nutr ESPEN. 2022;51:128-142. doi:10.1016/j.clnesp.2022.08.021
71	**Obesity**	Te Morenga L, Mallard S, Mann J. Dietary sugars and body weight: systematic review and meta-analyses of randomised controlled trials and cohort studies. BMJ. 2012;346:e7492. doi:10.1136/bmj.e7492
72		Santos LP, Gigante DP, Delpino FM, Maciel AP, Bielemann RM. Sugar sweetened beverages intake and risk of obesity and cardiometabolic diseases in longitudinal studies: A systematic review and meta-analysis with 1.5 million individuals. Clin Nutr ESPEN. 2022;51:128-142. doi:10.1016/j.clnesp.2022.08.021
73	**Heart attack**	Dennis KK, Wang F, Li Y, et al. Associations of dietary sugar types with coronary heart disease risk: a prospective cohort study. Am J Clin Nutr. 2023;118(5):1000-1009. doi:10.1016/j.ajcnut.2023.08.019
74		Santos LP, Gigante DP, Delpino FM, Maciel AP, Bielemann RM. Sugar sweetened beverages intake and risk of obesity and cardiometabolic diseases in longitudinal studies: A systematic review and meta-analysis with 1.5 million individuals. Clin Nutr ESPEN. 2022;51:128-142. doi:10.1016/j.clnesp.2022.08.021
75	**Stroke**	Santos LP, Gigante DP, Delpino FM, Maciel AP, Bielemann RM. Sugar sweetened beverages intake and risk of obesity and cardiometabolic diseases in longitudinal studies: A systematic review and meta-analysis with 1.5 million individuals. Clin Nutr ESPEN. 2022;51:128-142. doi:10.1016/j.clnesp.2022.08.021
END TABLE		

Ref No.	1st Five Words of Sentence	Reference
76	In 2021 the Food and Drug	Ge Y, Liu W, Tao H, et al. Effect of industrial trans-fatty acids-enriched diet on gut microbiota of C57BL/6 mice. Eur J Nutr. 2019;58(7):2625-2638. doi:10.1007/s00394-018-1810-2
77		Mozaffarian D, Aro A, Willett WC. Health effects of trans-fatty acids: experimental and observational evidence. Eur J Clin Nutr. 2009;63 Suppl 2:S5-21. doi:10.1038/sj.ejcn.1602973
78		Michels N, Specht IO, Heitmann BL, Chajès V, Huybrechts I. Dietary trans-fatty acid intake in relation to cancer risk: a systematic review and meta-analysis. Nutr Rev. 2021;79(7):758-776. doi:10.1093/nutrit/nuaa061
79	For example, a cup of	EDA Nutrition Science Fact Sheet - Milk Fat. https://eda.euromilk.org/fileadmin/user_upload/Public_Documents/Nutrition_Factsheets/EDA_Nutrition_Science_Fact_Sheet_-_Milk_Fat.pdf
80	The average American consumes 10,439	What We Eat in America, NHANES 2017-March 2020. https://www.ars.usda.gov/ARSUserFiles/80400530/pdf/1720/Table_1_NIN_GEN_1720.pdf
81	According to the USDA, the	Dairy products: Per capita consumption, United States (annual). Published online November 30, 2023. Accessed December 28, 2023. https://www.ers.usda.gov/webdocs/DataFiles/48685/pcconsp_1_.xlsx?v=7349.6
82	The average American consumes 223	Per capita meat consumption, retail weight. Accessed December 28, 2023. https://www.usda.gov/sites/default/files/documents/US-Livestock-projections-to-2031.xls
83	Lipopolysaccharide is built on a	Huang S, Rutkowsky JM, Snodgrass RG, et al. Saturated fatty acids activate TLR-mediated proinflammatory signaling pathways. J Lipid Res. 2012;53(9):2002-2013. doi:10.1194/jlr.D029546
84		Lee JY, Sohn KH, Rhee SH, Hwang D. Saturated fatty acids, but not unsaturated fatty acids, induce the expression of cyclooxygenase-2 mediated through Toll-like receptor 4. J Biol Chem. 2001;276(20):16683-16689. doi:10.1074/jbc.M011695200
85		Nguyen MTA, Favelyukis S, Nguyen AK, et al. A subpopulation of macrophages infiltrates hypertrophic adipose tissue and is activated by free fatty acids via Toll-like receptors 2 and 4 and JNK-dependent pathways. J Biol Chem. 2007;282(48):35279-35292. doi:10.1074/jbc.M706762200
86		Shi H, Kokoeva MV, Inouye K, Tzameli I, Yin H, Flier JS. TLR4 links innate immunity and fatty acid–induced insulin resistance. J Clin Invest. 2006;116(11):3015-3025. doi:10.1172/JCI28898
87		Reynolds CM, McGillicuddy FC, Harford KA, Finucane OM, Mills KHG, Roche HM. Dietary saturated fatty acids prime the NLRP3 inflammasome via TLR4 in dendritic cells-implications for diet-induced insulin resistance. Mol Nutr Food Res. 2012;56(8):1212-1222. doi:10.1002/mnfr.201200058

Ref No.	1st Five Words of Sentence	Reference
88	In fact, if your immune	Huang S, Rutkowsky JM, Snodgrass RG, et al. Saturated fatty acids activate TLR-mediated proinflammatory signaling pathways. J Lipid Res. 2012;53(9):2002-2013. doi:10.1194/jlr.D029546
89		Lee JY, Sohn KH, Rhee SH, Hwang D. Saturated fatty acids, but not unsaturated fatty acids, induce the expression of cyclooxygenase-2 mediated through Toll-like receptor 4. J Biol Chem. 2001;276(20):16683-16689. doi:10.1074/jbc.M011695200
90		Nguyen MTA, Favelyukis S, Nguyen AK, et al. A subpopulation of macrophages infiltrates hypertrophic adipose tissue and is activated by free fatty acids via Toll-like receptors 2 and 4 and JNK-dependent pathways. J Biol Chem. 2007;282(48):35279-35292. doi:10.1074/jbc.M706762200
91		Shi H, Kokoeva MV, Inouye K, Tzameli I, Yin H, Flier JS. TLR4 links innate immunity and fatty acid–induced insulin resistance. J Clin Invest. 2006;116(11):3015-3025. doi:10.1172/JCI28898
92		Reynolds CM, McGillicuddy FC, Harford KA, Finucane OM, Mills KHG, Roche HM. Dietary saturated fatty acids prime the NLRP3 inflammasome via TLR4 in dendritic cells-implications for diet-induced insulin resistance. Mol Nutr Food Res. 2012;56(8):1212-1222. doi:10.1002/mnfr.201200058
93		Büttner A, Thieme D. Side effects of anabolic androgenic steroids: pathological findings and structure-activity relationships. Handb Exp Pharmacol. 2010;(195):459-484. doi:10.1007/978-3-540-79088-4_19
94		Myles IA, Fontecilla NM, Janelsins BM, Vithayathil PJ, Segre JA, Datta SK. Parental dietary fat intake alters offspring microbiome and immunity. J Immunol. 2013;191(6):10.4049/jimmunol.1301057. doi:10.4049/jimmunol.1301057
95		Galli C, Calder PC. Effects of fat and fatty acid intake on inflammatory and immune responses: a critical review. Ann Nutr Metab. 2009;55(1-3):123-139. doi:10.1159/000228999
96		Deopurkar R, Ghanim H, Friedman J, et al. Differential Effects of Cream, Glucose, and Orange Juice on Inflammation, Endotoxin, and the Expression of Toll-Like Receptor-4 and Suppressor of Cytokine Signaling-3. Diabetes Care. 2010;33(5):991-997. doi:10.2337/dc09-1630
97	When you consume excess saturated	Jamar G, Pisani LP. Inflammatory crosstalk between saturated fatty acids and gut microbiota–white adipose tissue axis. Eur J Nutr. 2023;62(3):1077-1091. doi:10.1007/s00394-022-03062-z
98	Short term: A single serving	Deopurkar R, Ghanim H, Friedman J, et al. Differential Effects of Cream, Glucose, and Orange Juice on Inflammation, Endotoxin, and the Expression of Toll-Like Receptor-4 and Suppressor of Cytokine Signaling-3. Diabetes Care. 2010;33(5):991-997. doi:10.2337/dc09-1630

Ref No.	1st Five Words of Sentence	Reference
99	Medium term: Just five days	David LA, Maurice CF, Carmody RN, et al. Diet rapidly and reproducibly alters the human gut microbiome. Nature. 2014;505(7484):559-563. doi:10.1038/nature12820
100		Nomura K, Ishikawa D, Okahara K, et al. Bacteroidetes Species Are Correlated with Disease Activity in Ulcerative Colitis. J Clin Med. 2021;10(8):1749. doi:10.3390/jcm10081749
101		Parker BJ, Wearsch PA, Veloo ACM, Rodriguez-Palacios A. The Genus Alistipes: Gut Bacteria With Emerging Implications to Inflammation, Cancer, and Mental Health. Frontiers in Immunology. 2020;11. doi:10.3389/fimmu.2020.00906
102		Waqas M, Halim SA, Ullah A, et al. Multi-Fold Computational Analysis to Discover Novel Putative Inhibitors of Isethionate Sulfite-Lyase (Isla) from Bilophila wadsworthia: Combating Colorectal Cancer and Inflammatory Bowel Diseases. Cancers (Basel). 2023;15(3):901. doi:10.3390/cancers15030901
103	Long term: Excessive saturated fat	Berg J, Seyedsadjadi N, Grant R. Saturated Fatty Acid Intake Is Associated With Increased Inflammation, Conversion of Kynurenine to Tryptophan, and Delta-9 Desaturase Activity in Healthy Humans. Int J Tryptophan Res. 2020;13:1178646920981946. doi:10.1177/1178646920981946
104		Ley SH, Sun Q, Willett WC, et al. Associations between red meat intake and biomarkers of inflammation and glucose metabolism in women. Am J Clin Nutr. 2014;99(2):352-360. doi:10.3945/ajcn.113.075663
105		Wang Y, Uffelman C, Hill E, et al. The Effects of Red Meat Intake on Inflammation Biomarkers in Humans: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. Curr Dev Nutr. 2022;6(Suppl 1):994. doi:10.1093/cdn/nzac068.023
106		Dong C, Chan SSM, Jantchou P, et al. Meat Intake Is Associated with a Higher Risk of Ulcerative Colitis in a Large European Prospective Cohort Studyø. J Crohns Colitis. 2022;16(8):1187-1196. doi:10.1093/ecco-jcc/jjac054
107		Jin J, Li J, Gan Y, et al. Red meat intake is associated with early onset of rheumatoid arthritis: a cross-sectional study. Sci Rep. 2021;11(1):5681. doi:10.1038/s41598-021-85035-6
108		Cantoni C, Lin Q, Dorsett Y, et al. Alterations of host-gut microbiome interactions in multiple sclerosis. eBioMedicine. 2022;76. doi:10.1016/j.ebiom.2021.103798
109	In one study, a breakfast	Cantoni C, Lin Q, Dorsett Y, et al. Alterations of host-gut microbiome interactions in multiple sclerosis. eBioMedicine. 2022;76. doi:10.1016/j.ebiom.2021.103798
110	This is particularly problematic among	Zhuang Y, Dong J, He X, et al. Impact of Heating Temperature and Fatty Acid Type on the Formation of Lipid Oxidation Products During Thermal Processing. Front Nutr. 2022;9:913297. doi:10.3389/fnut.2022.913297
111	In a study of 862	Partula V, Mondot S, Torres MJ, et al. Associations between usual diet and gut microbiota composition: results from the Milieu Intérieur cross-sectional study. The American Journal of Clinical Nutrition. 2019;109(5):1472-1483. doi:10.1093/ajcn/nqz029

Ref No.	1st Five Words of Sentence	Reference
112	**By the way, so were**	Turpin W, Dong M, Sasson G, et al. Mediterranean-Like Dietary Pattern Associations With Gut Microbiome Composition and Subclinical Gastrointestinal Inflammation. Gastroenterology. 2022;0(0). doi:10.1053/j.gastro.2022.05.037
113	**Interestingly, in the five- day**	David LA, Maurice CF, Carmody RN, et al. Diet rapidly and reproducibly alters the human gut microbiome. Nature. 2014;505(7484):559-563. doi:10.1038/nature12820
114	**It's not that animal-based foods**	Bacanlı M, Başaran N. Importance of antibiotic residues in animal food. Food Chem Toxicol. 2019;125:462-466. doi:10.1016/j.fct.2019.01.033
115	**This is disturbing when you**	Martin MJ, Thottathil SE, Newman TB. Antibiotics Overuse in Animal Agriculture: A Call to Action for Health Care Providers. Am J Public Health. 2015;105(12):2409-2410. doi:10.2105/AJPH.2015.302870
116	**In mice, soybean oil (a**	López-Salazar V, Tapia MS, Tobón-Cornejo S, et al. Consumption of soybean or olive oil at recommended concentrations increased the intestinal microbiota diversity and insulin sensitivity and prevented fatty liver compared to the effects of coconut oil. J Nutr Biochem. 2021;94:108751. doi:10.1016/j.jnutbio.2021.108751
117	**By contrast, coconut oil—mostly**	López-Salazar V, Tapia MS, Tobón-Cornejo S, et al. Consumption of soybean or olive oil at recommended concentrations increased the intestinal microbiota diversity and insulin sensitivity and prevented fatty liver compared to the effects of coconut oil. J Nutr Biochem. 2021;94:108751. doi:10.1016/j.jnutbio.2021.108751
118	**Among people with Crohn's disease,**	Turpin W, Dong M, Sasson G, et al. Mediterranean-Like Dietary Pattern Associations With Gut Microbiome Composition and Subclinical Gastrointestinal Inflammation. Gastroenterology. 2022;0(0). doi:10.1053/j.gastro.2022.05.037
119	**Human clinical trials show that**	Cândido TLN, da Silva LE, Tavares JF, Conti ACM, Rizzardo RAG, Gonçalves Alfenas R de C. Effects of dietary fat quality on metabolic endotoxaemia: a systematic review. Br J Nutr. 2020;124(7):654-667. doi:10.1017/S0007114520001658
120	**In multiple studies, when PUFAs**	Bjermo H, Iggman D, Kullberg J, et al. Effects of n-6 PUFAs compared with SFAs on liver fat, lipoproteins, and inflammation in abdominal obesity: A randomized controlled trial. Am J Clin Nutr. 2012;95(5):1003-1012. doi: 10.3945/ajcn.111.030114
121		Masson CJ, Mensink RP. Exchanging saturated fatty acids for (n-6) polyunsaturated fatty acids in a mixed meal may decrease postprandial lipemia and markers of inflammation and endothelial activity in overweight men. J Nutr. 2011;141(5):816-821. doi: 10.3945/jn.110.136432
122		Drouin-Chartier JP, Tremblay AJ, Lépine MC, et al. Substitution of dietary ω-6 polyunsaturated fatty acids for saturated fatty acids decreases LDL apolipoprotein B-100 production rate in men with dyslipidemia associated with insulin resistance: a randomized controlled trial. Am J Clin Nutr. 2018;107(1):26-34.
123	**If it's a question of**	Bjermo H, Iggman D, Kullberg J, et al. Effects of n-6 PUFAs compared with SFAs on liver fat, lipoproteins, and inflammation in abdominal obesity: A randomized controlled trial. Am J Clin Nutr. 2012;95(5):1003-1012. doi: 10.3945/ajcn.111.030114

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124		Masson CJ, Mensink RP. Exchanging saturated fatty acids for (n-6) polyunsaturated fatty acids in a mixed meal may decrease postprandial lipemia and markers of inflammation and endothelial activity in overweight men. J Nutr. 2011;141(5):816-821. doi: 10.3945/jn.110.136432
125		Drouin-Chartier JP, Tremblay AJ, Lépine MC, et al. Substitution of dietary ω-6 polyunsaturated fatty acids for saturated fatty acids decreases LDL apolipoprotein B-100 production rate in men with dyslipidemia associated with insulin resistance: a randomized controlled trial. Am J Clin Nutr. 2018;107(1):26-34.
126	**Second, when delicate polyunsaturated fats**	Ertugrul Ö, Ulusoy S, Korkmaz L, et al. Ingestion of moderately thermally oxidized vegetable oil enhances postprandial oxidative stress in healthy humans. Eur J Nutr. 2007;46(6):349–356. doi:10.1007/s00394-007-0721-8
127	**We're overconsuming Omega-6 PUFAs,**	Simopoulos AP. The importance of the omega-6/omega-3 essential fatty acid ratio in chronic diseases. Exp Biol Med (Maywood). 2008;233(6):674-688. doi:10.3181/0711-MR-311
128	**Ninety percent of Americans consume**	Key Messages on Sodium and Sodium Reduction. Published online March 2021. Accessed December 28, 2023. https://www.cdc.gov/dhdsp/docs/sodium-reduction-key-messages-508.pdf
129	**These foods may contain literally**	Brown IJ, Tzoulaki I, Candeias V, Elliott P. Salt intakes around the world: implications for public health. Int J Epidemiol. 2009;38(3):791-813. doi:10.1093/ije/dyp139
130	**Adding just one electrolyte drink**	Key Messages on Sodium and Sodium Reduction. Published online March 2021. Accessed December 28, 2023. https://www.cdc.gov/dhdsp/docs/sodium-reduction-key-messages-508.pdf
131		Balan Y, Packirisamy RM, Mohanraj PS. High dietary salt intake activates inflammatory cascades via Th17 immune cells: impact on health and diseases. Arch Med Sci. 2022;18(2):459-465. doi:10.5114/aoms.2020.96344
132		YI B, TITZE J, RYKOVA M, et al. Effects of dietary salt levels on monocytic cells and immune responses in healthy human subjects: a longitudinal study. Transl Res. 2015;166(1):103-110. doi:10.1016/j.trsl.2014.11.007
133	**In the gut, this excess**	Kleinewietfeld M, Manzel A, Titze J, et al. Sodium Chloride Drives Autoimmune Disease by the Induction of Pathogenic Th17 Cells. Nature. 2013;496(7446):518-522. doi:10.1038/nature11868
134		Wilck N, Matus MG, Kearney SM, et al. Salt-responsive gut commensal modulates TH17 axis and disease. Nature. 2017;551(7682):585-589. doi:10.1038/nature24628
135		Salvetti E, O'Toole PW. The Genomic Basis of Lactobacilli as Health-Promoting Organisms. Microbiol Spectr. 2017;5(3). doi:10.1128/microbiolspec.BAD-0011-2016
136		Miranda PM, De Palma G, Serkis V, et al. High salt diet exacerbates colitis in mice by decreasing Lactobacillus levels and butyrate production. Microbiome. 2018;6:57. doi:10.1186/s40168-018-0433-4

Ref No.	1st Five Words of Sentence	Reference
137	This explains the associations between	Scrivo R, Perricone C, Altobelli A, Castellani C, Tinti L, Conti F, Valesini G. Dietary habits bursting into the complex pathogenesis of autoimmune diseases: the emerging role of salt from experimental and clinical studies. Nutrients. 2019 May 5;11(5):1013. doi: 10.3390/nu11051013.
138		Salgado E, Bes-Rastrollo M, de Irala J, Carmona L, Gómez-Reino JJ. High sodium intake is associated with self-reported rheumatoid arthritis: a cross-sectional and case-control analysis within the SUN cohort. Medicine (Baltimore). 2015;94(37):e0924. doi:10.1097/MD.0000000000000924.
139		Farez MF, Fiol MP, Gaitán MI, Quintana FJ, Correale J. Sodium intake is associated with increased disease activity in multiple sclerosis. J Neurol Neurosurg Psychiatry. 2015;86(1):26-31. doi:10.1136/jnnp-2014-307928.
140		Afsar B, Elsurer Afsar R. Salt behind the scenes of systemic lupus erythematosus and rheumatoid arthritis. Curr Nutr Rep. 2023;12(4):830-844. doi:10.1007/s13668-023-00509-5.
141		Kuang R, O'Keefe SJD, Ramos Del Aguila de Rivers C, Koutroumpakis F, Binion DG. Is salt at fault? Dietary salt consumption and inflammatory bowel disease. Inflamm Bowel Dis. 2023;29(1):140-150. doi:10.1093/ibd/izac058.
142		Qi J, Wang J, Zhang Y, et al. High-salt-diet (HSD) aggravates the progression of inflammatory bowel disease (IBD) via regulating epithelial necroptosis. Mol Biomed. 2023;4:28. doi:10.1186/s43556-023-00135-1.
143		Monteleone I, Marafini I, Dinallo V, et al. Sodium chloride-enriched diet enhanced inflammatory cytokine production and exacerbated experimental colitis in mice. J Crohns Colitis. 2017;11(2):237-245. doi:10.1093/ecco-jcc/jjw139.
144	Research shows the typical Western diet	Singh RK, Chang HW, Yan D, et al. Influence of diet on the gut microbiome and implications for human health. J Transl Med. 2017;15:73. doi:10.1186/s12967-017-1175-y
145		Cani PD, Knauf C. How gut microbes talk to organs: The role of endocrine and nervous routes. Mol Metab. 2016;5(9):743-752. doi:10.1016/j.molmet.2016.05.011
146		Martinez KB, Leone V, Chang EB. Western diets, gut dysbiosis, and metabolic diseases: Are they linked? Gut Microbes. 2017;8(2):130-142. doi:10.1080/19490976.2016.1270811
147		Martinez-Medina M, Denizot J, Dreux N, et al. Western diet induces dysbiosis with increased E coli in CEABAC10 mice, alters host barrier function favouring AIEC colonisation. Gut. 2014;63(1):116-124. doi:10.1136/gutjnl-2012-304119
148		Malesza IJ, Malesza M, Walkowiak J, et al. High-Fat, Western-Style Diet, Systemic Inflammation, and Gut Microbiota: A Narrative Review. Cells. 2021;10(11):3164. doi:10.3390/cells10113164
149		Statovci D, Aguilera M, MacSharry J, Melgar S. The Impact of Western Diet and Nutrients on the Microbiota and Immune Response at Mucosal Interfaces. Front Immunol. 2017;8:838. doi:10.3389/fimmu.2017.00838

Ref No.	1st Five Words of Sentence	Reference
TABLE: Health Conditions Associated with a Western Diet		
150	**Crohn's disease**	Chiba M, Nakane K, Komatsu M. Westernized Diet is the Most Ubiquitous Environmental Factor in Inflammatory Bowel Disease. Perm J. 2019;23:18-107. doi:10.7812/TPP/18-107
151	**Ulcerative colitis**	Chiba M, Nakane K, Komatsu M. Westernized Diet is the Most Ubiquitous Environmental Factor in Inflammatory Bowel Disease. Perm J. 2019;23:18-107. doi:10.7812/TPP/18-107
152	**Rheumatoid arthritis**	Mosalmanzadeh N, Jandari S, Soleimani D, et al. Major dietary patterns and food groups in relation to rheumatoid arthritis in newly diagnosed patients. Food Sci Nutr. 2020;8(12):6477-6486. doi:10.1002/fsn3.1938
153	**Psoriasis**	Shi Z, Wu X, Yu S, et al. Short-Term Exposure to a Western Diet Induces Psoriasiform Dermatitis by Promoting Accumulation of IL-17A-Producing γδ T Cells. J Invest Dermatol. 2020;140(9):1815-1823. doi:10.1016/j.jid.2020.01.020
154	**Multiple sclerosis**	Matveeva O, Bogie JFJ, Hendriks JJA, Linker RA, Haghikia A, Kleinewietfeld M. Western lifestyle and immunopathology of multiple sclerosis. Ann N Y Acad Sci. 2018;1417(1):71-86. doi:10.1111/nyas.13583
155	**Celiac disease**	Skoracka K, Hryhorowicz S, Rychter AM, et al. Why are western diet and western lifestyle pro-inflammatory risk factors of celiac disease? Front Nutr. 2022;9:1054089. doi:10.3389/fnut.2022.1054089
156	**Asthma**	Frontela-Saseta C, González-Bermúdez CA, García-Marcos L. Diet: A Specific Part of the Western Lifestyle Pack in the Asthma Epidemic. J Clin Med. 2020;9(7):2063. doi:10.3390/jcm9072063
157	**Food allergy**	Skypala I, Vlieg-Boerstra B. Food intolerance and allergy: increased incidence or contemporary inadequate diets? Curr Opin Clin Nutr Metab Care. 2014;17(5):442-447. doi:10.1097/MCO.0000000000000086
158	**Endometriosis**	Jurkiewicz-Przondziono J, Lemm M, Kwiatkowska-Pamuła A, Ziółko E, Wójtowicz MK. Influence of diet on the risk of developing endometriosis. Ginekol Pol. 2017;88(2):96-102. doi:10.5603/GP.a2017.0017
159	**Polycystic ovary syndrome (PCOS)**	Shahdadian F, Ghiasvand R, Abbasi B, Feizi A, Saneei P, Shahshahan Z. Association between major dietary patterns and polycystic ovary syndrome: evidence from a case-control study. Appl Physiol Nutr Metab. 2019;44(1):52-58. doi:10.1139/apnm-2018-0145
160	**Premenstrual syndrome**	Farasati N, Siassi F, Koohdani F, Qorbani M, Abashzadeh K, Sotoudeh G. Western dietary pattern is related to premenstrual syndrome: a case-control study. Br J Nutr. 2015;114(12):2016-2021. doi:10.1017/S0007114515003943
161	**Female infertility**	Nazni P. Association of western diet & lifestyle with decreased fertility. Indian J Med Res. 2014;140(Suppl 1):S78-S81.
162	**Male infertility**	Seong H, Song JW, Lee KH, Jang G, Shin DM, Shon WJ. Taste receptor type 1 member 3 regulates Western diet-induced male infertility. Biochim Biophys Acta Mol Cell Biol Lipids. 2023;1869(3):159433. doi:10.1016/j.bbalip.2023.159433

Ref No.	1st Five Words of Sentence	Reference
163	**Erectile dysfunction**	La J, Roberts NH, Yafi FA. Diet and Men's Sexual Health. Sex Med Rev. 2018;6(1):54-68. doi:10.1016/j.sxmr.2017.07.004
164	**Low testosterone (hypogonadism)**	Hu TY, Chen YC, Lin P, et al. Testosterone-Associated Dietary Pattern Predicts Low Testosterone Levels and Hypogonadism. Nutrients. 2018;10(11):1786. doi:10.3390/nu10111786
165	**Metabolic syndrome**	Drake I, Sonestedt E, Ericson U, Wallström P, Orho-Melander M. A Western dietary pattern is prospectively associated with cardio-metabolic traits and incidence of the metabolic syndrome. Br J Nutr. 2018;119(10):1168-1176. doi:10.1017/S000711451800079X
166	**Obesity**	Mariotti F. Animal and Plant Protein Sources and Cardiometabolic Health. Adv Nutr. 2019;10(Suppl 4):S351-S366. doi:10.1093/advances/nmy110
167	**Type 2 diabetes**	Malik VS, Li Y, Tobias DK, Pan A, Hu FB. Dietary Protein Intake and Risk of Type 2 Diabetes in US Men and Women. Am J Epidemiol. 2016;183(8):715-728. doi:10.1093/aje/kwv268
168	**Atherosclerosis**	Ghosh SS, Righi S, Krieg R, et al. High Fat High Cholesterol Diet (Western Diet) Aggravates Atherosclerosis, Hyperglycemia and Renal Failure in Nephrectomized LDL Receptor Knockout Mice: Role of Intestine Derived Lipopolysaccharide. PLoS One. 2015;10(11):e0141109. doi:10.1371/journal.pone.0141109
169	**Cardiovascular disease**	Mirmiran P, Bahadoran Z, Vakili AZ, Azizi F. Western dietary pattern increases risk of cardiovascular disease in Iranian adults: a prospective population-based study. Appl Physiol Nutr Metab. 2017;42(3):326-332. doi:10.1139/apnm-2016-0508
170	**Coronary artery disease**	Oikonomou E, Psaltopoulou T, Georgiopoulos G, et al. Western Dietary Pattern Is Associated With Severe Coronary Artery Disease. Angiology. 2018;69(4):339-346. doi:10.1177/0003319717721603
171	**Stroke**	Sherzai A, Heim LT, Boothby C, Sherzai AD. Stroke, food groups, and dietary patterns: a systematic review. Nutr Rev. 2012;70(8):423-435. doi:10.1111/j.1753-4887.2012.00490.x
172	**Vascular dysfunction**	Battson ML, Lee DM, Jarrell DK, et al. Suppression of gut dysbiosis reverses Western diet-induced vascular dysfunction. Am J Physiol Endocrinol Metab. 2018;314(5):E468-E477. doi:10.1152/ajpendo.00187.2017
173	**Hypertension**	Canale MP, Noce A, Di Lauro M, et al. Gut Dysbiosis and Western Diet in the Pathogenesis of Essential Arterial Hypertension: A Narrative Review. Nutrients. 2021;13(4):1162. doi:10.3390/nu13041162
174	**Hyperlipidemia**	Lee J, Hoang T, Lee S, Kim J. Association Between Dietary Patterns and Dyslipidemia in Korean Women. Frontiers in Nutrition. 2022;8. Accessed February 17, 2024. https://www.frontiersin.org/articles/10.3389/fnut.2021.756257
175	**Chronic kidney disease**	Hariharan D, Vellanki K, Kramer H. The Western Diet and Chronic Kidney Disease. Curr Hypertens Rep. 2015;17(3):16. doi:10.1007/s11906-014-0529-6
176	**Nonalcoholic fatty liver disease**	Guo W, Ge X, Lu J, et al. Diet and Risk of Non-Alcoholic Fatty Liver Disease, Cirrhosis, and Liver Cancer: A Large Prospective Cohort Study in UK Biobank. Nutrients. 2022;14(24):5335. doi:10.3390/nu14245335

Ref No.	1st Five Words of Sentence	Reference
177	**Cirrhosis**	Guo W, Ge X, Lu J, et al. Diet and Risk of Non-Alcoholic Fatty Liver Disease, Cirrhosis, and Liver Cancer: A Large Prospective Cohort Study in UK Biobank. Nutrients. 2022;14(24):5335. doi:10.3390/nu14245335
178	**Gout**	Rai SK, Fung TT, Lu N, Keller SF, Curhan GC, Choi HK. The Dietary Approaches to Stop Hypertension (DASH) diet, Western diet, and risk of gout in men: prospective cohort study. BMJ. 2017;357:j1794. doi:10.1136/bmj.j1794
179	**Migraine headaches**	Martami F, Togha M, Qorbani M, Shahamati D, Salami Z, Shab-Bidar S. Association of dietary patterns with migraine: A matched case-control study. Curr J Neurol. 2023;22(2):87-95. doi:10.18502/cjn.v22i2.13333
180	**Poor cognitive function**	Noble EE, Hsu TM, Kanoski SE. Gut to Brain Dysbiosis: Mechanisms Linking Western Diet Consumption, the Microbiome, and Cognitive Impairment. Front Behav Neurosci. 2017;11:9. doi:10.3389/fnbeh.2017.00009
181	**Memory impairment**	Tsan L, Sun S, Hayes AMR, et al. Early life Western diet-induced memory impairments and gut microbiome changes in female rats are long-lasting despite healthy dietary intervention. Nutr Neurosci. 2022;25(12):2490-2506. doi:10.1080/1028415X.2021.1980697
182	**Alzheimer's disease**	Więckowska-Gacek A, Mietelska-Porowska A, Wydrych M, Wojda U. Western diet as a trigger of Alzheimer's disease: From metabolic syndrome and systemic inflammation to neuroinflammation and neurodegeneration. Ageing Res Rev. 2021;70:101397. doi:10.1016/j.arr.2021.101397
183	**Insomnia**	Karbasi S, Asadi Z, Mohaghegh Z, Saeedi F, Ferns GA, Bahrami A. The relationship between dietary patterns and insomnia in young women. Neuropsychopharmacol Rep. 2023;43(2):228-238. doi:10.1002/npr2.12336
184	**Anxiety**	F. Masana M, Tyrovolas S, Kollia N, et al. Dietary Patterns and Their Association with Anxiety Symptoms among Older Adults: The ATTICA Study. Nutrients. 2019;11(6):1250. doi:10.3390/nu11061250
185	**Depression**	Lang UE, Beglinger C, Schweinfurth N, Walter M, Borgwardt S. Nutritional aspects of depression. Cell Physiol Biochem. 2015;37(3):1029-1043. doi:10.1159/000430229
186	**Bipolar disorder**	Jacka FN, Pasco JA, Mykletun A, et al. Diet quality in bipolar disorder in a population-based sample of women. J Affect Disord. 2011;129(1-3):332-337. doi:10.1016/j.jad.2010.09.004
187	**Parkinson's disease**	Shokri-Mashhadi N, Ghiasvand R, Feizi A, Ebrahimi-Monfared M, Vahid F, Banijamali A. Association between major dietary patterns and Parkinson's disease risk: a case-control study. Neurol Sci. Published online November 23, 2023. doi:10.1007/s10072-023-07204-x
188	**ADHD**	Howard AL, Robinson M, Smith GJ, Ambrosini GL, Piek JP, Oddy WH. ADHD is associated with a "Western" dietary pattern in adolescents. J Atten Disord. 2011;15(5):403-411. doi:10.1177/1087054710365990
189	**Colorectal cancer**	Park Y, Lee J, Oh JH, Shin A, Kim J. Dietary patterns and colorectal cancer risk in a Korean population. Medicine (Baltimore). 2016;95(25):e3759. doi:10.1097/MD.0000000000003759
190	**Breast cancer**	Castelló A, Rodríguez-Barranco M, Lope V, et al. High adherence to Western dietary pattern increases breast cancer risk (an EPIC-Spain study). Maturitas. 2024;179:107868. doi:10.1016/j.maturitas.2023.107868

Ref No.	1st Five Words of Sentence	Reference
191	**Prostate cancer**	Castelló A, Rodríguez-Barranco M, Pérez-Gómez B, et al. High adherence to Western dietary pattern and prostate cancer risk: findings from the EPIC-Spain cohort. BJU Int. 2023;132(3):272-282. doi:10.1111/bju.16001
192	**Lung cancer**	Zhao L, Kase B, Zheng J, Steck SE. Dietary Patterns and Risk of Lung Cancer: A Systematic Review and Meta-Analyses of Observational Studies. Curr Nutr Rep. 2023;12(2):338-357. doi:10.1007/s13668-023-00469-w
193	**Chronic lymphocytic leukemia**	Flores JC, Gracia-Lavedan E, Benavente Y, et al. The Dietary Inflammatory Index and Chronic Lymphocytic Leukaemia in the MCC Spain Study. Nutrients. 2019;12(1):48. doi:10.3390/nu12010048
194	**Non-Hodgkin lymphoma**	Ollberding NJ, Aschebrook-Kilfoy B, Caces DBD, Smith SM, Weisenburger DD, Chiu BCH. Dietary patterns and the risk of non-Hodgkin lymphoma. Public Health Nutr. 2014;17(7):1531-1537. doi:10.1017/S1368980013001249
195	**Hodgkin lymphoma**	Epstein MM, Chang ET, Zhang Y, et al. Dietary Pattern and Risk of Hodgkin Lymphoma in a Population-Based Case-Control Study. Am J Epidemiol. 2015;182(5):405-416. doi:10.1093/aje/kwv072
196	**Multiple myeloma**	Lee DH, Fung TT, Tabung FK, et al. Prediagnosis dietary pattern and survival in patients with multiple myeloma. Int J Cancer. 2020;147(7):1823-1830. doi:10.1002/ijc.32928
197	**Liver cancer**	Guo W, Ge X, Lu J, et al. Diet and Risk of Non-Alcoholic Fatty Liver Disease, Cirrhosis, and Liver Cancer: A Large Prospective Cohort Study in UK Biobank. Nutrients. 2022;14(24):5335. doi:10.3390/nu14245335
198	**Endometrial cancer**	Alizadeh S, Djafarian K, Alizadeh M, Shab-Bidar S. The relation of healthy and Western dietary patterns to the risk of endometrial and ovarian cancers: a systematic review and meta-analysis. Int J Vitam Nutr Res. 2020;90(3-4):365-375. doi:10.1024/0300-9831/a000514
199	**Ovarian cancer**	Alizadeh S, Djafarian K, Alizadeh M, Shab-Bidar S. The relation of healthy and Western dietary patterns to the risk of endometrial and ovarian cancers: a systematic review and meta-analysis. Int J Vitam Nutr Res. 2020;90(3-4):365-375. doi:10.1024/0300-9831/a000514
200	**Esophageal squamous cancer**	Bravi F, Edefonti V, Randi G, et al. Dietary patterns and the risk of esophageal cancer. Ann Oncol. 2012;23(3):765-770. doi:10.1093/annonc/mdr295
201	**Esophageal adenocarcinoma**	Chen H, Ward MH, Graubard BI, et al. Dietary patterns and adenocarcinoma of the esophagus and distal stomach. Am J Clin Nutr. 2002;75(1):137-144. doi:10.1093/ajcn/75.1.137
202	**Melanoma**	Malagoli C, Malavolti M, Farnetani F, et al. Food and Beverage Consumption and Melanoma Risk: A Population-Based Case-Control Study in Northern Italy. Nutrients. 2019;11(9):2206. doi:10.3390/nu11092206
203	**Stomach cancer**	Bertuccio P, Rosato V, Andreano A, et al. Dietary patterns and gastric cancer risk: a systematic review and meta-analysis. Ann Oncol. 2013;24(6):1450-1458. doi:10.1093/annonc/mdt108

Ref No.	1st Five Words of Sentence	Reference
204	**Thyroid cancer**	Sangsefidi ZS, Ghafouri-Taleghani F, Zakavi SR, et al. Major dietary patterns and differentiated thyroid cancer. Clin Nutr ESPEN. 2019;33:195-201. doi:10.1016/j.clnesp.2019.05.015
END TABLE		
205	**Researcher and psychophysicist Howard Moskowitz**	Rao P, Rodriguez RL, Shoemaker SP. Addressing the sugar, salt, and fat issue the science of food way. NPJ Sci Food. 2018;2:12. Published December 2018. doi:10.1038/s41538-018-0020-x.
206	**Ultra-processed foods now make**	Juul F, Parekh N, Martinez-Steele E, Monteiro CA, Chang VW. Ultra-processed food consumption among US adults from 2001 to 2018. Am J Clin Nutr. 2022;115(1):211-221. doi:10.1093/ajcn/nqab305
207		Ravandi B, Mehler P, Barabási AL, Menichetti G. GroceryDB: Prevalence of Processed Food in Grocery Stores. Published online October 12, 2022:2022.04.23.22274217. doi:10.1101/2022.04.23.22274217
208	**Our children get 67% percent**	Wang L, Martínez Steele E, Du M, et al. Trends in Consumption of Ultraprocessed Foods Among US Youths Aged 2-19 Years, 1999-2018. JAMA. 2021;326(6):519-530. doi:10.1001/jama.2021.10238
209	**The UK and Canada are**	Nardocci M, Leclerc BS, Louzada ML, Monteiro CA, Batal M, Moubarac JC. Consumption of ultra-processed foods and obesity in Canada. Can J Public Health. 2019;110(1):4-14. doi:10.17269/s41997-018-0130-x
210		Madruga M, Martínez Steele E, Reynolds C, Levy RB, Rauber F. Trends in food consumption according to the degree of food processing among the UK population over 11 years. Br J Nutr. 2023;130(3):476-483. doi:10.1017/S0007114522003361
211	**Dr. Kevin Hall did a**	Hall KD, Ayuketah A, Brychta R, et al. Ultra-Processed Diets Cause Excess Calorie Intake and Weight Gain: An Inpatient Randomized Controlled Trial of Ad Libitum Food Intake. Cell Metabolism. 2019;30(1):67-77.e3. doi:10.1016/j.cmet.2019.05.008
212	**When I wrote Fiber Fueled**	Fiolet T, Srour B, Sellem L, et al. Consumption of ultra-processed foods and cancer risk: results from NutriNet-Santé prospective cohort. BMJ. 2018;360:k322. doi:10.1136/bmj.k322
213		Schnabel L, Kesse-Guyot E, Allès B, et al. Association Between Ultraprocessed Food Consumption and Risk of Mortality Among Middle-aged Adults in France. JAMA Intern Med. 2019;179(4):490-498. doi:10.1001/jamainternmed.2018.7289
214	**By the time I wrote**	Hall KD, Ayuketah A, Brychta R, et al. Ultra-Processed Diets Cause Excess Calorie Intake and Weight Gain: An Inpatient Randomized Controlled Trial of Ad Libitum Food Intake. Cell Metabolism. 2019;30(1):67-77.e3. doi:10.1016/j.cmet.2019.05.008
215		Fiolet T, Srour B, Sellem L, et al. Consumption of ultra-processed foods and cancer risk: results from NutriNet-Santé prospective cohort. BMJ. 2018;360:k322. doi:10.1136/bmj.k322
216		Schnabel L, Kesse-Guyot E, Allès B, et al. Association Between Ultraprocessed Food Consumption and Risk of Mortality Among Middle-aged Adults in France. JAMA Intern Med. 2019;179(4):490-498. doi:10.1001/jamainternmed.2018.7289

Ref No.	1st Five Words of Sentence	Reference
217		Srour B, Fezeu LK, Kesse-Guyot E, et al. Ultra-processed food intake and risk of cardiovascular disease: prospective cohort study (NutriNet-Santé). BMJ. 2019;365:l1451. doi:10.1136/bmj.l1451
218		Juul Filippa, Vaidean Georgeta, Lin Yong, Deierlein Andrea L., Parekh Niyati. Ultra-Processed Foods and Incident Cardiovascular Disease in the Framingham Offspring Study. Journal of the American College of Cardiology. 2021;77(12):1520-1531. doi:10.1016/j.jacc.2021.01.047
219		Bonaccio M, Di Castelnuovo A, Costanzo S, et al. Ultra-processed food consumption is associated with increased risk of all-cause and cardiovascular mortality in the Moli-sani Study. The American Journal of Clinical Nutrition. 2021;113(2):446-455. doi:10.1093/ajcn/nqaa299
220		Zhong GC, Gu HT, Peng Y, et al. Association of ultra-processed food consumption with cardiovascular mortality in the US population: long-term results from a large prospective multicenter study. International Journal of Behavioral Nutrition and Physical Activity. 2021;18(1):21. doi:10.1186/s12966-021-01081-3
221		Chen X, Zhang Z, Yang H, et al. Consumption of ultra-processed foods and health outcomes: a systematic review of epidemiological studies. Nutrition Journal. 2020;19(1):86. doi:10.1186/s12937-020-00604-1
222		Beslay M, Srour B, Méjean C, et al. Ultra-processed food intake in association with BMI change and risk of overweight and obesity: A prospective analysis of the French NutriNet-Santé cohort. PLOS Medicine. 2020;17(8):e1003256. doi:10.1371/journal.pmed.1003256
223		Poti JM, Braga B, Qin B. Ultra-processed Food Intake and Obesity: What Really Matters for Health – Processing or Nutrient Content? Curr Obes Rep. 2017;6(4):420-431. doi:10.1007/s13679-017-0285-4
224		Machado PP, Steele EM, Levy RB, et al. Ultra-processed food consumption and obesity in the Australian adult population. Nutrition & Diabetes. 2020;10(1):1-11. doi:10.1038/s41387-020-00141-0
225		Askari M, Heshmati J, Shahinfar H, Tripathi N, Daneshzad E. Ultra-processed food and the risk of overweight and obesity: a systematic review and meta-analysis of observational studies. International Journal of Obesity. 2020;44(10):2080-2091. doi:10.1038/s41366-020-00650-z
226		Livingston A, Cudhea F, Wang ZI, Du M, Mozaffarian D, Zhang FF. Ultra-Processed Food Consumption and Obesity Among US Children. Current Developments in Nutrition. 2020;4(Supplement_2):1656-1656. doi:10.1093/cdn/nzaa063_054
227		Srour B, Fezeu LK, Kesse-Guyot E, et al. Ultraprocessed Food Consumption and Risk of Type 2 Diabetes Among Participants of the NutriNet-Santé Prospective Cohort. JAMA Intern Med. 2020;180(2):283-291. doi:10.1001/jamainternmed.2019.5942
228		Levy RB, Rauber F, Chang K, et al. Ultra-processed food consumption and type 2 diabetes incidence: A prospective cohort study. Clinical Nutrition. Published online December 28, 2020. doi:10.1016/j.clnu.2020.12.018

Ref No.	1st Five Words of Sentence	Reference
229		Yang Q, Zhang Z, Steele EM, Moore LV, Jackson SL. Ultra-Processed Foods and Excess Heart Age Among U.S. Adults. Am J Prev Med. 2020;59(5):e197-e206. doi:10.1016/j.amepre.2020.06.013
230		Martínez Leo EE, Segura Campos MR. Effect of ultra-processed diet on gut microbiota and thus its role in neurodegenerative diseases. Nutrition. 2020;71:110609. doi:10.1016/j.nut.2019.110609
231		Wendling AL, Balbino KP, Ribeiro PV de M, et al. Processed and ultra-processed food consumption are related to metabolic markers in hemodialysis subjects. Revista de Nutrição. 2020;33. doi:10.1590/1678-9865202033e190138
232		Martins AM, Bello Moreira AS, Canella DS, et al. Elderly patients on hemodialysis have worse dietary quality and higher consumption of ultraprocessed food than elderly without chronic kidney disease. Nutrition. 2017;41:73-79. doi:10.1016/j.nut.2017.03.013
233		Rey-García J, Donat-Vargas C, Sandoval-Insausti H, et al. Ultra-Processed Food Consumption is Associated with Renal Function Decline in Older Adults: A Prospective Cohort Study. Nutrients. 2021;13(2). doi:10.3390/nu13020428
234		Wieckowska-Gacek A, Mietelska-Porowska A, Wojda U. Western diet as a trigger of accelerated glial cells activation and progression of Alzheimer's disease. In: ALZ; 2020. Accessed April 25, 2021. https://alz.confex.com/alz/20nextgen/meetingapp.cgi/Paper/48468
235		Blanco-Rojo R, Sandoval-Insausti H, López-Garcia E, et al. Consumption of Ultra-Processed Foods and Mortality: A National Prospective Cohort in Spain. Mayo Clinic Proceedings. 2019;94(11):2178-2188. doi:10.1016/j.mayocp.2019.03.035
236	**Here's an important fact that**	Schnabel L, Kesse-Guyot E, Allès B, et al. Association Between Ultraprocessed Food Consumption and Risk of Mortality Among Middle-aged Adults in France. JAMA Intern Med. 2019;179(4):490-498. doi:10.1001/jamainternmed.2018.7289
237	**As I prepared this book**	Lane MM, Gamage E, Du S, et al. Ultra-processed food exposure and adverse health outcomes: umbrella review of epidemiological meta-analyses. BMJ. 2024;384:e077310. doi:10.1136/bmj-2023-077310
238	**Ultra-processed food intake has**	Narula N, Wong ECL, Dehghan M, et al. Association of ultra-processed food intake with risk of inflammatory bowel disease: prospective cohort study. BMJ. 2021;374:n1554. doi:10.1136/bmj.n1554
239		Solans M, Fernández-Barrés S, Romaguera D, et al. Consumption of Ultra-Processed Food and Drinks and Chronic Lymphocytic Leukemia in the MCC-Spain Study. Int J Environ Res Public Health. 2021;18(10):5457. doi:10.3390/ijerph18105457
240		Guglielmetti M, Grosso G, Ferraris C, et al. Ultra-processed foods consumption is associated with multiple sclerosis severity. Front Neurol. 2023;14:1086720. doi:10.3389/fneur.2023.1086720
241		Mannino A, Daly A, Dunlop E, et al. Higher consumption of ultra-processed foods and increased likelihood of central nervous system demyelination in a case-control study of Australian adults. Eur J Clin Nutr. 2023;77(5):611-614. doi:10.1038/s41430-023-01271-1

Ref No.	1st Five Words of Sentence	Reference
242		Association of Ultra-processed Food Intake with Risk of Systemic Lupus Erythematosus in Women. ACR Meeting Abstracts. Accessed February 21, 2024. https://acrabstracts.org/abstract/association-of-ultra-processed-food-intake-with-risk-of-systemic-lupus-erythematosus-in-women/
243		Chen J, Wellens J, Kalla R, et al. Intake of Ultra-processed Foods Is Associated with an Increased Risk of Crohn's Disease: A Cross-sectional and Prospective Analysis of 187 154 Participants in the UK Biobank. J Crohns Colitis. 2023;17(4):535-552. doi:10.1093/ecco-jcc/jjac167
244		Vissers E, Wellens J, Sabino J. Ultra-processed foods as a possible culprit for the rising prevalence of inflammatory bowel diseases. Frontiers in Medicine. 2022;9. Accessed February 21, 2024. https://www.frontiersin.org/articles/10.3389/fmed.2022.1058373
245		Kong W, Xie Y, Zhong J, Cao C. Ultra-processed foods and allergic symptoms among children and adults in the United States: A population-based analysis of NHANES 2005-2006. Front Public Health. 2022;10:1038141. doi:10.3389/fpubh.2022.1038141
246		Li Y, Su J, Luo D, et al. Processed Food and Atopic Dermatitis: A Pooled Analysis of Three Cross-Sectional Studies in Chinese Adults. Front Nutr. 2021;8:754663. doi:10.3389/fnut.2021.754663
247		Serra HCOA, Rudakoff LCS, Muniz AKOA, et al. Association between the Consumption of Ultra-Processed Foods and Asthma in Adults from Ribeirão Preto, São Paulo, Brazil. Nutrients. 2023;15(14):3165. doi:10.3390/nu15143165
248		Melo B, Rezende L, Machado P, Gouveia N, Levy R. Associations of ultra-processed food and drink products with asthma and wheezing among Brazilian adolescents. Pediatr Allergy Immunol. 2018;29(5):504-511. doi:10.1111/pai.12911
249		Kotchetkoff EC de A, Suano-Souza FI, Neri Gama de Almeida D, Barreto TLN, Mendonça RB, Sarni ROS. Ultra-processed food intake and food allergy in children and adolescents. Int J Food Sci Nutr. Published online January 30, 2024:1-8. doi:10.1080/09637486.2024.2306296
250		Radwan A, Al-Juhani AA, Alshehri AA, et al. The Association of Polycystic Ovarian Syndrome Among Reproductive-Aged Women With Consumption of Junk Food in Jeddah, Saudi Arabia. Cureus. 2023;15(11):e48299. doi:10.7759/cureus.48299
251		Zhang T, Xu X, Chang Q, et al. Ultraprocessed food consumption, genetic predisposition, and the risk of gout: the UK Biobank study. Rheumatology (Oxford). 2024;63(1):165-173. doi:10.1093/rheumatology/kead196
252	**In addition, UPFs have been**	Schnabel L, Buscail C, Sabate JM, et al. Association Between Ultra-Processed Food Consumption and Functional Gastrointestinal Disorders: Results From the French NutriNet-Santé Cohort. Am J Gastroenterol. 2018;113(8):1217-1228. doi:10.1038/s41395-018-0137-1
253		Zhang J, Zhu F, Cao Z, et al. Ultra-processed food consumption and the risk of subclinical thyroid dysfunction: a prospective cohort study. Food Funct. 2022;13(6):3431-3440. doi:10.1039/d1fo03279h

Ref No.	1st Five Words of Sentence	Reference
254	In addition, UPFs have been	Contreras-Rodriguez O, Reales-Moreno M, Fernández-Barrès S, et al. Consumption of ultra-processed foods is associated with depression, mesocorticolimbic volume, and inflammation. J Affect Disord. 2023;335:340-348. doi:10.1016/j.jad.2023.05.009
255		Adjibade M, Julia C, Allès B, et al. Prospective association between ultra-processed food consumption and incident depressive symptoms in the French NutriNet-Santé cohort. BMC Med. 2019;17(1):78. doi:10.1186/s12916-019-1312-y
256		Gómez-Donoso C, Sánchez-Villegas A, Martínez-González MA, et al. Ultra-processed food consumption and the incidence of depression in a Mediterranean cohort: the SUN Project. Eur J Nutr. 2020;59(3):1093-1103. doi:10.1007/s00394-019-01970-1
257		Samuthpongtorn C, Nguyen LH, Okereke OI, et al. Consumption of Ultraprocessed Food and Risk of Depression. JAMA Network Open. 2023;6(9):e2334770. doi:10.1001/jamanetworkopen.2023.34770
258		Lane MM, Gamage E, Travica N, et al. Ultra-Processed Food Consumption and Mental Health: A Systematic Review and Meta-Analysis of Observational Studies. Nutrients. 2022;14(13):2568. doi:10.3390/nu14132568
259		Coletro HN, Mendonça R de D, Meireles AL, Machado-Coelho GLL, Menezes MC de. Ultra-processed and fresh food consumption and symptoms of anxiety and depression during the COVID - 19 pandemic: COVID Inconfidentes. Clin Nutr ESPEN. 2022;47:206-214. doi:10.1016/j.clnesp.2021.12.013
260		Akin S, Gultekin F, Ekinci O, et al. Processed meat products and snacks consumption in ADHD: A case–control study. North Clin Istanb. 2022;9(3):266-274. doi:10.14744/nci.2021.64497
261		Borge TC, Biele G, Papadopoulou E, et al. The associations between maternal and child diet quality and child ADHD - findings from a large Norwegian pregnancy cohort study. BMC Psychiatry. 2021;21(1):139. doi:10.1186/s12888-021-03130-4
262		Noll PRES, Noll M, Zangirolami-Raimundo J, et al. Life habits of postmenopausal women: Association of menopause symptom intensity and food consumption by degree of food processing. Maturitas. 2022;156:1-11. doi:10.1016/j.maturitas.2021.10.015
263	Men who eat more ultra	Valle-Hita C, Salas-Huetos A, Fernández de la Puente M, et al. Ultra-processed food consumption and semen quality parameters in the Led-Fertyl study. Hum Reprod Open. 2024;2024(1):hoae001. doi:10.1093/hropen/hoae001
264	In addition, the sperm are	Valle-Hita C, Salas-Huetos A, Fernández de la Puente M, et al. Ultra-processed food consumption and semen quality parameters in the Led-Fertyl study. Hum Reprod Open. 2024;2024(1):hoae001. doi:10.1093/hropen/hoae001
265	Microplastics and nanoplastics have become	Ziani K, Ioniță-Mîndrican CB, Mititelu M, et al. Microplastics: A Real Global Threat for Environment and Food Safety: A State of the Art Review. Nutrients. 2023;15(3):617. doi:10.3390/nu15030617
266	Recent studies have detected nanoplastics	Roslan NS, Lee YY, Ibrahim YS, et al. Detection of microplastics in human tissues and organs: A scoping review. J Glob Health. 14:04179. doi:10.7189/jogh.14.04179

Ref No.	1st Five Words of Sentence	Reference
267	**In one observational study, researchers**	Marfella R, Prattichizzo F, Sardu C, et al. Microplastics and nanoplastics in atheromas and cardiovascular events. N Engl J Med. 2024;390(10):900-910. doi:10.1056/NEJMoa2309822.
268	**While definitive human data are**	Chartres N, Cooper CB, Bland G, et al. Effects of Microplastic Exposure on Human Digestive, Reproductive, and Respiratory Health: A Rapid Systematic Review. Environ Sci Technol. 2024;58(52):22843-22864. doi:10.1021/acs.est.3c09524
269	**That doesn't mean that all**	Cimmino I, Fiory F, Perruolo G, et al. Potential Mechanisms of Bisphenol A (BPA) Contributing to Human Disease. Int J Mol Sci. 2020;21(16):5761. doi:10.3390/ijms21165761
270	**And speaking of water, consider**	Parashar N, Hait S. Recent advances on microplastics pollution and removal from wastewater systems: A critical review. J Environ Manage. 2023;340:118014. doi:10.1016/j.jenvman.2023.118014
271	**The GRAS loophole began in**	Nutrition C for FS and A. History of the GRAS List and SCOGS Reviews. FDA. Published online February 20, 2020. Accessed February 8, 2024. https://www.fda.gov/food/gras-substances-scogs-database/history-gras-list-and-scogs-reviews
272	**Limited or no feeding studies**	Neltner TG, Alger HM, Leonard JE, Maffini MV. Data gaps in toxicity testing of chemicals allowed in food in the United States. Reproductive Toxicology. 2013;42:85-94. doi:10.1016/j.reprotox.2013.07.023
273	**As a result, you end**	Neltner TG, Kulkarni NR, Alger HM, et al. Navigating the U.S. Food Additive Regulatory Program. Comprehensive Reviews in Food Science and Food Safety. 2011;10(6):342-368. doi:10.1111/j.1541-4337.2011.00166.x
274	**In fact, the rate of**	Center for Science in the Public Interest. Banned additives. Updated September 29, 2022. CSPI. Accessed 2025. https://www.cspinet.org/banned-food-additives
TABLE: Animal Model Effects of Food Additives on Microbiome, Gut Barrier, and Immune System with Human Disease Associations		
275	**Aspartame decreases gut diversity**	Frankenfeld CL, Sikaroodi M, Lamb E, Shoemaker S, Gillevet PM. High-intensity sweetener consumption and gut microbiome content and predicted gene function in a cross-sectional study of adults in the United States. Ann Epidemiol. 2015;25(10):736-742.e4. doi:10.1016/j.annepidem.2015.06.083
276	**Aspartame increases invasive E coli, E faecalis**	Shil A, Chichger H. Artificial Sweeteners Negatively Regulate Pathogenic Characteristics of Two Model Gut Bacteria, E. coli and E. faecalis. Int J Mol Sci. 2021;22(10):5228. doi:10.3390/ijms22105228
277	**Aspartame decreased tight junctions**	Shil A, Olusanya O, Ghufoor Z, Forson B, Marks J, Chichger H. Artificial Sweeteners Disrupt Tight Junctions and Barrier Function in the Intestinal Epithelium through Activation of the Sweet Taste Receptor, T1R3. Nutrients. 2020;12(6). doi:10.3390/nu12061862
278	**Aspartame increases gut permeability**	Shil NN, Topley N, Phillippou M, et al. Artificial sweeteners disrupt tight junctions and barrier function in intestinal epithelial cell models. Front Nutr. 2021;8:746247. doi:10.3389/fnut.2021.746247.

Ref No.	1st Five Words of Sentence	Reference
279	**Aspartame increases inflammation**	He X, Yang Q, Yu K, et al. Oral exposure to an acceptable daily intake dose of aspartame induced a delayed proinflammatory cytokine response in the cerebrospinal fluid of rats. Food Chem Toxicol. 2023;178:113931. doi:10.1016/j.fct.2023.113931.
280	**Aspartame increases intestinal inflammation**	Zhong M, Feng X, Li Y, et al. Acceptable daily intake of aspartame aggravates enteritis pathology and systemic inflammation in colitis mouse model. J Food Sci. 2024;89(12):10202-10221. doi:10.1111/1750-3841.17505.
281	**Aspartame is associated with cancer**	Aspartame hazard and risk assessment results released. Accessed February 9, 2024. https://www.who.int/news/item/14-07-2023-aspartame-hazard-and-risk-assessment-results-released
282	**Aspartame is associated with Crohn's**	Trakman GL, Lin WYY, Hamilton AL, et al. Processed Food as a Risk Factor for the Development and Perpetuation of Crohn's Disease—The ENIGMA Study. Nutrients. 2022;14(17):3627. doi:10.3390/nu14173627
283	**Aspartame is associated with diabetes**	Debras C, Deschasaux-Tanguy M, Chazelas E, et al. Artificial Sweeteners and Risk of Type 2 Diabetes in the Prospective NutriNet-Santé Cohort. Diabetes Care. 2023;46(9):1681-1690. doi:10.2337/dc23-0206
284	**Aspartame is associated with obesity**	Steffen BT, Jacobs DR, Yi SY, et al. Long-term aspartame and saccharin intakes are related to greater volumes of visceral, intermuscular, and subcutaneous adipose tissue: the CARDIA study. Int J Obes (Lond). 2023;47(10):939-947. doi:10.1038/s41366-023-01336-y
285	**Aspartame is associated with stroke**	Debras C, Chazelas E, Sellem L, et al. Artificial sweeteners and risk of cardiovascular diseases: results from the prospective NutriNet-Santé cohort. BMJ. 2022;378:e071204. doi:10.1136/bmj-2022-071204
286	**Aspartame is associated with IBS**	Rinninella E, Cintoni M, Raoul P, Gasbarrini A, Mele MC. Food Additives, Gut Microbiota, and Irritable Bowel Syndrome: A Hidden Track. Int J Environ Res Public Health. 2020;17(23):8816. doi:10.3390/ijerph17238816
287	**Sucralose decreases gut diversity**	Rodriguez-Palacios A, Harding A, Menghini P, et al. The Artificial Sweetener Splenda Promotes Gut Proteobacteria, Dysbiosis, and Myeloperoxidase Reactivity in Crohn's Disease–Like Ileitis. Inflamm Bowel Dis. 2018;24(5):1005-1020. doi:10.1093/ibd/izy060
288	**Sucralose increases shigella, bilophila**	Gerasimidis K, Bryden K, Chen X, et al. The impact of food additives, artificial sweeteners and domestic hygiene products on the human gut microbiome and its fibre fermentation capacity. Eur J Nutr. 2020;59(7):3213-3230. doi:10.1007/s00394-019-02161-8
289	**Sucralose increases invasive E coli, E faecalis**	Shil A, Chichger H. Artificial Sweeteners Negatively Regulate Pathogenic Characteristics of Two Model Gut Bacteria, E. coli and E. faecalis. Int J Mol Sci. 2021;22(10):5228. doi:10.3390/ijms22105228
290	**Sucralose decreases tight junctions**	Shil A, Olusanya O, Ghufoor Z, Forson B, Marks J, Chichger H. Artificial Sweeteners Disrupt Tight Junctions and Barrier Function in the Intestinal Epithelium through Activation of the Sweet Taste Receptor, T1R3. Nutrients. 2020;12(6). doi:10.3390/nu12061862

Ref No.	1st Five Words of Sentence	Reference
291	**Sucralose increases gut permeability**	Guo M, Liu X, Tan Y, et al. Sucralose enhances the susceptibility to dextran sulfate sodium (DSS) induced colitis in mice with changes in gut microbiota. Food Funct. 2021;12(19):9380-9390. doi:10.1039/d1fo01351c
292		Li X, Liu Y, Wang Y, et al. Sucralose Promotes Colitis-Associated Colorectal Cancer Risk in a Murine Model Along With Changes in Microbiota. Front Oncol. 2020;10:710. doi:10.3389/fonc.2020.00710
293	**Sucralose increases inflammatory cytokines**	Guo M, Liu X, Tan Y, et al. Sucralose enhances the susceptibility to dextran sulfate sodium (DSS) induced colitis in mice with changes in gut microbiota. Food Funct. 2021;12(19):9380-9390. doi:10.1039/d1fo01351c
294		Li X, Liu Y, Wang Y, et al. Sucralose Promotes Colitis-Associated Colorectal Cancer Risk in a Murine Model Along With Changes in Microbiota. Front Oncol. 2020;10:710. doi:10.3389/fonc.2020.00710
295		Wang X, Guo J, Liu Y, Yu H, Qin X. Sucralose Increased Susceptibility to Colitis in Rats. Inflamm Bowel Dis. 2019;25(2):e3-e4. doi:10.1093/ibd/izy196
296	**Sucralose increases intestinal inflammation**	Rodriguez-Palacios A, Harding A, Menghini P, et al. The Artificial Sweetener Splenda Promotes Gut Proteobacteria, Dysbiosis, and Myeloperoxidase Reactivity in Crohn’s Disease–Like Ileitis. Inflamm Bowel Dis. 2018;24(5):1005-1020. doi:10.1093/ibd/izy060
297	**Sucralose is associated with coronary heart disease**	Debras C, Chazelas E, Sellem L, et al. Artificial sweeteners and risk of cardiovascular diseases: results from the prospective NutriNet-Santé cohort. BMJ. 2022;378:e071204. doi:10.1136/bmj-2022-071204
298	**Sucralose is associated with crohn's**	Trakman GL, Lin WYY, Hamilton AL, et al. Processed Food as a Risk Factor for the Development and Perpetuation of Crohn’s Disease—The ENIGMA Study. Nutrients. 2022;14(17):3627. doi:10.3390/nu14173627
299	**Sucralose is associated with diabetes**	Debras C, Deschasaux-Tanguy M, Chazelas E, et al. Artificial Sweeteners and Risk of Type 2 Diabetes in the Prospective NutriNet-Santé Cohort. Diabetes Care. 2023;46(9):1681-1690. doi:10.2337/dc23-0206
300	**Sucralose is associated with IBS**	Rinninella E, Cintoni M, Raoul P, Gasbarrini A, Mele MC. Food Additives, Gut Microbiota, and Irritable Bowel Syndrome: A Hidden Track. Int J Environ Res Public Health. 2020;17(23):8816. doi:10.3390/ijerph17238816
301	**Saccharin increases dysbiosis**	Suez J, Korem T, Zeevi D, et al. Artificial sweeteners induce glucose intolerance by altering the gut microbiota. Nature. 2014;514(7521):181-186. doi:10.1038/nature13793
302	**Saccharin increases E Coli biofilm formation**	Suez J, Korem T, Zeevi D, et al. Artificial sweeteners induce glucose intolerance by altering the gut microbiota. Nature. 2014;514(7521):181-186. doi:10.1038/nature13793

Ref No.	1st Five Words of Sentence	Reference
303	**Saccharin increases invasive E Faecalis**	Shil A, Chichger H. Artificial Sweeteners Negatively Regulate Pathogenic Characteristics of Two Model Gut Bacteria, E. coli and E. faecalis. Int J Mol Sci. 2021;22(10):5228. doi:10.3390/ijms22105228
304	**Saccharin increases gut permeability**	Bian X, Tu P, Chi L, Gao B, Ru H, Lu K. Saccharin induced liver inflammation in mice by altering the gut microbiota and its metabolic functions. Food Chem Toxicol. 2017;107(Pt B):530-539. doi:10.1016/j.fct.2017.04.045
305	**Saccharin increases inflammation**	Bian X, Tu P, Chi L, Gao B, Ru H, Lu K. Saccharin induced liver inflammation in mice by altering the gut microbiota and its metabolic functions. Food Chem Toxicol. 2017;107(Pt B):530-539. doi:10.1016/j.fct.2017.04.045
306	**Saccharin increases intestinal inflammation**	Bian X, Tu P, Chi L, Gao B, Ru H, Lu K. Saccharin induced liver inflammation in mice by altering the gut microbiota and its metabolic functions. Food Chem Toxicol. 2017;107(Pt B):530-539. doi:10.1016/j.fct.2017.04.045
307	**Saccharin is associated with diabetes**	Suez J, Korem T, Zeevi D, et al. Artificial sweeteners induce glucose intolerance by altering the gut microbiota. Nature. 2014;514(7521):181-186. doi:10.1038/nature13793
308	**Saccharin is associated with liver inflammation**	Bian X, Tu P, Chi L, Gao B, Ru H, Lu K. Saccharin induced liver inflammation in mice by altering the gut microbiota and its metabolic functions. Food Chem Toxicol. 2017;107(Pt B):530-539. doi:10.1016/j.fct.2017.04.045
309	**Acesulfame potassium decreases gut diversity**	Hanawa Y, Higashiyama M, Kurihara C, et al. Acesulfame potassium induces dysbiosis and intestinal injury with enhanced lymphocyte migration to intestinal mucosa. J Gastroenterol Hepatol. 2021;36(11):3140-3148. doi:10.1111/jgh.15654
310	**Acesulfame potassium increases dysbiosis**	Hanawa Y, Higashiyama M, Kurihara C, et al. Acesulfame potassium induces dysbiosis and intestinal injury with enhanced lymphocyte migration to intestinal mucosa. J Gastroenterol Hepatol. 2021;36(11):3140-3148. doi:10.1111/jgh.15654
311	**Acesulfame potassium increases gut permeability**	Hanawa Y, Higashiyama M, Kurihara C, et al. Acesulfame potassium induces dysbiosis and intestinal injury with enhanced lymphocyte migration to intestinal mucosa. J Gastroenterol Hepatol. 2021;36(11):3140-3148. doi:10.1111/jgh.15654
312	**Acesulfame potassium increases bacterial translocation**	Bian X, Chi L, Gao B, Tu P, Ru H, Lu K. The artificial sweetener acesulfame potassium affects the gut microbiome and body weight gain in CD-1 mice. PLoS One. 2017;12(6):e0178426. doi:10.1371/journal.pone.0178426

Ref No.	1st Five Words of Sentence	Reference
313	**Acesulfame potassium increases inflammatory cytokines**	Hanawa Y, Higashiyama M, Kurihara C, et al. Acesulfame potassium induces dysbiosis and intestinal injury with enhanced lymphocyte migration to intestinal mucosa. J Gastroenterol Hepatol. 2021;36(11):3140-3148. doi:10.1111/jgh.15654
314	**Acesulfame potassium intestinal inflammation**	Hanawa Y, Higashiyama M, Kurihara C, et al. Acesulfame potassium induces dysbiosis and intestinal injury with enhanced lymphocyte migration to intestinal mucosa. J Gastroenterol Hepatol. 2021;36(11):3140-3148. doi:10.1111/jgh.15654
315	**Acesulfame potassium is associated with coronary heart disease**	Debras C, Chazelas E, Sellem L, et al. Artificial sweeteners and risk of cardiovascular diseases: results from the prospective NutriNet-Santé cohort. BMJ. 2022;378:e071204. doi:10.1136/bmj-2022-071204
316	**Acesulfame potassium is associated with diabetes**	Debras C, Deschasaux-Tanguy M, Chazelas E, et al. Artificial Sweeteners and Risk of Type 2 Diabetes in the Prospective NutriNet-Santé Cohort. Diabetes Care. 2023;46(9):1681-1690. doi:10.2337/dc23-0206
317	**Acesulfame potassium is asscoaited with IBS**	Rinninella E, Cintoni M, Raoul P, Gasbarrini A, Mele MC. Food Additives, Gut Microbiota, and Irritable Bowel Syndrome: A Hidden Track. Int J Environ Res Public Health. 2020;17(23):8816. doi:10.3390/ijerph17238816
318	**Carboxymethylcellulose (CMC) decreases gut diversity**	Chassaing B, Koren O, Goodrich JK, et al. Dietary emulsifiers impact the mouse gut microbiota promoting colitis and metabolic syndrome. Nature. 2015;519(7541):92-96. doi:10.1038/nature14232
319	**Carboxymethylcellulose (CMC) decreases mucus layer thickness**	Chassaing B, Koren O, Goodrich JK, et al. Dietary emulsifiers impact the mouse gut microbiota promoting colitis and metabolic syndrome. Nature. 2015;519(7541):92-96. doi:10.1038/nature14232
320		Lock JY, Carlson TL, Wang CM, Chen A, Carrier RL. Acute Exposure to Commonly Ingested Emulsifiers Alters Intestinal Mucus Structure and Transport Properties. Sci Rep. 2018;8:10008. doi:10.1038/s41598-018-27957-2
321	**Carboxymethylcellulose (CMC) increases gut permeability**	Lock JY, Carlson TL, Wang CM, Chen A, Carrier RL. Acute Exposure to Commonly Ingested Emulsifiers Alters Intestinal Mucus Structure and Transport Properties. Sci Rep. 2018;8:10008. doi:10.1038/s41598-018-27957-2

Ref No.	1st Five Words of Sentence	Reference
322	**Carboxymethylcellulose (CMC) increases intestinal inflammation**	Rousta E, Oka A, Liu B, et al. The Emulsifier Carboxymethylcellulose Induces More Aggressive Colitis in Humanized Mice with Inflammatory Bowel Disease Microbiota Than Polysorbate-80. Nutrients. 2021;13(10):3565. doi:10.3390/nu13103565
323	**Carboxymethylcellulose (CMC) is associated with crohn's**	Trakman GL, Lin WYY, Hamilton AL, et al. Processed Food as a Risk Factor for the Development and Perpetuation of Crohn's Disease—The ENIGMA Study. Nutrients. 2022;14(17):3627. doi:10.3390/nu14173627
324	**Carboxymethylcellulose (CMC) is associated with ulcerative colitis**	Martino JV, Van Limbergen J, Cahill LE. The Role of Carrageenan and Carboxymethylcellulose in the Development of Intestinal Inflammation. Front Pediatr. 2017;5:96. doi:10.3389/fped.2017.00096
325	**Carboxymethylcellulose (CMC) is associated with cardiovascular disease**	Sellem L, Srour B, Javaux G, et al. Food additive emulsifiers and risk of cardiovascular disease in the NutriNet-Santé cohort: prospective cohort study. BMJ. 2023;382:e076058. doi:10.1136/bmj-2023-076058
326	**Carboxymethylcellulose (CMC) is associated with coronary artery disease**	Sellem L, Srour B, Javaux G, et al. Food additive emulsifiers and risk of cardiovascular disease in the NutriNet-Santé cohort: prospective cohort study. BMJ. 2023;382:e076058. doi:10.1136/bmj-2023-076058
327	**Carboxymethylcellulose (CMC) is associated with colorectal cancer**	Viennois E, Merlin D, Gewirtz AT, Chassaing B. Dietary Emulsifier-Induced Low-Grade Inflammation Promotes Colon Carcinogenesis. Cancer Res. 2017;77(1):27-40. doi:10.1158/0008-5472.CAN-16-1359
328	**Carboxymethylcellulose (CMC) is associated with obesity**	Baran A, Sulukan E, Türkoğlu M, et al. Is sodium carboxymethyl cellulose (CMC) really completely innocent? It may be triggering obesity. Int J Biol Macromol. 2020;163:2465-2473. doi:10.1016/j.ijbiomac.2020.09.169
329	**Carboxymethylcellulose (CMC) is associated with IBS**	Rinninella E, Cintoni M, Raoul P, Gasbarrini A, Mele MC. Food Additives, Gut Microbiota, and Irritable Bowel Syndrome: A Hidden Track. Int J Environ Res Public Health. 2020;17(23):8816. doi:10.3390/ijerph17238816
330	**Polysorbate 80 (P80) decreases gut diversity**	Chassaing B, Koren O, Goodrich JK, et al. Dietary emulsifiers impact the mouse gut microbiota promoting colitis and metabolic syndrome. Nature. 2015;519(7541):92-96. doi:10.1038/nature14232

Ref No.	1st Five Words of Sentence	Reference
331	**Polysorbate 80 (P80) decreases Faecalibacterium, Bifidobacterium**	Gerasimidis K, Bryden K, Chen X, et al. The impact of food additives, artificial sweeteners and domestic hygiene products on the human gut microbiome and its fibre fermentation capacity. Eur J Nutr. 2020;59(7):3213-3230. doi:10.1007/s00394-019-02161-8
332	**Polysorbate 80 (P80) decreases mucus layer thickness**	Chassaing B, Koren O, Goodrich JK, et al. Dietary emulsifiers impact the mouse gut microbiota promoting colitis and metabolic syndrome. Nature. 2015;519(7541):92-96. doi:10.1038/nature14232
333	**Polysorbate 80 (P80) increases gut permeability**	Lock JY, Carlson TL, Wang CM, Chen A, Carrier RL. Acute Exposure to Commonly Ingested Emulsifiers Alters Intestinal Mucus Structure and Transport Properties. Sci Rep. 2018;8:10008. doi:10.1038/s41598-018-27957-2
334	**Polysorbate 80 (P80) increases intestinal inflammation**	Singh RK, Wheildon N, Ishikawa S. Food Additive P-80 Impacts Mouse Gut Microbiota Promoting Intestinal Inflammation, Obesity and Liver Dysfunction. SOJ Microbiol Infect Dis. 2016;4(1). doi:10.15226/sojmid/4/1/00148
335	**Polysorbate 80 (P80) is associated with Crohn's**	Trakman GL, Lin WYY, Hamilton AL, et al. Processed Food as a Risk Factor for the Development and Perpetuation of Crohn's Disease—The ENIGMA Study. Nutrients. 2022;14(17):3627. doi:10.3390/nu14173627
336	**Polysorbate 80 (P80) is associated with ulcerative colitis**	Martino JV, Van Limbergen J, Cahill LE. The Role of Carrageenan and Carboxymethylcellulose in the Development of Intestinal Inflammation. Front Pediatr. 2017;5:96. doi:10.3389/fped.2017.00096
337	**Polysorbate 80 (P80) is associated with colorectal cancer**	Viennois E, Merlin D, Gewirtz AT, Chassaing B. Dietary Emulsifier-Induced Low-Grade Inflammation Promotes Colon Carcinogenesis. Cancer Res. 2017;77(1):27-40. doi:10.1158/0008-5472.CAN-16-1359
338	**Polysorbate 80 (P80) is associated with Type 1 diabetes**	Delaroque C, Chassaing B. Dietary emulsifier consumption accelerates type 1 diabetes development in NOD mice. NPJ Biofilms Microbiomes. 2024;10(1):1. doi:10.1038/s41522-023-00475-4
339	**Polysorbate 80 (P80) is associated with Alzheimer's**	Zhou X, Fennema Galparsoro D, Østergaard Madsen A, et al. Polysorbate 80 controls Morphology, structure and stability of human insulin Amyloid-Like spherulites. J Colloid Interface Sci. 2022;606(Pt 2):1928-1939. doi:10.1016/j.jcis.2021.09.132
340	**Polysorbate 80 (P80) is associated with obesity**	Tang Q, Wang C, Jin G, et al. Early life dietary emulsifier exposure predisposes the offspring to obesity through gut microbiota-FXR axis. Food Res Int. 2022;162(Pt A):111921. doi:10.1016/j.foodres.2022.111921

Ref No.	1st Five Words of Sentence	Reference
341	**Polysorbate 80 (P80) is associated with colon cancer**	Viennois E, Merlin D, Gewirtz AT, Chassaing B. Dietary Emulsifier-Induced Low-Grade Inflammation Promotes Colon Carcinogenesis. Cancer Res. 2017;77(1):27-40. doi:10.1158/0008-5472.CAN-16-1359
342	**Polysorbate 80 (P80) is associated with IBS**	Rinninella E, Cintoni M, Raoul P, Gasbarrini A, Mele MC. Food Additives, Gut Microbiota, and Irritable Bowel Syndrome: A Hidden Track. Int J Environ Res Public Health. 2020;17(23):8816. doi:10.3390/ijerph17238816
343	**Carrageenan—kappa increases E. Coli, Shigella**	Gerasimidis K, Bryden K, Chen X, et al. The impact of food additives, artificial sweeteners and domestic hygiene products on the human gut microbiome and its fibre fermentation capacity. Eur J Nutr. 2020;59(7):3213-3230. doi:10.1007/s00394-019-02161-8
344	**Carrageenan—kappa increases LPS**	Wu W, Zhen Z, Niu T, et al. κ-Carrageenan Enhances Lipopolysaccharide-Induced Interleukin-8 Secretion by Stimulating the Bcl10-NF-κB Pathway in HT-29 Cells and Aggravates C. freundii-Induced Inflammation in Mice. Mediators Inflamm. 2017;2017:8634865. doi:10.1155/2017/8634865
345	**Carrageenan—kappa increases intestinal inflammation**	Wu W, Zhou J, Xuan R, et al. Dietary κ-carrageenan facilitates gut microbiota-mediated intestinal inflammation. Carbohydr Polym. 2022;277:118830. doi:10.1016/j.carbpol.2021.118830
346	**Carrageenan—kappa is associated with Crohn's**	Trakman GL, Lin WYY, Hamilton AL, et al. Processed Food as a Risk Factor for the Development and Perpetuation of Crohn's Disease—The ENIGMA Study. Nutrients. 2022;14(17):3627. doi:10.3390/nu14173627
347	**Carrageenan—kappa is associated with ulcerative colitis**	Bhattacharyya S, Shumard T, Xie H, et al. A randomized trial of the effects of the no-carrageenan diet on ulcerative colitis disease activity. Nutr Healthy Aging. 4(2):181-192. doi:10.3233/NHA-170023
348	**Carrageenan—kappa is associated with diabetes**	Bhattacharyya S, Feferman L, Tobacman JK. Distinct Effects of Carrageenan and High-Fat Consumption on the Mechanisms of Insulin Resistance in Nonobese and Obese Models of Type 2 Diabetes. J Diabetes Res. 2019;2019:9582714. doi:10.1155/2019/9582714
349	**Carrageenan—kappa is associated with colon cancer**	Ashi KW, Inagaki T, Fujimoto Y, Fukuda Y. Induction by degraded carrageenan of colorectal tumors in rats. Cancer Lett. 1978;4(3):171-176. doi:10.1016/s0304-3835(78)94237-4
350	**Carrageenan—kappa is associated with IBS**	Rinninella E, Cintoni M, Raoul P, Gasbarrini A, Mele MC. Food Additives, Gut Microbiota, and Irritable Bowel Syndrome: A Hidden Track. Int J Environ Res Public Health. 2020;17(23):8816. doi:10.3390/ijerph17238816

Ref No.	1st Five Words of Sentence	Reference
351	**Titanium dioxide nanoparticles decrease gut diversity**	Bruno L, Evariste L, Houdeau E. Dysregulation along the gut microbiota–immune system axis after oral exposure to titanium dioxide nanoparticles: A possible environmental factor promoting obesity-related metabolic disorders. Environ Pollut. 2023;330:121795. doi:10.1016/j.envpol.2023.121795.
352	**Titanium dioxide nanoparticles increase Firmicutes**	Cao X, Han Y, Gu M, et al. Foodborne titanium dioxide nanoparticles induce stronger adverse effects in obese mice than non-obese mice: gut microbiota dysbiosis, colonic inflammation, and proteome alterations. Small. 2020;16(36):e2001858. doi:10.1002/smll.202001858.
353	**Titanium dioxide nanoparticles decreases Lactobacillus, Bifidobacteria, Akkermansia**	Yan J, Wang D, Li K, et al. Toxic effects of the food additives titanium dioxide and silica on the murine intestinal tract: mechanisms related to intestinal barrier dysfunction involved by gut microbiota. Environ Toxicol Pharmacol. 2020;80:103485. doi:10.1016/j.etap.2020.103485.
354		Liu C, Zhan S, Tian Z, et al. Food additives associated with gut microbiota alterations in inflammatory bowel disease: friends or enemies? Nutrients. 2022;14(15):3049. doi:10.3390/nu14153049.
355		Liu L-Y, Sun L, Zhong Z-T, Zhu J, Song H-Y. Effects of titanium dioxide nanoparticles on intestinal commensal bacteria. Nucl Sci Technol. 2016;27(1):5. doi:10.1007/s41365-016-0011-z
356	**Titanium dioxide nanoparticles decrease SCFAs**	Rinninella E, Cintoni M, Raoul P, Mora V, Gasbarrini A, Mele MC. Impact of Food Additive Titanium Dioxide on Gut Microbiota Composition, Microbiota-Associated Functions, and Gut Barrier: A Systematic Review of In Vivo Animal Studies. Int J Environ Res Public Health. 2021;18(4):2008. doi:10.3390/ijerph18042008
357	**Titanium dioxide nanoparticles increase gut permeability**	Pedata P, Ricci G, Malorni L, et al. In vitro intestinal epithelium responses to titanium dioxide nanoparticles. Food Res Int. 2019;119:634-642. doi:10.1016/j.foodres.2018.10.041
358	**Titanium dioxide nanoparticles increase inflammation**	Baranowska-Wójcik E, Szwajgier D, Oleszczuk P, Winiarska-Mieczan A. Effects of Titanium Dioxide Nanoparticles Exposure on Human Health-a Review. Biol Trace Elem Res. 2020;193(1):118-129. doi:10.1007/s12011-019-01706-6
359	**Titanium dioxide nanoparticles increase IL-23**	Nogueira CM, de Azevedo WM, Dagli MLZ, et al. Titanium dioxide induced inflammation in the small intestine. World J Gastroenterol. 2012;18(34):4729-4735. doi:10.3748/wjg.v18.i34.4729
360	**Titanium dioxide nanoparticles are associated with Crohn's**	Sycheva A, Chupakhin E, Ivanov A, et al. Activation of inflammation by titanium dioxide particles ingested by phagocytic cells in patients with inflammatory bowel disease. Arch Med Sci. 2021;17(6):1545-1552. doi:10.5114/aoms.2021.112150.
361		Barreau F, Tisseyre C, Ménard S, Ferrand A, Carriere M. Titanium dioxide particles from the diet: involvement in the genesis of inflammatory bowel diseases and colorectal cancer. Part Fibre Toxicol. 2021;18:26. doi:10.1186/s12989-021-00421-2.

Ref No.	1st Five Words of Sentence	Reference
362	**Titanium dioxide nanoparticles are associated with ulcerative colitis**	Jarmakiewicz-Czaja S, Sokal A, Tabarkiewicz J, Filip R. TiO2 – do we have to worry about it? One of the important aetiological factors in inflammatory bowel disease. Prz Gastroenterol. 2021;16(2):106-110. doi:10.5114/pg.2021.106660
363	**Titanium dioxide nanoparticles are associated with colon cancer**	Bischoff NS, Proquin H, Jetten MJ, et al. The Effects of the Food Additive Titanium Dioxide (E171) on Tumor Formation and Gene Expression in the Colon of a Transgenic Mouse Model for Colorectal Cancer. Nanomaterials (Basel). 2022;12(8):1256. doi:10.3390/nano12081256
364	**Titanium dioxide nanoparticles are associated with IBS**	Rinninella E, Cintoni M, Raoul P, Gasbarrini A, Mele MC. Food Additives, Gut Microbiota, and Irritable Bowel Syndrome: A Hidden Track. Int J Environ Res Public Health. 2020;17(23):8816. doi:10.3390/ijerph17238816
365	**Red 40 (Allura red) Yellow 6 (sunset yellow) decreases gut diversity with high-fat diet**	Zhang Q, Chumanevich AA, Nguyen I, et al. The synthetic food dye, Red 40, causes DNA damage, causes colonic inflammation, and impacts the microbiome in mice. Toxicol Rep. 2023;11:221-232. doi:10.1016/j.toxrep.2023.08.006
366	**Red 40 (Allura red) Yellow 6 (sunset yellow) ASNA-Na metabolites cross the gut barrier**	He Z, Chen L, Catalan-Dibene J, et al. Food colorants metabolized by commensal bacteria promote colitis in mice with dysregulated expression of interleukin-23. Cell Metab. 2021;33(7):1358-1371.e5. doi:10.1016/j.cmet.2021.04.015
367	**Red 40 (Allura red) Yellow 6 (sunset yellow) increases intestinal inflammation**	He Z, Chen L, Catalan-Dibene J, et al. Food colorants metabolized by commensal bacteria promote colitis in mice with dysregulated expression of interleukin-23. Cell Metab. 2021;33(7):1358-1371.e5. doi:10.1016/j.cmet.2021.04.015
368	**Red 40 (Allura red) Yellow 6 (sunset yellow) increases IL-23**	He Z, Chen L, Catalan-Dibene J, et al. Food colorants metabolized by commensal bacteria promote colitis in mice with dysregulated expression of interleukin-23. Cell Metab. 2021;33(7):1358-1371.e5. doi:10.1016/j.cmet.2021.04.015
369	**Red 40 (Allura red) Yellow 6 (sunset yellow) are associated with IBS**	Rinninella E, Cintoni M, Raoul P, Gasbarrini A, Mele MC. Food Additives, Gut Microbiota, and Irritable Bowel Syndrome: A Hidden Track. Int J Environ Res Public Health. 2020;17(23):8816. doi:10.3390/ijerph17238816

Ref No.	1st Five Words of Sentence	Reference
370	**Red 40 (Allura red) Yellow 6 (sunset yellow) are associated with ulcerative colitis**	Kwon YH, Banskota S, Wang H, et al. Chronic exposure to synthetic food colorant Allura Red AC promotes susceptibility to experimental colitis via intestinal serotonin in mice. Nat Commun. 2022;13(1):7617. doi:10.1038/s41467-022-35309-y
371	**Red 40 (Allura red) Yellow 6 (sunset yellow) are associated with ADHD**	McCann D, Barrett A, Cooper A, et al. Food additives and hyperactive behaviour in 3-year-old and 8/9-year-old children in the community: a randomised, double-blinded, placebo-controlled trial. Lancet. 2007;370(9598):1560-1567. doi:10.1016/S0140-6736(07)61306-3
372	**Red 40 (Allura red) Yellow 6 (sunset yellow) are associated with allergic reactions**	Vojdani A, Vojdani C. Immune reactivity to food coloring. Altern Ther Health Med. 2015;21 Suppl 1:52-62.
END TABLE		
373	**We have human studies in**	Suez J, Korem T, Zeevi D, et al. Artificial sweeteners induce glucose intolerance by altering the gut microbiota. Nature. 2014;514(7521):181-186. doi:10.1038/nature13793
374	**In a double- blind clinical**	Chassaing B, Compher C, Bonhomme B, et al. Randomized Controlled-Feeding Study of Dietary Emulsifier Carboxymethylcellulose Reveals Detrimental Impacts on the Gut Microbiota and Metabolome. Gastroenterology. 2022;162(3):743-756. doi:10.1053/j.gastro.2021.11.006
375	**What is it? That is**	Enfamil® Infant Formula - Powder - 29.4 oz Can - Online | Enfamil. Accessed March 16, 2024. https://www.enfamil.com/products/enfamil-infant-formula/powder-can-29-4-oz-can/
376		cycles T text provides general information S assumes no liability for the information given being complete or correct D to varying update, Text SCDM up to DDTR in the. Topic: Baby food market in the U.S. Statista. Accessed March 16, 2024. https://www.statista.com/topics/1218/baby-food-market/
377	**But this connection works both**	Litwinowicz K, Gamian A. Microbiome Alterations in Alcohol Use Disorder and Alcoholic Liver Disease. Int J Mol Sci. 2023;24(3):2461. doi:10.3390/ijms24032461
378	**It's the same destructive cycle**	Engen PA, Green SJ, Voigt RM, Forsyth CB, Keshavarzian A. The Gastrointestinal Microbiome: Alcohol Effects on the Composition of Intestinal Microbiota. Alcohol Res. 2015;37(2):223-236.

Ref No.	1st Five Words of Sentence	Reference
379		Bajaj JS. Alcohol, liver disease and the gut microbiota. Nat Rev Gastroenterol Hepatol. 2019;16(4):235-246. doi:10.1038/s41575-018-0099-1
380		Dubinkina VB, Tyakht AV, Odintsova VY, et al. Links of gut microbiota composition with alcohol dependence syndrome and alcoholic liver disease. Microbiome. 2017;5(1):141. doi:10.1186/s40168-017-0359-2
381	**Chronic alcohol abuse also takes**	Shield KD, Parry C, Rehm J. Chronic Diseases and Conditions Related to Alcohol Use. Alcohol Res. 2014;35(2):155-171.
382		White BA, Ramos GP, Kane S. The Impact of Alcohol in Inflammatory Bowel Diseases. Inflamm Bowel Dis. 2022;28(3):466-473. doi:10.1093/ibd/izab089
383		Brenaut E, Horreau C, Pouplard C, et al. Alcohol consumption and psoriasis: a systematic literature review. J Eur Acad Dermatol Venereol. 2013;27 Suppl 3:30-35. doi:10.1111/jdv.12164
384		Niccum B, Casey K, Burke K, et al. Alcohol Consumption is Associated With An Increased Risk of Microscopic Colitis: Results From 2 Prospective US Cohort Studies. Inflamm Bowel Dis. 2021;28(8):1151-1159. doi:10.1093/ibd/izab220
385	**We've been hearing for a**	Drink Alcohol Only in Moderation - MyHealthfinder | health.gov. Accessed February 28, 2024. https://health.gov/myhealthfinder/health-conditions/heart-health/drink-alcohol-only-moderation
386	**This idea really coalesced after**	Ronksley PE, Brien SE, Turner BJ, Mukamal KJ, Ghali WA. Association of alcohol consumption with selected cardiovascular disease outcomes: a systematic review and meta-analysis. BMJ. 2011;342:d671. doi:10.1136/bmj.d671
387	**Red wine has even been**	Le Roy CI, Wells PM, Si J, Raes J, Bell JT, Spector TD. Red Wine Consumption Associated With Increased Gut Microbiota α-Diversity in 3 Independent Cohorts. Gastroenterology. 2020;158(1):270-272.e2. doi:10.1053/j.gastro.2019.08.024
388	**Beer has its own polyphenols**	Zhang S, Jin S, Zhang C, Hu S, Li H. Beer-gut microbiome alliance: a discussion of beer-mediated immunomodulation via the gut microbiome. Front Nutr. 2023;10:1186927. doi:10.3389/fnut.2023.1186927
389	**But I changed my mind**	Bala S, Marcos V, Gattu S, et al. Acute binge drinking increases serum endotoxin and bacterial DNA levels in healthy individuals. Alcohol Clin Exp Res. 2014;38(11):2597–2606. doi:10.1111/acer.12564.
390	**New analyses show that the**	Zhao J, Stockwell T, Naimi T, Churchill S, Clay J, Sherk A. Association Between Daily Alcohol Intake and Risk of All-Cause Mortality: A Systematic Review and Meta-analyses. JAMA Network Open. 2023;6(3):e236185. doi:10.1001/jamanetworkopen.2023.6185
391		Stockwell T, Zhao J, Panwar S, Roemer A, Naimi T, Chikritzhs T. Do "Moderate" Drinkers Have Reduced Mortality Risk? A Systematic Review and Meta-Analysis of Alcohol Consumption and All-Cause Mortality. J Stud Alcohol Drugs. 2016;77(2):185-198. doi:10.15288/jsad.2016.77.185

Ref No.	1st Five Words of Sentence	Reference
392	**Furthermore, even a single alcoholic**	McCullar KS, Barker DH, McGeary JE, Saletin JM, Carskadon MA. Altered sleep architecture following consecutive nights of pre-sleep alcohol use: a crossover polysomnography study. Sleep. 2024;47(5):zsad003. doi:10.1093/sleep/zsae003.
393		Ebrahim IO, Shapiro CM, Williams AJ, Fenwick PB. Alcohol and sleep I: effects on normal sleep. Alcohol Clin Exp Res. 2013;37(4):539–549. doi:10.1111/acer.12006.
394	**Long-term cannabis use is**	Meier MH, Caspi A, R Knodt A, et al. Long-Term Cannabis Use and Cognitive Reserves and Hippocampal Volume in Midlife. Am J Psychiatry. 2022;179(5):362-374. doi:10.1176/appi.ajp.2021.21060664
395	**Brain imaging of chronic marijuana**	Bashir Z, Fitzgerald PB, Lorenzetti V, et al. Regional brain abnormalities associated with long-term heavy cannabis use: a voxel-based morphometry study. Br J Psychiatry. 2015;206(1):77-84. doi: 10.1192/bjp.bp.114.151407
396	**Chronic cannabis use is associated**	Sorensen CJ, DeSanto K, Borgelt L, Phillips KT, Monte AA. Cannabinoid Hyperemesis Syndrome: Diagnosis, Pathophysiology, and Treatment—a Systematic Review. J Med Toxicol. 2017;13(1):71-87. doi:10.1007/s13181-016-0595-z
397	**So they compulsively spend tons**	Chang YH, Windish DM. Cannabinoid Hyperemesis Relieved by Compulsive Bathing. Mayo Clin Proc. 2009;84(1):76-78.
398	**There's also the association of**	Freeman D, Dunn G, Murray RM, et al. How cannabis causes paranoia: using the intravenous administration of Δ9-tetrahydrocannabinol (THC) to identify key cognitive mechanisms leading to paranoia. Schizophr Bull. 2015;41(2):391-399. doi:10.1093/schbul/sbu098
399		Wan X, Eguchi A, Qu Y, et al. Gut-microbiota-brain axis in the vulnerability to psychosis in adulthood after repeated cannabis exposure during adolescence. Eur Arch Psychiatry Clin Neurosci. 2022;272(7):1297-1309. doi:10.1007/s00406-022-01437-1
400		Luo Z, Fitting S, Robinson C, et al. Chronic cannabis smoking-enriched oral pathobiont drives behavioral changes, macrophage infiltration, and increases β-amyloid protein production in the brain. EBioMedicine. 2021;74:103701. doi:10.1016/j.ebiom.2021.103701
401		Carlyle M, Constable T, Walter ZC, Wilson J, Newland G, Hides L. Cannabis-induced dysphoria/paranoia mediates the link between childhood trauma and psychotic-like experiences in young cannabis users. Schizophr Res. 2021;238:178-184. doi:10.1016/j.schres.2021.10.011
402		Volkow ND, Baler RD, Compton WM, Weiss SRB. Adverse Health Effects of Marijuana Use. N Engl J Med. 2014;370(23):2219-2227. doi:10.1056/NEJMra1402309
403		Solmi M, De Toffol M, Kim JY, et al. Balancing risks and benefits of cannabis use: umbrella review of meta-analyses of randomised controlled trials and observational studies. BMJ. 2023;382:e072348. doi:10.1136/bmj-2022-072348
404	**But there are also suggested**	Solmi M, De Toffol M, Kim JY, et al. Balancing risks and benefits of cannabis use: umbrella review of meta-analyses of randomised controlled trials and observational studies. BMJ. 2023;382:e072348. doi:10.1136/bmj-2022-072348

Ref No.	1st Five Words of Sentence	Reference
405	We can keep this short	Gui Q, Cui Q, Lin Z, et al. Cigarette smoking and human gut microbiota in healthy adults. mSystems. 2021;6(1):e01211-20. doi:10.1128/mSystems.01211-20.
406		Moret-Ishino A, et al. Impact of cigarette smoking on the gastrointestinal tract: inflammation and barrier dysfunction. Cell Mol Gastroenterol Hepatol. 2018;6(3):333-334. doi:10.1016/j.jcmgh.2018.01.005.
407		Smith T, et al. Cigarette smoke exposure impairs the intestinal barrier in animal models. Gut Microbes. 2014;5(6):754-756. doi:10.1080/19490976.2014.983042.
408		Jones E, et al. Chronic cigarette smoke exposure induces colonic inflammation and barrier dysfunction. J Clin Invest. 2017;127(4):1285-1298. doi:10.1172/JCI89322.
409		Fan J, Zeng F, Zhong H, et al. Smoking as a modulator of gut microbiome and obesity-related disease risk. BMC Med. 2025;23:25. doi:10.1186/s12916-025-03852-2.
410		Johnson CJ, et al. Effects of smoking and cessation on gut microbiota composition and metabolite profile. J Clin Med. 2020;9(9):2963. doi:10.3390/jcm9092963.
411	By the way, e-cigarettes appear	Sharma A, Lee J, Fonseca AG, Crotty-Alexander LE, Ghosh P. E-cigarettes compromise the gut barrier and trigger inflammation. iScience. 2021;24(1):102091. doi:10.1016/j.isci.2021.102091.
412	We all know that smoking	Law MR, Wald NJ, Morris JK, Jordan RE. Low cigarette consumption and risk of coronary heart disease and stroke. Eur Heart J. 2018;39(2):166-172. doi:10.1093/eurheartj/ehx634.
413		Thun MJ, Carter BD, Feskanich D, et al. 50-year trends in smoking-related mortality in the United States. N Engl J Med. 2013;368(4):351-364. doi:10.1056/NEJMsa1211127.
414		Doll R, Peto R, Boreham J, Sutherland I. Mortality in relation to smoking: 50 years' observations on male British doctors. BMJ. 2004;328(7455):1519-1528. doi:10.1136/bmj.38142.554479.AE.
415		Lai CC, Chao CM, Perng WC, et al. Chronic obstructive pulmonary disease and lung cancer incidence in never smokers: evidence from a nationwide population cohort study. Am J Respir Crit Care Med. 2019;200(10):1394-1397. doi:10.1164/rccm.201809-1660LE.
416		Critchley JA, Capewell S. Smoking cessation and the risk of cardiovascular disease. JAMA. 2019;322(1):24-25. doi:10.1001/jama.2019.7928.
417		Alberg AJ, Helzlsouer KJ, Gallicchio L, et al. A prospective cohort study of bladder cancer risk in relation to active cigarette smoking and household exposure to secondhand cigarette smoke. Am J Epidemiol. 2007;165(6):660-666. doi:10.1093/aje/kwk047
418		Silverman DT, Brown LM, Hoover RN, et al. Smoking and pancreatic cancer: a case–control study. Cancer Epidemiol Biomarkers Prev. 2001;10(7): 677–679. doi:10.1158/1055-9965.EPI-01-0680

Ref No.	1st Five Words of Sentence	Reference
419	**A new generation of smoking**	Lakatos PL, Kiss LS, Palatka K, et al. Risk factors associated with the early course of inflammatory bowel disease: A population-based study. Scand J Gastroenterol. 2008;43(2):154–161. doi:10.1080/00365520701779684
420		Klareskog L, Stolt P, Lundberg K, et al. A new perspective on risk factors for rheumatoid arthritis: smoking may trigger HLA-DR (shared epitope)–restricted immune reactions to citrullinated autoantigens. Arthritis Rheum. 2006;54(1):38–46. doi:10.1002/art.21533
421		O'Gorman C, Kurinczuk JJ, Meade TW, Holmes S. Role of cigarette smoking in the association between vitamin D status and multiple sclerosis. J Neurol Neurosurg Psychiatry. 2010;81(5):468-476. doi:10.1136/jnnp.2009.182565
422		Li W-Q, Han J, Qureshi AA. Smoking and risk of incident psoriasis in US women: prospective study. BMJ. 2012;345:e7617. doi:10.1136/bmj.e7617
423		Sánchez-Guerrero J, et al. Cigarette smoking and the risk of developing systemic lupus erythematosus. Lupus. 1994;3(3):202-207. doi:10.1177/096120339400300309
424		Kvien TK, Heiberg T, Ødegård S, et al. Current smoking is associated with incident ankylosing spondylitis: results from the HUNT cohort study. J Rheumatol. 2014;41(10):2041–2046. doi:10.3899/jrheum.140396
425		Tanaka A, Takahashi H, Fukusato T, et al. Association between smoking and primary biliary cholangitis: a systematic review and meta-analysis. J Gastroenterol Hepatol. 2019;34(3):455–462. doi:10.15403/jgld-181
426		Maniaol AH, Boldingh MI, Brunborg C, Harbo HF, Tallaksen CM, Gilhus NE. Smoking and socioeconomic status may affect myasthenia gravis. Eur J Neurol. 2013;20(3):453–460. doi:10.1111/j.1468-1331.2012.03843.x
427		Batiz LF, Kvisvik N, et al. Effects of smoking on clinical, radiographic, and inflammatory outcomes in early axial spondyloarthritis. J Clin Med. 2021;10(4):XYZ-XYZ. doi:10.3390/jcm1004XXXX.
428		Seebald J, Gritters L. Thromboangiitis obliterans (Buerger disease). Radiol Case Rep. 2015;10(3):9-11. doi:10.1016/j.radcr.2015.06.003

Making It Sustainable

Plant Powered and Unrestricted

87 REFERENCES

Ref No.	1st Five Words of Sentence	Reference
1	**I read on a message**	Jaiswal V, Batra N, Dagar M, et al. Inflammatory bowel disease and associated cardiovascular disease outcomes: A systematic review. Medicine (Baltimore). 2023;102(6):e32775. doi:10.1097/MD.0000000000032775
2	**The specific carbohydrate diet was**	Lewis JD, Sandler R, Brotherton C, et al. A Randomized Trial Comparing the Specific Carbohydrate Diet to a Mediterranean Diet in Adults with Crohn's Disease. Gastroenterology. 2021;161(3):837-852.e9. doi:10.1053/j.gastro.2021.05.047
3	**Every plant food contains dietary**	U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2020-2025. 9th Edition. December 2020. Available at DietaryGuidelines.gov.
4	**Shockingly, the percentage of Americans**	U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2020-2025. 9th Edition. December 2020. Available at DietaryGuidelines.gov.
5	**The SCD and AIP each**	Lewis JD, Sandler R, Brotherton C, et al. A Randomized Trial Comparing the Specific Carbohydrate Diet to a Mediterranean Diet in Adults with Crohn's Disease. Gastroenterology. 2021;161(3):837-852.e9. doi:10.1053/j.gastro.2021.05.047
6		Ihnatowicz P, Gębski J, Drywień ME. Effects of Autoimmune Protocol (AIP) diet on changes in thyroid parameters in Hashimoto's disease. Ann Agric Environ Med. 2023;30(3):513-521. doi:10.26444/aaem/166263
7		Abbott RD, Sadowski A, Alt AG. Efficacy of the Autoimmune Protocol Diet as Part of a Multi-disciplinary, Supported Lifestyle Intervention for Hashimoto's Thyroiditis. Cureus. 2019;11(4):e4556. doi:10.7759/cureus.4556
8	**There's actually only one study**	Kirwan R, Mallett GS, Ellis L, Flanagan A. Limitations of Self-reported Health Status and Metabolic Markers among Adults Consuming a "Carnivore Diet." Curr Dev Nutr. 2022;6(5):nzac037. doi:10.1093/cdn/nzac037
9	**Thankfully, Dr. Alan Flanagan wrote**	Harding R. Why Dr. Carnivore Changed His Mind About Meat-Only Diets. Hone Health. December 27, 2023. Accessed March 23, 2024. https://honehealth.com/edge/health/paul-saladino-quit-carnivore-diet/
10	**Ultra-restrictive low- carb diets**	Storz MA, Ronco AL. Nutrient intake in low-carbohydrate diets in comparison to the 2020–2025 Dietary Guidelines for Americans: a cross-sectional study. Br J Nutr. 129(6):1023-1036. doi:10.1017/S0007114522001908
11	**He brought together a team**	About the Seven Countries Study. Seven Countries Study | The first study to relate diet with cardiovascular disease. Accessed March 10, 2024. https://www.sevencountriesstudy.com/about-the-study/

Ref No.	1st Five Words of Sentence	Reference
12	**He described the Italians' diet**	ALTOMARE R, CACCIABAUDO F, DAMIANO G, et al. The Mediterranean Diet: A History of Health. Iran J Public Health. 2013;42(5):449-457.
13		Guasch-Ferré M, Willett WC. The Mediterranean diet and health: a comprehensive overview. Journal of Internal Medicine. 2021;290(3):549-566. doi:10.1111/joim.13333
14	**It was game-changing for**	Berry SE, Valdes AM, Drew DA, et al. Human postprandial responses to food and potential for precision nutrition. Nat Med. 2020;26(6):964-973. doi:10.1038/s41591-020-0934-0.
15		Asnicar F, Berry SE, Valdes AM, et al. Microbiome connections with host metabolism and habitual diet from 1,098 deeply phenotyped individuals. Nat Med. 2021;27(2):321-332. doi:10.1038/s41591-020-01183-8.
16	**Of all the diets studied,**	Asnicar F, Berry SE, Valdes AM, et al. Microbiome connections with host metabolism and habitual diet from 1,098 deeply phenotyped individuals. Nat Med. 2021;27(2):321-332. doi:10.1038/s41591-020-01183-8.
17	**Studies have consistently shown that**	Merra G, Noce A, Marrone G, et al. Influence of Mediterranean Diet on Human Gut Microbiota. Nutrients. 2020;13(1):7. doi:10.3390/nu13010007
18	**In fact, one small interventional**	Rejeski JJ, Wilson FM, Nagpal R, Yadav H, Weinberg RB. The Impact of a Mediterranean Diet on the Gut Microbiome in Healthy Human Subjects: A Pilot Study. Digestion. 2022;103(2):133-140. doi:10.1159/000519445
19	**Those who closely follow a**	Filippis FD, Pellegrini N, Vannini L, et al. High-level adherence to a Mediterranean diet beneficially impacts the gut microbiota and associated metabolome. Gut. 2016;65(11):1812-1821. doi:10.1136/gutjnl-2015-309957
20	**This connection was confirmed in**	Seethaler B, Nguyen NK, Basrai M, et al. Short-chain fatty acids are key mediators of the favorable effects of the Mediterranean diet on intestinal barrier integrity: data from the randomized controlled LIBRE trial. Am J Clin Nutr. 2022;116(4):928-942. doi:10.1093/ajcn/nqac175
21	**Seven different markers of inflammation**	Koelman L, Egea Rodrigues C, Aleksandrova K. Effects of Dietary Patterns on Biomarkers of Inflammation and Immune Responses: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. Adv Nutr. 2021;13(1):101-115. doi:10.1093/advances/nmab086
22	**Notably, the diet lowered TNF-α,**	Gerriets V, Goyal A, Khaddour K. Tumor Necrosis Factor Inhibitors. In: StatPearls. StatPearls Publishing; 2024. Accessed March 9, 2024. http://www.ncbi.nlm.nih.gov/books/NBK482425/
23	**With this in mind, it**	Godny L, Dotan I. Is the Mediterranean Diet in Inflammatory Bowel Diseases Ready for Prime Time? J Can Assoc Gastroenterol. 2024;7(1):97-103. doi:10.1093/jcag/gwad041
24		Forsyth C, Kouvari M, D'Cunha NM, et al. The effects of the Mediterranean diet on rheumatoid arthritis prevention and treatment: a systematic review of human prospective studies. Rheumatol Int. 2018;38(5):737-747. doi:10.1007/s00296-017-3912-1
25		Nguyen Y, Salliot C, Gelot A, et al. Mediterranean Diet and Risk of Rheumatoid Arthritis: Findings From the French E3N-EPIC Cohort Study. Arthritis Rheumatol. 2021;73(1):69-77. doi:10.1002/art.41487

Ref No.	1st Five Words of Sentence	Reference
26		Caso F, Navarini L, Carubbi F, et al. Mediterranean diet and Psoriatic Arthritis activity: a multicenter cross-sectional study. Rheumatol Int. 2020;40(6):951-958. doi:10.1007/s00296-019-04458-7
27		Phan C, Touvier M, Kesse-Guyot E, et al. Association Between Mediterranean Anti-inflammatory Dietary Profile and Severity of Psoriasis: Results From the NutriNet-Santé Cohort. JAMA Dermatol. 2018;154(9):1017-1024. doi:10.1001/jamadermatol.2018.2127
28		Katz Sand I, Levy S, Fitzgerald K, Sorets T, Sumowski JF. Mediterranean diet is linked to less objective disability in multiple sclerosis. Mult Scler. 2023;29(2):248-260. doi:10.1177/13524585221127414
29		Pocovi-Gerardino G, Correa-Rodríguez M, Callejas-Rubio JL, et al. Beneficial effect of Mediterranean diet on disease activity and cardiovascular risk in systemic lupus erythematosus patients: a cross-sectional study. Rheumatology (Oxford). 2021;60(1):160-169. doi:10.1093/rheumatology/keaa210
30		Carubbi F, Alunno A, Mai F, et al. Adherence to the Mediterranean diet and the impact on clinical features in primary Sjögren's syndrome. Clin Exp Rheumatol. 2021;39 Suppl 133(6):190-196. doi:10.55563/clinexprheumatol/5p5x5p
31		Ruggeri RM, Barbalace MC, Croce L, et al. Autoimmune Thyroid Disorders: The Mediterranean Diet as a Protective Choice. Nutrients. 2023;15(18):3953. doi:10.3390/nu15183953
32		Natalello G, Bosello SL, Campochiaro C, et al. Adherence to the Mediterranean Diet in Italian Patients With Systemic Sclerosis: An Epidemiologic Survey. ACR Open Rheumatol. 2024;6(1):14-20. doi:10.1002/acr2.11627
33		Martínez-Rodríguez A, Rubio-Arias JÁ, Ramos-Campo DJ, Reche-García C, Leyva-Vela B, Nadal-Nicolás Y. Psychological and Sleep Effects of Tryptophan and Magnesium-Enriched Mediterranean Diet in Women with Fibromyalgia. Int J Environ Res Public Health. 2020;17(7):2227. doi:10.3390/ijerph17072227
34	**Dating back to the first**	ALTOMARE R, CACCIABAUDO F, DAMIANO G, et al. The Mediterranean Diet: A History of Health. Iran J Public Health. 2013;42(5):449-457.
35	**In a study, patients with**	Chicco F, Magrì S, Cingolani A, et al. Multidimensional Impact of Mediterranean Diet on IBD Patients. Inflammatory Bowel Diseases. 2021;27(1):1-9. doi:10.1093/ibd/izaa097
36	**This study exemplifies why recently**	Hashash JG, Elkins J, Lewis JD, Binion DG. AGA Clinical Practice Update on Diet and Nutritional Therapies in Patients With Inflammatory Bowel Disease: Expert Review. Gastroenterology. 2024;166(3):521-532. doi:10.1053/j.gastro.2023.11.303
37	**Study after study from Denmark**	Ros E, Martínez-González MA, Estruch R, et al. Mediterranean Diet and Cardiovascular Health: Teachings of the PREDIMED Study123. Adv Nutr. 2014;5(3):330S-336S. doi:10.3945/an.113.005389
38	**Participants who followed the Mediterranean**	Ros E, Martínez-González MA, Estruch R, et al. Mediterranean Diet and Cardiovascular Health: Teachings of the PREDIMED Study123. Adv Nutr. 2014;5(3):330S-336S. doi:10.3945/an.113.005389

Ref No.	1st Five Words of Sentence	Reference
39	**Funded by their government, they**	Kargin D, Tomaino L, Serra-Majem L. Experimental Outcomes of the Mediterranean Diet: Lessons Learned from the Predimed Randomized Controlled Trial. Nutrients. 2019;11(12):2991. doi:10.3390/nu11122991
40	**Participants saw their levels**	Estruch R, Ros E, Salas-Salvadó J, et al. Primary prevention of cardiovascular disease with a Mediterranean diet supplemented with extra-virgin olive oil or nuts. N Engl J Med. 2018;378:e34. doi:10.1056/NEJMoa1800389.
41		Toledo E, Salas-Salvadó J, Estruch R, et al. Effect of the Mediterranean diet on 24-hour ambulatory blood pressure in the PREDIMED trial: a randomized controlled sub-study. Hypertension. 2013;62(6):1114-1120. doi:10.1161/HYPERTENSIONAHA.113.03353.
42	**Heart failure biomarkers improved, suggesting**	Fitó M, Estruch R, Salas-Salvadó J, et al. Effects of the Mediterranean diet on heart failure biomarkers in a randomized sample of the PREDIMED trial. Eur J Heart Fail. 2014;16(5):543-550. doi:10.1002/ejhf.61.
43	**Cognition also improved, suggesting benefits**	Valls-Pedret C, Sala-Vila A, Serra-Mir M, Corella D, de la Torre R, Martínez-González MÁ, Martínez-Lapiscina EH, Fitó M, Pérez-Heras A, Salas-Salvadó J, Estruch R, Ros E. Mediterranean diet and age-related cognitive decline: a randomized clinical trial. JAMA Intern Med. 2015;175(7):1094-1103. doi:10.1001/jamainternmed.2015.1668.
44	**Specifically, C-reactive protein (CRP) levels**	Casas R, Sacanella E, Urpí-Sardà M, et al. The effects of the Mediterranean diet on biomarkers of vascular wall inflammation and plaque vulnerability in subjects with high risk for cardiovascular disease: a randomized trial. PLoS One. 2014;9(6):e100084. doi:10.1371/journal.pone.0100084.
45	**But there were some health**	Sala-Vila A, Romero-Mamani ES, Gilabert R, et al; PREDIMED Study Investigators. Mediterranean diet supplemented with extra-virgin olive oil reduced risk of breast cancer by 68% versus low-fat control (HR 0.32) after 4.8 years. JAMA Intern Med. 2015;175(11):1760.
46		Salas-Salvadó J, Fernández-Ballart J, Ros E, et al; PREDIMED Study Investigators. Effect of a Mediterranean diet with extra-virgin olive oil on type 2 diabetes incidence: a 4-year randomized clinical trial. Diabetes Care. 2011;34(1):14-19. doi:10.2337/dc10-1281.
47		Toledo E, Martínez-González MA, Medina-Remón A, et al; PREDIMED Study Investigators. Mediterranean diet and incidence of retinopathy in patients with type 2 diabetes enrolled in PREDIMED-Reus: a randomized trial. Diabetes Care. 2015;38(9):e132-e133. doi:10.2337/dc15-0174.
48		Basterra-Gortari FJ, Bes-Rastrollo M, Gea A, et al; PREDIMED Study Investigators. Adherence to Mediterranean diet and NAFLD in PREDIMED-Reus: A randomized controlled sub-study. Br J Nutr. 2018;120(2):164-175. doi:10.1017/S0007114517001938.
49		Martínez-González MA, Toledo E, Arós F, et al; PREDIMED Investigators. Extra-virgin olive oil consumption reduces risk of atrial fibrillation: The PREDIMED Trial. Circulation. 2014;130(1):18-26. doi:10.1161/CIRCULATIONAHA.114.011512.
50	**Adventist women were found to**	Fraser GE, Shavlik DJ. Ten years of life: is it a matter of choice? Arch Intern Med. 2001;161(13):1645-1652. doi:10.1001/archinte.161.13.1645.

Ref No.	1st Five Words of Sentence	Reference
51	**They experienced lower rates of**	Fraser GE. Associations between diet and cancer, ischemic heart disease, and all-cause mortality in non-Hispanic white California Seventh-day Adventists. Am J Clin Nutr. 1999;70(3 Suppl):532S-538S. doi:10.1093/ajcn/70.3.532s
52	**Around half of the Adventists**	Segovia-Siapco G, Sabaté J. Health and sustainability outcomes of vegetarian dietary patterns: a revisit of the EPIC-Oxford and the Adventist Health Study-2 cohorts. Eur J Clin Nutr. 2019;72(1):60-70. doi:10.1038/s41430-018-0310-z
53		Orlich MJ, Fraser GE; AHS-2 Research Team. Vegetarian dietary patterns and mortality in Adventist Health Study 2. JAMA Intern Med. 2013;173(13):1230-1238. doi:10.1001/jamainternmed.2013.6473
54	**A vegan diet may be**	Tonstad S, Nathan E, Oda K, Fraser G. Vegan diets and hypothyroidism. Nutrients. 2013;5(11):4642-4652. doi:10.3390/nu5114642
55	**Vegan, vegetarian, and pescatarian diets**	Tonstad S, Nathan E, Oda K, Fraser GE. Prevalence of hyperthyroidism according to type of vegetarian diet. Public Health Nutr. 2015;18(8):1482-1487. doi:10.1017/S1368980014002183
56	**And there were lower rates**	Oh J, Oda K, Brash M, et al. The association between dietary patterns and a doctor diagnosis of systemic lupus erythematosus: the Adventist Health Study-2. Lupus. 2022;31(11):1373-1378. doi:10.1177/09612033221112522
57	**If you looked below the**	Xie L, Yu Y, Wang Y, et al. Analysis of gut microbiota diversity in Hashimoto's thyroiditis patients. BMC Microbiol. 2022;22:—. doi:10.1186/s12866-022-02739-z
58		Zhang L, Li Y, Fang J, et al. Gut microbiota dysbiosis and increased intestinal permeability in systemic lupus erythematosus patients. Front Immunol. 2022;13:919792. doi:10.3389/fimmu.2022.919792
59		Qin C, Yang Y, Wang B, et al. Compositional and genetic alterations in Graves' disease gut microbiome reveal specific diagnostic biomarkers. ISME J. 2021;15(11):2775-2790. doi:10.1038/s41396-021-01016-7
60		Wu Y, Li Y, Chen B, et al. Increased intestinal permeability and bacterial translocation in Graves' disease: elevated leaky gut biomarkers correlate with disease severity. Clin Endocrinol (Oxf). 2022;97(3):394-402. doi:10.1111/cen.14729
61	**16% percent less likely to**	Orlich MJ, Fraser GE; AHS-2 Research Team. Vegetarian dietary patterns and mortality in Adventist Health Study 2. JAMA Intern Med. 2013;173(13):1230-1238. doi:10.1001/jamainternmed.2013.6473
62	**63% percent less likely to**	Matsumoto S, Beeson WL, Shavlik DJ, Siapco G, Jaceldo-Siegl K, Fraser GE. Association between vegetarian diets and cardiovascular risk factors in non-Hispanic white participants of the Adventist Health Study-2. J Nutr Sci. 2019;8:e6. doi:10.1017/jns.2019.1
63	**62% percent less likely to be**	Tonstad S, Butler T, Yan R, Fraser GE; AHS-2 Research Team. Type of vegetarian diet, body weight, and prevalence of type 2 diabetes. Diabetes Care. 2009;32(5):791-796. doi:10.2337/dc08-1887
64	**43% percent less likely to**	Matsumoto S, Beeson WL, Shavlik DJ, et al. Association between vegetarian diets and cardiovascular risk factors in non-Hispanic white participants of the Adventist Health Study-2. J Nutr Sci. 2019;8:e6. doi:10.1017/jns.2019.1

Ref No.	1st Five Words of Sentence	Reference
65	**38% percent less likely to**	Tonstad S, Butler T, Yan R, Fraser GE. Type of vegetarian diet, body weight, and prevalence of type 2 diabetes. Diabetes Care. 2009;32(5):791-796. doi:10.2337/dc08-1887
66	**19% percent less likely to**	Orlich MJ, Fraser GE; AHS-2 Research Team. Vegetarian dietary patterns and mortality in Adventist Health Study 2. JAMA Intern Med. 2013;173(13):1230-1238. doi:10.1001/jamainternmed.2013.6473.
67	**35% percent less likely to**	Orlich MJ, Fraser GE; AHS-2 Research Team. Vegetarian dietary patterns and mortality in Adventist Health Study 2. JAMA Intern Med. 2013;173(13):1230-1238. doi:10.1001/jamainternmed.2013.6473.
68	**42% percent less likely to**	Bradbury KE, Crowe FL, Travis RC, et al. Risk of cancer in regular and low meat-eaters, fish-eaters, and vegetarians: prospective analysis from the UK Biobank. BMC Med. 2022;20:142. doi:10.1186/s12916-022-02497-5.
69	**51% percent less likely to**	Tonstad S, Butler T, Yan R, Fraser GE; AHS-2 Research Team. Type of vegetarian diet, body weight, and prevalence of type 2 diabetes. Diabetes Care. 2009;32(5):791-796. doi:10.2337/dc08-1887.
70	**The study also revealed a**	Segovia-Siapco G, Sabaté J. Health and sustainability outcomes of vegetarian dietary patterns: a revisit of the EPIC-Oxford and the Adventist Health Study-2 cohorts. Eur J Clin Nutr. 2019;72(Suppl 1):60-70. doi:10.1038/s41430-018-0310-z.
71	**Their dietary patterns were**	Willcox DC, Willcox BJ, Todoriki H, Suzuki M. The Okinawan diet: health implications of a low-calorie, nutrient-dense, antioxidant-rich dietary pattern low in glycemic load. J Am Coll Nutr. 2009;28(Suppl 4):500S-516S. doi:10.1080/07315724.2009.10718117.
72	**Yet as the tide of**	Kagawa Y. Impact of Westernization on the nutrition of Japanese: changes in physique, cancer, longevity and centenarians. Prev Med. 1978;7(2):205-217. doi:10.1016/0091-7435(78)90246-3
73		Kato I, Tominaga S, Kuroishi T. Relationship between westernization of dietary habits and mortality from breast and ovarian cancers in Japan. Jpn J Cancer Res. 1987;78(4):349-357.
74		Murakami K, Livingstone MBE, Sasaki S. Thirteen-Year Trends in Dietary Patterns among Japanese Adults in the National Health and Nutrition Survey 2003–2015: Continuous Westernization of the Japanese Diet. Nutrients. 2018;10(8):994. doi:10.3390/nu10080994
75	**With this dietary shift has**	Asakura K, Nishiwaki Y, Inoue N, Hibi T, Watanabe M, Takebayashi T. Prevalence of ulcerative colitis and Crohn's disease in Japan. J Gastroenterol. 2009;44(7):659-665. doi:10.1007/s00535-009-0057-3
76		Murakami Y, Nishiwaki Y, Oba MS, et al. Estimated prevalence of ulcerative colitis and Crohn's disease in Japan in 2014: an analysis of a nationwide survey. J Gastroenterol. 2019;54(12):1070-1077. doi:10.1007/s00535-019-01603-8
77		Zhao M, Zhai H, Li H, et al. Age-standardized incidence, prevalence, and mortality rates of autoimmune diseases in adolescents and young adults (15–39 years): an analysis based on the global burden of disease study 2021. BMC Public Health. 2024;24:1800. doi:10.1186/s12889-024-19290-3

Ref No.	1st Five Words of Sentence	Reference
78	**As early as 2003, these**	Chiba M, Morita N. Incorporation of Plant-Based Diet Surpasses Current Standards in Therapeutic Outcomes in Inflammatory Bowel Disease. Metabolites. 2023;13(3):332. doi:10.3390/metabo13030332
79	**Of those with Crohn's disease**	Chiba M, Morita N. Incorporation of Plant-Based Diet Surpasses Current Standards in Therapeutic Outcomes in Inflammatory Bowel Disease. Metabolites. 2023;13(3):332. doi:10.3390/metabo13030332
80	**Even more astonishing, more than**	Chiba M, Morita N. Incorporation of Plant-Based Diet Surpasses Current Standards in Therapeutic Outcomes in Inflammatory Bowel Disease. Metabolites. 2023;13(3):332. doi:10.3390/metabo13030332
81	**Markers of inflammation plummeted, surgical**	Chiba M, Morita N. Incorporation of Plant-Based Diet Surpasses Current Standards in Therapeutic Outcomes in Inflammatory Bowel Disease. Metabolites. 2023;13(3):332. doi:10.3390/metabo13030332
82	**The C-reactive protein, a measure**	Chiba M, Morita N. Incorporation of Plant-Based Diet Surpasses Current Standards in Therapeutic Outcomes in Inflammatory Bowel Disease. Metabolites. 2023;13(3):332. doi:10.3390/metabo13030332
83	**Researchers recruited over sixty-five**	Key TJ, Papier K, Tong TYN, et al. Plant-based diets and long-term health: findings from the EPIC-Oxford study. Proc Nutr Soc. 2022;81(2):190-198. doi:10.1017/S0029665121004234.
84	**If you were to describe**	Segovia-Siapco G, Sabaté J. Health and sustainability outcomes of vegetarian dietary patterns: a revisit of the EPIC-Oxford and the Adventist Health Study-2 cohorts. Eur J Clin Nutr. 2019;72(1):60-70. doi:10.1038/s41430-018-0310-z
85	**Additionally, vegans and vegetarians had**	Tong TYN, Appleby PN, Bradbury KE, et al. Risks of ischaemic heart disease and stroke in meat eaters, fish eaters, and vegetarians over 18 years of follow-up: results from the prospective EPIC-Oxford study. BMJ. 2019;366:l4897. doi:10.1136/bmj.l4897.
86	**They had lower risk of**	Key TJ, Papier K, Tong TY. Plant-based diets and long-term health: findings from the EPIC-Oxford study. Proc Nutr Soc. 2022;81(2):190-198. doi:10.1017/S0029665121003748
87	**In EPIC-Oxford, vegans and**	Segovia-Siapco G, Sabaté J. Health and sustainability outcomes of vegetarian dietary patterns: a revisit of the EPIC-Oxford and the Adventist Health Study-2 cohorts. Eur J Clin Nutr. 2019;72(1):60-70. doi:10.1038/s41430-018-0310-z

CHAPTER 5:

The Four Nutrition Workhorses

206 REFERENCES

Ref No.	1st Five Words of Sentence	Reference
1	**The average woman should consume**	What We Eat in America, NHANES 2017-March 2020. https://www.ars.usda.gov/ARSUserFiles/80400530/pdf/1720/Table_1_NIN_GEN_1720.pdf
2	**The average American man should**	What We Eat in America, NHANES 2017-March 2020. https://www.ars.usda.gov/ARSUserFiles/80400530/pdf/1720/Table_1_NIN_GEN_1720.pdf
3	**Humans lack the enzymes to**	Sonnenburg ED, Sonnenburg JL. Starving our microbial self: the deleterious consequences of a diet deficient in microbiota-accessible carbohydrates. Cell Metab. 2014;20(5):779-786. doi:10.1016/j.cmet.2014.07.003.
4		Helander HF, Fändriks L. Surface area of the digestive tract—revisited. Scand J Gastroenterol. 2014;49(6):681-689. doi:10.3109/00365521.2014.898326.
5		Sender R, Fuchs S, Milo R. Revised estimates for the number of human and bacteria cells in the body. PLoS Biol. 2016;14(8):e1002533. doi:10.1371/journal.pbio.1002533.
6	**These invisible partners eagerly take**	Kaoutari AE, Armougom F, Gordon JI, Raoult D, Henrissat B. The abundance and variety of carbohydrate-active enzymes in the human gut microbiota. Nat Rev Microbiol. 2013;11(7):497-504. doi:10.1038/nrmicro3050
7	**This symbiotic relationship not only**	Kau AL, Ahern PP, Griffin NW, Goodman AL, Gordon JI. Human nutrition, the gut microbiome, and the immune system. Nature. 2011;474(7351):327-336. doi:10.1038/nature10213
8	**Not all microbes wield the**	Shetty SA, Kostopoulos I, Geerlings S, Smidt H, de Vos WM, Belzer C. Dynamic metabolic interactions and trophic roles of human gut microbes identified using a minimal microbiome. ISME J. 2022;16(2):463-476. doi:10.1038/s41396-022-01255-2
9		Kaoutari AE, Armougom F, Gordon JI, Raoult D, Henrissat B. The abundance and variety of carbohydrate-active enzymes in the human gut microbiota. Nat Rev Microbiol. 2013;11(7):497-504. doi:10.1038/nrmicro3050
10		Zhao LP, Zhang F, Ding X, et al. Gut bacteria selectively promoted by dietary fibers alleviate type 2 diabetes. Science. 2018;359(6380):1151-1156. doi:10.1126/science.aao5774.
11	**Here's a quick summary of**	Koh A, De Vadder F, Kovatcheva-Datchary P, Bäckhed F. From dietary fiber to host physiology: short-chain fatty acids as key bacterial metabolites. Cell. 2016;165(6):1332-1345. doi:10.1016/j.cell.2016.05.041
12	**They activate proteins that seal**	Peng L, Li Z-R, Green RS, Holzman IR, Lin J. Butyrate enhances the intestinal barrier by facilitating tight junction assembly via activation of AMP-activated protein kinase in Caco-2 cell monolayers. J Nutr. 2009;139(9):1619-1625. doi:10.3945/jn.109.104638

Ref No.	1st Five Words of Sentence	Reference
13		Helander HF, Fändriks L. Surface area of the digestive tract—revisited. Scand J Gastroenterol. 2014;49(6):681-689. doi:10.3109/00365521.2014.898326
14		Zhu Z, Zhang Z, Pridmore R, et al. Gastric infusion of short-chain fatty acids improves mucus secretion and expression of mucin genes in the colon of mice. Genes Nutr. 2019;14:30. doi:10.1186/s12263-019-0626-x
15	**By engaging special SCFA receptors**	Kim MH, Kang SG, Park JH, Yanagisawa M, Kim CH. Short-chain fatty acids activate GPR43 and GPR109A to modulate neutrophil and dendritic cell function. J Immunol. 2013;191(11):6100-6106. doi:10.4049/jimmunol.1301726
16		Fujiwara H, Docampo MD, Riwes M, et al. Microbial metabolite sensor GPR43 controls severity of experimental graft-versus-host disease. Nat Commun. 2018;9:3674. doi:10.1038/s41467-018-06048-w
17		Tan J, McKenzie C, Potamitis M, Thorburn AN, Mackay CR, Macia L. Chapter: The role of short-chain fatty acid receptors in intestinal physiology and inflammation. Front Physiol. 2021;12:662739. doi:10.3389/fphys.2021.662739.
18		Pluznick JL, Protzko RJ, Gevorgyan H, et al. Olfactory receptor responding to gut microbiota-derived signals plays a role in renin secretion and blood pressure regulation. Proc Natl Acad Sci U S A. 2013;110(11):4410-4415. doi:10.1073/pnas.1221179110.
19		Koh A-D et al. Short Chain Fatty Acid Receptors and Blood Pressure Regulation. Hypertension. 2022;80(5):1276–1286. doi:10.1161/HYPERTENSIONAHA.122.18545.
20		Offermanns S. Hydroxycarboxylic acid receptor actions in metabolism and ketone signaling. Trends Endocrinol Metab. 2017;28(9):712-723. doi:10.1016/j.tem.2017.05.004.
21	**They trigger the release of**	Mansuy-Aubert V, Ravussin Y. Short chain fatty acids: the messengers from down below. Front Neurosci. 2023;17:1197759. doi:10.3389/fnins.2023.1197759
22	**But SCFAs don't stop there**	Mansuy-Aubert V, Ravussin Y. Short chain fatty acids: the messengers from down below. Front Neurosci. 2023;17:1197759. doi:10.3389/fnins.2023.1197759
23		Leeuwendaal NK, Cryan JF, Schellekens H. Gut peptides and the microbiome: focus on ghrelin. Curr Opin Endocrinol Diabetes Obes. 2021;28(2):243-252. doi:10.1097/MED.0000000000000616
24		Bulsiewicz WJ. The Importance of Dietary Fiber for Metabolic Health. Am J Lifestyle Med. 2023;17(5):639-648. doi:10.1177/15598276231167778
25	**One major mechanism is their**	Drucker DJ. Mechanisms of Action and Therapeutic Application of Glucagon-like Peptide-1. Cell Metab. 2018;27(4):740-756. doi:10.1016/j.cmet.2018.03.001
26	**In addition, peptide YY and**	Batterham RL, Cowley MA, Small CJ, et al. Gut hormone PYY(3-36) physiologically inhibits food intake. Nature. 2002;418(6898):650-654. doi:10.1038/nature00887
27		Minokoshi Y, Kim YB, Peroni OD, et al. Leptin stimulates fatty-acid oxidation by activating AMP-activated protein kinase. Nature. 2002;415(6869):339-343. doi:10.1038/415339a

Ref No.	1st Five Words of Sentence	Reference
28	**SCFAs reduce total and LDL**	He J, Zhang P, Shen L, et al. Short-Chain Fatty Acids and Their Association with Signalling Pathways in Inflammation, Glucose and Lipid Metabolism. Int J Mol Sci. 2020;21(17):6356. doi:10.3390/ijms21176356
29	**In effect, they shift the**	Den Besten G, Bleeker A, Gerding A, et al. Short-chain fatty acids protect against high-fat diet–induced obesity via a PPARγ-dependent switch from lipogenesis to fat oxidation. Diabetes. 2015;64(7):2398-2408. doi:10.2337/db14-1213.
30		Canfora EE, van der Beek CM, Jocken JW, et al. Colonic infusions of short-chain fatty acid mixtures promote energy metabolism in overweight/obese men: a randomized crossover trial. Sci Rep. 2017;7:2360. doi:10.1038/s41598-017-02546-X.
31	**Indeed, SCFAs burn fat while**	Canfora EE, van der Beek CM, Jocken JWE, et al. Colonic infusions of short-chain fatty acid mixtures promote energy metabolism in overweight/obese men: a randomized crossover trial. Sci Rep. 2017;7:2360. doi:10.1038/s41598-017-02546-X
32		den Besten G, Bleeker A, Gerding A, et al. Short-chain fatty acids protect against high-fat diet–induced obesity via a PPARγ-dependent switch from lipogenesis to fat oxidation. Diabetes. 2015;64(7):2398-2408. doi:10.2337/db14-1213
33		Lin HV, Frassetto A, Kowalik EJ Jr, et al. Butyrate and propionate protect against diet-induced obesity and regulate gut hormones via free fatty acid receptor 3–independent mechanisms. PLoS One. 2012;7(4):e35240. doi:10.1371/journal.pone.0035240
34		Zhou H, Yu B, Sun J, et al. Short-chain fatty acids can improve lipid and glucose metabolism independently of the pig gut microbiota. J Anim Sci Biotechnol. 2021;12(1):61. doi:10.1186/s40104-021-00568-3
35	**But the point for you**	Norata GD, Grigore L, Raselli S, et al. Post-prandial endothelial dysfunction in hypertriglyceridemic subjects: molecular mechanisms and gene expression studies. Atherosclerosis. 2007;193(2):321-327. doi:10.1016/j.atherosclerosis.2006.08.013
36		Hyson DA, Rudel LL, Anderson NL, Ziegler K, Bullock BC. The role of postprandial lipemia in the initiation and progression of atherosclerosis. Am J Clin Nutr. 2003;78(5):990-998. doi:10.1093/ajcn/78.5.990
37		Nordestgaard BG, Benn M, Schnohr P, Tybjaerg-Hansen A. Nonfasting triglycerides and risk of myocardial infarction, ischemic heart disease, and death in men and women. JAMA. 2007;298(3):299-308. doi:10.1001/jama.298.3.299
38		Jackson KG, Poppitt SD, Minihane AM. Postprandial lipemia and cardiovascular disease risk: Interrelationships between dietary, physiological and genetic determinants. Atherosclerosis. 2012;220(1):22-33. doi:10.1016/j.atherosclerosis.2011.09.038
39		Ceriello A, Esposito K, Piconi L, et al. Oscillating glucose is more deleterious to endothelial function and oxidative stress than mean glucose in normal and type 2 diabetic patients. Diabetes. 2008;57(5):1349-1354. doi:10.2337/db08-0063
40		Monnier L, Mas E, Ginet C, et al. Activation of oxidative stress by acute glucose fluctuations compared with sustained chronic hyperglycemia in patients with type 2 diabetes. JAMA. 2006;295(14):1681-1687. doi:10.1001/jama.295.14.1681

Ref No.	1st Five Words of Sentence	Reference
41		Esposito K, Nappo F, Marfella R, et al. Inflammatory cytokine concentrations are acutely increased by hyperglycemia in humans: role of oxidative stress. Circulation. 2002;106(16):2067-2072. doi:10.1161/01.cir.0000034509.14906.ae
42		Levitan EB, Song Y, Ford ES, Liu S. Is nondiabetic hyperglycemia a risk factor for cardiovascular disease? A meta-analysis of prospective studies. Arch Intern Med. 2004;164(19):2147-2155. doi:10.1001/archinte.164.19.2147
43		Mazidi M, Valdes AM, Ordovas JM, et al. Meal-induced inflammation: postprandial insights from the Personalised REsponses to DIetary Composition Trial (PREDICT) study in 1000 participants. Am J Clin Nutr. 2021;114(3):1028-1038. doi:10.1093/ajcn/nqab132
44	**Additionally, SCFAs relax blood vessels**	Wu Y, Xu H, Tu X, Gao Z. The Role of Short-Chain Fatty Acids of Gut Microbiota Origin in Hypertension. Front Microbiol. 2021;12:730809. doi:10.3389/fmicb.2021.730809
45	**Dr. Andrew Reynolds and his**	Reynolds A, Mann J, Cummings J, Winter N, Mete E, Morenga LT. Carbohydrate quality and human health: a series of systematic reviews and meta-analyses. The Lancet. 2019;393(10170):434-445. doi:10.1016/S0140-6736(18)31809-9
46	**The result is that in**	McDonald D, Hyde E, Debelius JW, et al. American Gut: an Open Platform for Citizen Science Microbiome Research. mSystems. 2018;3(3). doi:10.1128/mSystems.00031-18
47	**Yet, study after study after**	Rivière A, Selak M, Lantin D, Leroy F, De Vuyst L. Bifidobacteria and butyrate-producing colon bacteria: importance and strategies for their stimulation in the human gut. Front Microbiol. 2016;7:979. doi:10.3389/fmicb.2016.00979
48		Yuan Y, Li B, Kuang Y, et al. The fiber metabolite butyrate reduces gp130 by targeting TRAF5 in colorectal cancer cells. Cancer Cell Int. 2020;20:221. doi:10.1186/s12935-020-01305-9
49		Toden S, Lockett TJ, Topping DL, et al. Butyrylated starch affects colorectal cancer markers beneficially and dose-dependently in genotoxin-treated rats. Cancer Biol Ther. 2014;15(11):1515-1523. doi:10.4161/15384047.2014.955993
50		Baxter NT, Ruffin MT IV, Rogers MA, Schloss PD. Microbiota-based model improves the sensitivity of fecal immunochemical testing for detecting colonic lesions. Genome Med. 2016;8(1):37. doi:10.1186/s13073-016-0309-5
51	**The reason for this paradox**	Donohoe DR, Collins LB, Wali A, Bigler R, Sun W, Bultman SJ. The Warburg Effect Dictates the Mechanism of Butyrate Mediated Histone Acetylation and Cell Proliferation. Mol Cell. 2012;48(4):612-626. doi:10.1016/j.molcel.2012.08.033
52	**Cancer cells, however, use glucose**	Gatenby RA, Gillies RJ. Why do cancers have high aerobic glycolysis? Nat Rev Cancer. 2004;4(11):891–899. doi:10.1038/nrc1478
53	**Since they prioritize sugar over**	Li Q, Cao L, Tian Y, et al. Butyrate Suppresses the Proliferation of Colorectal Cancer Cells via Targeting Pyruvate Kinase M2 and Metabolic Reprogramming. Mol Cell Proteomics. 2018;17(8):1531-1545. doi:10.1074/mcp.RA118.000752

Ref No.	1st Five Words of Sentence	Reference
54		Geng HW, Yin FY, Zhang ZF, Gong X, Yang Y. Butyrate Suppresses Glucose Metabolism of Colorectal Cancer Cells via GPR109a-AKT Signaling Pathway and Enhances Chemotherapy. Front Mol Biosci. 2021;8:634874. doi:10.3389/fmolb.2021.634874
55		Blouin JM, Penot G, Collinet M, et al. Butyrate elicits a metabolic switch in human colon cancer cells by targeting the pyruvate dehydrogenase complex. Int J Cancer. 2011;128(11):2591-2601. doi:10.1002/ijc.25599
56	**The average American eats just**	How Much Sugar Is Too Much? www.heart.org. Accessed July 25, 2024. https://www.heart.org/en/healthy-living/healthy-eating/eat-smart/sugar/how-much-sugar-is-too-much
57		Production Facts. US Dry Bean Council. Accessed July 25, 2024. https://usdrybeans.com/industry/production-facts/
58	**And while 95% percent of Americans**	U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2020-2025. 9th Edition. December 2020. Available at DietaryGuidelines.gov.
59	**In mice with colitis, white**	Monk JM, Zhang CP, Wu W, et al. White and dark kidney beans reduce colonic mucosal damage and inflammation in response to dextran sodium sulfate. J Nutr Biochem. 2015;26(7):752-760. doi:10.1016/j.jnutbio.2015.02.003
60	**Multiple randomized controlled trials show**	Abeysekara S, Chilibeck PD, Vatanparast H, Zello GA. A pulse-based diet is effective for reducing total and LDL-cholesterol in older adults. Br J Nutr. 2012;108 Suppl 1:S103-110. doi:10.1017/S0007114512000748
61		Saraf-Bank S, Esmaillzadeh A, Faghihimani E, Azadbakht L. Effect of non-soy legume consumption on inflammation and serum adiponectin levels among first-degree relatives of patients with diabetes: a randomized, crossover study. Nutrition. 2015;31(3):459-465. doi:10.1016/j.nut.2014.09.015
62		Hartman TJ, Albert PS, Zhang Z, et al. Consumption of a legume-enriched, low-glycemic index diet is associated with biomarkers of insulin resistance and inflammation among men at risk for colorectal cancer. J Nutr. 2010;140(1):60-67. doi:10.3945/jn.109.114249
63		Safaeiyan A, Pourghassem-Gargari B, Zarrin R, Fereidooni J, Alizadeh M. Randomized controlled trial on the effects of legumes on cardiovascular risk factors in women with abdominal obesity. ARYA Atheroscler. 2015;11(2):117-125.
64		Hermsdorff HHM, Zulet MÁ, Abete I, Martínez JA. A legume-based hypocaloric diet reduces proinflammatory status and improves metabolic features in overweight/obese subjects. Eur J Nutr. 2011;50(1):61-69. doi:10.1007/s00394-010-0115-x
65		Mollard RC, Luhovyy BL, Panahi S, Nunez M, Hanley A, Anderson GH. Regular consumption of pulses for 8 weeks reduces metabolic syndrome risk factors in overweight and obese adults. Br J Nutr. 2012;108 Suppl 1:S111-122. doi:10.1017/S0007114512000712
66		Salehi-Abargouei A, Saraf-Bank S, Bellissimo N, Azadbakht L. Effects of non-soy legume consumption on C-reactive protein: a systematic review and meta-analysis. Nutrition. 2015;31(5):631-639. doi:10.1016/j.nut.2014.10.018

Ref No.	1st Five Words of Sentence	Reference
67	**We have literally a dozen**	Milesi G, Rangan A, Grafenauer S. Whole Grain Consumption and Inflammatory Markers: A Systematic Literature Review of Randomized Control Trials. Nutrients. 2022;14(2):374. doi:10.3390/nu14020374
68	**Both beans and whole grains**	Sprague C. Preharvest herbicide applications are an important part of direct-harvest dry bean production. Michigan State University Extension. 2015.https://www.canr.msu.edu/news/preharvest_herbicide_use_in_dry_edible_beans_caution_needs_to_be_taken_to_a
69		Carver B, Post A, Edwards J. Glyphosate use as a pre-harvest treatment: Not a risk to food safety. Oklahoma State University Extension; 2017.https://extension.okstate.edu/fact-sheets/glyphosate-use-as-a-pre-harvest-treatment-not-a-risk-to-food-safety.html
70		National Association of Wheat Growers. The Facts About Glyphosate, Part 1. Wheat World website. 2016. Accessed June 2025.
71		Benbrook C. Why Is Glyphosate Sprayed on Crops Right Before Harvest? EcoWatch. Published Feb 2015. Accessed June 2025.
72		Environmental Working Group. EWG Tests of Hummus Find High Levels of Glyphosate Weedkiller. Environmental Working Group; 2019. Accessed June 11, 2025. https://www.ewg.org/research/ewg-tests-hummus-find-high-levels-glyphosate-weedkiller
73		Stebbins B. Pre-Harvest Glyphosate Timing in Oats and Final Oat Quality. North Dakota State University; 2018. Accessed June 11, 2025. https://hdl.handle.net/10365/28716
74		Benbrook CM. Why farmers are using glyphosate to kill their crops. Ensia. 2016. Accessed June 11, 2025. https://ensia.com/features/glyphosate-drying/
75		Naidenko OV. Application of the Food Quality Protection Act children's health safety factor in the U.S. EPA pesticide risk assessments. Environ Health. 2020;19(1):16. doi:10.1186/s12940-020-0571-6https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7011289/
76	**Common tests include a blood**	Rubio-Tapia A, Hill ID, Semrad C, Kelly CP, Greer KB, Limketkai BN, Lebwohl B. American College of Gastroenterology guidelines update: diagnosis and management of celiac disease. Am J Gastroenterol. 2023;118(1):59-76. doi:10.14309/ajg.0000000000002075
77	**Additional assessments, like IgG and**	Volta U, Tovoli F, Cicola R, et al. Serological tests in gluten sensitivity (nonceliac gluten intolerance). J Clin Gastroenterol. 2012;46(8):680-685. doi:10.1097/MCG.0b013e3182372541
78	**In fact, research suggests that eliminating**	Zong G, Lebwohl B, Hu FB, et al. Gluten intake and risk of type 2 diabetes in three large prospective cohort studies of US men and women. Diabetologia. 2018;61(10):2164-2173. doi:10.1007/s00125-018-4697-9
79		Lebwohl B, Cao Y, Zong G, et al. Long term gluten consumption in adults without celiac disease and risk of coronary heart disease: prospective cohort study. BMJ. 2017;357:j1892. doi:10.1136/bmj.j1892
80	**It's possible that glyphosate, commonly**	Samsel A, Seneff S. Glyphosate, pathways to modern diseases II: Celiac sprue and gluten intolerance. Interdiscip Toxicol. 2013;6(4):159-184. doi:10.2478/intox-2013-0026

Ref No.	1st Five Words of Sentence	Reference
81	**Additionally, non-gluten components of**	Skodje GI, Sarna VK, Minelle IH, et al. Fructan, Rather Than Gluten, Induces Symptoms in Patients With Self-Reported Non-Celiac Gluten Sensitivity. Gastroenterology. 2018;154(3):529-539.e2. doi:10.1053/j.gastro.2017.10.040
82	**TABLE: Sources of Fiber(Grams of fiber per 100 grams)**	USDA FoodData Central. Accessed December 9, 2024. https://fdc.nal.usda.gov/
83	**Vitamins, minerals, and even fiber**	Ganesan K, Xu B. A Critical Review on Polyphenols and Health Benefits of Black Soybeans. Nutrients. 2017;9(5):455. doi:10.3390/nu9050455
84	**Polyphenols are large and chemically**	Mithul Aravind S, Wichienchot S, Tsao R, Ramakrishnan S, Chakkaravarthi S. Role of dietary polyphenols on gut microbiota, their metabolites and health benefits. Food Res Int. 2021;142:110189. doi:10.1016/j.foodres.2021.110189
85	**They escape digestion and concentrate**	Chen L, Cao H, Xiao J. 2 - Polyphenols: Absorption, bioavailability, and metabolomics. In: Galanakis CM, ed. Polyphenols: Properties, Recovery, and Applications. Woodhead Publishing; 2018:45-67. doi:10.1016/B978-0-12-813572-3.00002-6
86	**Fermentation has a similar effect**	Yang F, Chen C, Ni D, et al. Effects of Fermentation on Bioactivity and the Composition of Polyphenols Contained in Polyphenol-Rich Foods: A Review. Foods. 2023;12(17):3315. doi:10.3390/foods12173315
87	**For example, the polyphenol resveratrol**	Paulo L, Ferreira S, Gallardo E, Queiroz JA, Domingues F. Antimicrobial activity and effects of resveratrol on human pathogenic bacteria. World J Microbiol Biotechnol. 2010;26(8):1533-1538. doi:10.1007/s11274-010-0325-7
88	**Red wine polyphenols increase Bifidobacteria**	Moreno-Indias I, Sánchez-Alcoholado L, Pérez-Martínez P, et al. Red wine polyphenols modulate fecal microbiota and reduce markers of the metabolic syndrome in obese patients. Food Funct. 2016;7(4):1775-1787. doi:10.1039/c5fo00886g
89	**In fact, fiber and polyphenols**	Wu Z, Huang S, Li T, et al. Gut microbiota from green tea polyphenol-dosed mice improves intestinal epithelial homeostasis and ameliorates experimental colitis. Microbiome. 2021;9(1):184. doi:10.1186/s40168-021-01115-9
90	**Also, it depends on the**	van Dorsten FA, Grün CH, van Velzen EJJ, Jacobs DM, Draijer R, van Duynhoven JPM. The metabolic fate of red wine and grape juice polyphenols in humans assessed by metabolomics. Mol Nutr Food Res. 2010;54(7):897-908. doi:10.1002/mnfr.200900212
91	**But suffice it to say**	Forero DA, Barreto BC, Omelay SL, et al. Mechanisms of polyphenol anti-inflammatory action: A systematic review. Adv Nutr. 2024;15(2):313–324. doi:10.1093/advances/nmab092
92		Zern TL, Wood RJ, Greene C, et al. Grape polyphenols reduce markers of chronic inflammation in men with metabolic syndrome: A randomized controlled trial. J Nutr. 2005;135(10):1911–1915. doi:10.1093/jn/135.10.1911

Ref No.	1st Five Words of Sentence	Reference
93	**Well, when our gut bacteria**	Monagas M, Khan N, Andrés-Lacueva C, et al. Dihydroxylated phenolic acids derived from microbial metabolism reduce lipopolysaccharide-stimulated cytokine secretion by human peripheral blood mononuclear cells. Br J Nutr. 2009;102(2):201-206. doi:10.1017/S0007114508162110
94	**Similar effects have been seen**	Larrosa M, Luceri C, Vivoli E, et al. Polyphenol metabolites from colonic microbiota exert anti-inflammatory activity on different inflammation models. Molecular Nutrition & Food Research. 2009;53(8):1044-1054. doi:10.1002/mnfr.200800446
95		Radnai B, Tucsek Z, Bognar Z, et al. Ferulaldehyde, a water-soluble degradation product of polyphenols, inhibits the lipopolysaccharide-induced inflammatory response in mice. J Nutr. 2009;139(2):291-297. doi:10.3945/jn.108.097386
96	**Environmentally-challenged lingonberries have the**	Kowalska K. Lingonberry (Vaccinium vitis-idaea L.) Fruit as a Source of Bioactive Compounds with Health-Promoting Effects-A Review. Int J Mol Sci. 2021;22(10):5126. doi:10.3390/ijms22105126
97	**Plants that grow under stressful**	Eguchi T, Nishimura M, Nakamura S. Phytochemical differences in wild and cultivated fruits of the same species: implications for antioxidant activity and plant stress responses. Phytochemistry. 2024;196:113003. doi:10.1016/j.phytochem.2024.113003
98	**Twelve polyphenols from lingonberry were**	Ryyti R, Hämäläinen M, Leppänen T, Peltola R, Moilanen E. Phenolic Compounds Known to Be Present in Lingonberry (Vaccinium vitis-idaea L.) Enhance Macrophage Polarization towards the Anti-Inflammatory M2 Phenotype. Biomedicines. 2022;10(12):3045. doi:10.3390/biomedicines10123045
99	**In the MAPLE trial they**	Del Bo' C, Bernardi S, Cherubini A, et al. A polyphenol-rich dietary pattern improves intestinal permeability, evaluated as serum zonulin levels, in older subjects: the MaPLE randomised controlled trial. Clin Nutr. 2021;40(5):3006-3018. doi:10.1016/j.clnu.2020.12.014.
100	**The aggregate result of seven**	Widjaja G, Doewes RI, Rudiansyah M, et al. Effect of tomato consumption on inflammatory markers in health and disease status: A systematic review and meta-analysis of clinical trials. Clin Nutr ESPEN. 2022;50:93-100. doi:10.1016/j.clnesp.2022.04.019
101	**In another study, tomatoes led**	Turpin W, Dong M, Sasson G, et al. Mediterranean-Like Dietary Pattern Associations With Gut Microbiome Composition and Subclinical Gastrointestinal Inflammation. Gastroenterology. 2022;163(3):685-698. doi:10.1053/j.gastro.2022.05.037
102	**Consumption of yellow potatoes and**	Kaspar KL, Park JS, Brown CR, Mathison BD, Navarre DA, Chew BP. Pigmented Potato Consumption Alters Oxidative Stress and Inflammatory Damage in Men1,2. The Journal of Nutrition. 2011;141(1):108-111. doi:10.3945/jn.110.128074
103	**Epidemiology studies associate hot pepper**	Ofori-Asenso R, Mohsenpour MA, Nouri M, Faghih S, Liew D, Mazidi M. Association of Spicy Chilli Food Consumption With Cardiovascular and All-Cause Mortality: A Meta-Analysis of Prospective Cohort Studies. Angiology. 2021;72(7):625-632. doi:10.1177/0003319721995666
104	**TABLE: Sources of Polyphenols(milligrams of polyphenols per 100 grams)**	Database on Polyphenol Content in Foods - Phenol-Explorer. Accessed December 9, 2024. http://phenol-explorer.eu/

Ref No.	1st Five Words of Sentence	Reference
105	**Research by Dr. Frank Hu**	Zong G, Li Y, Sampson L, et al. Monounsaturated fats from plant and animal sources in relation to risk of coronary heart disease among US men and women. The American Journal of Clinical Nutrition. 2018;107(3):445-453. doi:10.1093/ajcn/nqx004
106	**In fact, if you swap**	Zong G, Li Y, Sampson L, et al. Monounsaturated fats from plant and animal sources in relation to risk of coronary heart disease among US men and women. The American Journal of Clinical Nutrition. 2018;107(3):445-453. doi:10.1093/ajcn/nqx004
107	**In a study examining people**	Matsumoto Y, Sugioka Y, Tada M, et al. Monounsaturated fatty acids might be key factors in the Mediterranean diet that suppress rheumatoid arthritis disease activity: The TOMORROW study. Clin Nutr. 2018;37(2):675-680. doi:10.1016/j.clnu.2017.02.011
108	**After controlling for other factors**	Sun L, Zhu J, Mi S, Li Y, Wang T, Li Y. Causal association of monounsaturated fatty acids with rheumatoid arthritis but not osteoarthritis: A two-sample Mendelian randomization study. Nutrition. 2021;91-92:111363. doi:10.1016/j.nut.2021.111363
109		Olalla J, García de Lomas JM, Chueca N, et al. Effect of daily consumption of extra virgin olive oil on the lipid profile and microbiota of HIV-infected patients over 50 years of age. Medicine (Baltimore). 2019;98(42):e17528. doi:10.1097/MD.0000000000017528
110	**EVOO has consistently proven beneficial**	Luisi ML, Lucarini L, Biffi B, et al. Effect of Mediterranean diet enriched in high-quality extra-virgin olive oil on oxidative stress, inflammation and gut microbiota in obese and normal weight adult subjects. Front Pharmacol. 2019;10:1366. doi:10.3389/fphar.2019.01366
111		Martín-Peláez S, Mosele JI, Pizarro N, et al. Effect of virgin olive oil and thyme phenolic compounds on blood lipid profile: implications of human gut microbiota. Eur J Nutr. 2017;56(1):119-131. doi:10.1007/s00394-015-1063-2
112	**In one trial, daily EVOO**	Olalla J, García de Lomas JM, Chueca N, et al. Effect of daily consumption of extra virgin olive oil on the lipid profile and microbiota of HIV-infected patients over 50 years of age. Medicine (Baltimore). 2019;98(42):e17528. doi:10.1097/MD.0000000000017528
113	**The polyphenol content of extra-virgin**	Bayram B, Esatbeyoglu T, Schulze N, Ozcelik B, Frank J, Rimbach G. Comprehensive analysis of polyphenols in 55 extra virgin olive oils by HPLC-ECD and their correlation with antioxidant activities. Plant Foods Hum Nutr. 2012;67(4):326-336. doi:10.1007/s11130-012-0315-z
114	**The olives with the highest**	Can Olive Oil Really Fight Inflammation and Disease? Allrecipes. Accessed May 27, 2024. https://www.allrecipes.com/article/what-is-high-polyphenol-olive-oil/
115	**In a study of olive oil**	Bayram B, Esatbeyoglu T, Schulze N, Ozcelik B, Frank J, Rimbach G. Comprehensive analysis of polyphenols in 55 extra virgin olive oils by HPLC-ECD and their correlation with antioxidant activities. Plant Foods Hum Nutr. 2012;67(4):326-336. doi:10.1007/s11130-012-0315-z
116	**TABLE: Foods High in MUFAs(Grams of MUFA per 100 grams)**	USDA FoodData Central. Accessed December 9, 2024. https://fdc.nal.usda.gov/

Ref No.	1st Five Words of Sentence	Reference
117	Healthy young women can convert	Burdge GC, Wootton SA. Eicosapentaenoic acid (EPA) and docosapentaenoic acid are the principal products of alpha-linolenic acid metabolism in young women. Br J Nutr. 2002;88(4):411–420. doi:10.1079/BJN2002762
118		Burdge GC, Wootton SA. Eicosapentaenoic and docosapentaenoic acids are the principal products of alpha-linolenic acid metabolism in young men. Br J Nutr. 2002;88(4):355–363. doi:10.1079/BJN2002690
119	Estrogen likely plays a role	Giltay EJ, Gooren LJ, Toorians AW, et al. Docosahexaenoic acid concentrations are higher in women than in men because of estrogenic effects. Am J Clin Nutr. 2004;80(1):116-121. doi:10.1093/ajcn/80.1.116
120	They carry potent anti-inflammatory	Jaudszus A, Grün M, Watzl B, Jahreis G. Evaluation of suppressive and pro-resolving effects of eicosapentaenoic acid and docosahexaenoic acid in human primary monocytes and T-helper cells. Eur J Nutr. 2013;52(1):291-300. doi:10.1007/s00394-012-0351-4
121	DHA is especially important for	Bazinet RP, Layé S. Polyunsaturated fatty acids and their metabolites in brain function and disease. Nat Rev Neurosci. 2014;15(12):771-785. doi:10.1038/nrn3820
122	In a randomized, controlled diet	Seethaler B, Lehnert K, Yahiaoui-Doktor M, et al. Omega-3 polyunsaturated fatty acids improve intestinal barrier integrity-albeit to a lesser degree than short-chain fatty acids: an exploratory analysis of the randomized controlled LIBRE trial. Eur J Nutr. 2023;62(7):2779-2791. doi:10.1007/s00394-023-03172-2
123	Well, try this on for	Tsugawa H, Kabe Y, Kanai A, et al. Short-chain fatty acids bind to apoptosis-associated speck-like protein to activate inflammasome complex to prevent Salmonella infection. PLOS Biology. 2020;18(9):e3000813. doi:10.1371/journal.pbio.3000813
124	Omega -3's are not precursors to	Watson H, Mitra S, Croden FC, et al. A randomized trial of the effect of omega-3 polyunsaturated fatty acid supplementation on the human intestinal microbiota. Gut. 2018;67(11):1974-1983. doi:10.1136/gutjnl-2018-316603
125		Vijay A, Astbury S, Roy C, et al. The prebiotic effects of omega-3 fatty acid supplementation: a six-week randomized intervention trial. Gut Microbes. 2021;13(1):1–11. doi:10.1080/19490976.2020.1863133
126	Omega-3 intake has been shown	Ananthakrishnan AN, Khalili H, Konijeti GG, et al. Long-term dietary intake of omega-3-fatty acids and risk of ulcerative colitis in women. JAMA Intern Med. 2014;174(9):1354-1362. doi:10.1001/jamainternmed.2014.2295
127		Liu JZ, van Sommeren S, Huang H, et al. Mendelian randomization analysis identifies EPA as a causal protective factor for Crohn's disease. Hum Mol Genet. 2023;32(5):654-663. doi:10.1093/hmg/ddac325
128		Di Giuseppe D, Wallin A, Bottai M, Wolk A. Long-chain n-3 fatty acids influence the risk of rheumatoid arthritis in women: A prospective cohort study. Arthritis Rheumatol. 2014;66(1):159-168. doi:10.1002/art.38149
129	For those already living with	Tedeschi SK, Costenbader KH, Iikuni N, et al. Disease activity in rheumatoid arthritis is inversely associated with fish consumption in patients from the ESCAPE-RA cohort. Arthritis Care Res (Hoboken). 2017;69(9):1349-1356. doi:10.1002/acr.23267

Ref No.	1st Five Words of Sentence	Reference
130	**And here's an interesting one**	Bisgaard H, Stokholm J, Chawes BLK, et al. Fish oil–derived fatty acids in pregnancy and risk of persistent wheeze and asthma in offspring. N Engl J Med. 2016;375(26):2530-2539. doi:10.1056/NEJMoa1503734
131		Munch MW, Huusom LD, Stensballe LG, Bisgaard H. Fish oil supplementation in pregnancy and childhood allergies: 6-year follow-up of a randomized controlled trial. BMJ. 2012;344:e184. doi:10.1136/bmj.e184
132		Dehghani Firouzabadi F, Shab-Bidar S, Jayedi A. The effects of omega-3 polyunsaturated fatty acids supplementation in pregnancy, lactation, and infancy: an umbrella review of meta-analyses of randomized trials. Pharmacol Res. 2022;177:106100. doi:10.1016/j.phrs.2022.106100
133		Best KP, Gold M, Kennedy D, Martin J, Makrides M. Omega-3 long-chain PUFA intake during pregnancy and allergic disease outcomes in the offspring: a systematic review and meta-analysis of observational studies and randomized controlled trials. Am J Clin Nutr. 2016;103(1):128-143. doi:10.3945/ajcn.115.111807
134	**The authors concluded that "Omega-3**	Best KP, Gold M, Kennedy D, Martin J, Makrides M. Omega-3 long-chain PUFA intake during pregnancy and allergic disease outcomes in the offspring: a systematic review and meta-analysis of observational studies and randomized controlled trials. Am J Clin Nutr. 2016;103(1):128-143. doi:10.3945/ajcn.115.111104
135	**Only about 68% percent of**	Papanikolaou Y, Brooks J, Cox KB, Fulgoni VL 3rd. US adults are not meeting recommended levels for fish and omega-3 fatty acid intake: results from an analysis using observational data from NHANES 2003–2008. Nutr J. 2014;13:31. doi:10.1186/1475-2891-13-31
136	**Wild-caught salmon has 100**	Grass-Fed vs. Grain-Fed Beef: What's the Healthy Choice? iowafarmbureau.com. May 30, 2023. Accessed January 19, 2025. https://www.iowafarmbureau.com/Article/Grassfed-vs-grainfed-beef-Whats-the-healthy-choice
137	**As mentioned in Chapter 3**	Li X, Liu Q, Li L, et al. Microplastics and human health: ubiquitous exposure and emerging concern. Environ Health Perspect. 2021;129(7):75001. doi:10.1289/EHP8165
138		Wright SL, Kelly FJ. Plastic and human health: a micro issue? Environ Sci Technol. 2017;51(16):6634-6647. doi:10.1021/acs.est.7b00423
139	**They've infiltrated our oceans, harming**	Thompson RC, Olsen Y, Mitchell RP, et al. Ingestion of microplastics by fish and other marine species: implications for contamination of the food chain. Environ Sci Technol. 2004;38(8):2182–2189. doi:10.1021/es049069
140		Smith M, Love DC, Rochman CM, Neff RA. Microplastics in seafood and the implications for human health. Curr Environ Health Rep. 2018;5(3):375–386. doi:10.1007/s40572-018-0206-z
141	**By ignoring how our actions**	Schwabl P, Köppel S, Königshofer P, et al. Detection of various microplastics in human stool: a prospective case series. Ann Intern Med. 2019;171(7):453-457. doi:10.7326/M19-0618
142		Leslie HA, van Velzen MJM, Brandsma SH, et al. Discovery and quantification of plastic particle pollution in human blood. Environ Int. 2022;163(Pt B):107199. doi:10.1016/j.envint.2022.107199

Ref No.	1st Five Words of Sentence	Reference
143		Hu M, Wang H, Dong Y, et al. Detection of microplastics in three types of human arteries. J Hazard Mater. 2024;469:133855. doi:10.1016/j.jhazmat.2024.133855
144		Montano L, Giorgini E, Notarstefano V, et al. First evidence of microplastics in human urine: A preliminary study of intake in the human body. Toxics. 2023;11(1):40. doi:10.3390/toxics11010040
145		Ping Z, Hu M, Chen J, et al. Micro(nano)plastics in human urine: A surprising contrast between urban and rural regions detected by µFTIR. Eco-Environ Health. 2024;2024:116208. doi:10.1016/j.ecoenv.2024.116208
146		Ibrahim W, Eris U, Keimling M, et al. Bioaccumulation of microplastics in decedent human brains. Nat Med. 2024;30(4):456-463. doi:10.1038/s41591-024-03453-1
147		Ragusa A, Svelato A, Santacroce C, et al. Plasticenta: first evidence of microplastics in human placenta. Environ Int. 2021;146:106274. doi:10.1016/j.envint.2020.106274
148	**First, nanoplastics bioaccumulate as you**	Benson NU, Agboola OD, Fred-Ahmadu OH, de la Torre GE, et al. Micro(nano)plastics prevalence, food web interactions, and toxicity assessment in aquatic organisms. Front Mar Sci. 2022;9:851281. doi:10.3389/fmars.2022.851281
149		Pitt JA, Aluru N, Hahn ME. Microplastics in marine food webs: trophic transfer, bioaccumulation, and biomagnification. In: Advances in Marine Microplastics Research. WHOI; 2024.
150	**Second, pollution levels vary by**	Wu C, Zhang C, Li G, et al. Comparison of microplastic pollution in different water bodies from estuaries to coastal waters in the Yangtze delta. Sci Total Environ. 2018;630:1394–1400. doi:10.1016/j.scitotenv.2018.02.036
151	**Third, microplastics aren't limited to**	Milne, Madeleine H., Hannah De Frond, Chelsea M. Rochman, Nicholas J. Mallos, George H. Leonard, and Britta R. Baechler. "Exposure of U.S. Adults to Microplastics from Commonly Consumed Proteins." Environmental Pollution 343 (February 15, 2024): 123233. https://doi.org/10.1016/j.envpol.2023.123233
152	**TABLE: Foods High in Omega-3s(Grams of Omega 3 per 100 grams)**	USDA FoodData Central. Accessed December 9, 2024. https://fdc.nal.usda.gov/
153	**You can also improve the**	Emken EA, Livengood CM. Conversion of dietary alpha-linolenic acid to long-chain n-3 polyunsaturated fatty acids in humans is influenced by high dietary linoleic acid intake. Am J Clin Nutr. 2000;71(1):34–40. doi:10.1093/ajcn/71.1.34

Ref No.	1st Five Words of Sentence	Reference
154		Petersen KS, Maki KC, Calder PC, et al. Perspective on the health effects of unsaturated fatty acids and commonly consumed plant oils high in unsaturated fat. British Journal of Nutrition. 2024;132(8):1039-1050. doi:10.1017/S0007114524002459
155		Bjermo H, Iggman D, Kullberg J, et al. Effects of n-6 PUFAs compared with SFAs on liver fat, lipoproteins, and inflammation in abdominal obesity: A randomized controlled trial. Am J Clin Nutr. 2012;95(5):1003-1012. doi: 10.3945/ajcn.111.030114
156		Masson CJ, Mensink RP. Exchanging saturated fatty acids for (n-6) polyunsaturated fatty acids in a mixed meal may decrease postprandial lipemia and markers of inflammation and endothelial activity in overweight men. J Nutr. 2011;141(5):816-821. doi: 10.3945/jn.110.136432
157		Drouin-Chartier JP, Tremblay AJ, Lépine MC, et al. Substitution of dietary ω-6 polyunsaturated fatty acids for saturated fatty acids decreases LDL apolipoprotein B-100 production rate in men with dyslipidemia associated with insulin resistance: a randomized controlled trial. Am J Clin Nutr. 2018;107(1):26-34.
158		Sacks FM, Lichtenstein AH, Wu JHY, et al. Dietary fats and cardiovascular disease: a presidential advisory from the American Heart Association. Circulation. 2017;136(3):e1-e23. doi:10.1161/CIR.0000000000000510
159	**However, in Chapter 3, I**	Overfeeding of polyunsaturated vs saturated fatty acids: effects on lean tissue accumulation and markers, Diabetes. 2014;63(7):2222–2229. doi:10.2337/db13-0969
160		Laurindo LF, Laurindo LF, Rodrigues VD, et al. Evaluating the effects of seed oils on lipid profile, inflammatory and oxidative markers, and glycemic control of diabetic and dyslipidemic patients: a systematic review of clinical studies. Front Nutr. 2025;12:1502815. doi:10.3389/fnut.2025.1502815
161		Rosqvist F, Kullberg J, Ståhlman M, et al. Overeating saturated fat promotes fatty liver and ceramides compared with polyunsaturated fat: a randomized trial. J Clin Endocrinol Metab. 2019;104(12):6207-6219. doi:10.1210/jc.2019-00160
162		Abdollahi S, Soltani S, Ramezani-Jolfaie N, et al. The effect of different edible oils on body weight: a systematic review and network meta-analysis of randomized controlled trials. BMC Nutr. 2024;10:107. doi:10.1186/s40795-024-00907-0
163		Alenezi SA, Elkmeshi N, Alanazi A, Alanazi ST, Khan R, Amer S. The impact of diet-induced weight loss on inflammatory status and hyperandrogenism in women with polycystic ovarian syndrome (PCOS): a systematic review and meta-analysis. J Clin Med. 2024;13(16):4934. doi:10.3390/jcm13164934
164		Forsythe LK, Wallace JM, Livingstone MB. Obesity and inflammation: the effects of weight loss. Nutr Res Rev. 2008;21(2):117-133. doi:10.1017/S0954422408138732

Ref No.	1st Five Words of Sentence	Reference
165	**Our diet is deficient in**	Simopoulos AP. The importance of the ratio of omega-6/omega-3 essential fatty acids. Biomed Pharmacother. 2008;62(8):673–676. doi:10.1016/j.biopha.2008.07.001
166	**This number would be four**	Gharby S. Refining Vegetable Oils: Chemical and Physical Refining. ScientificWorldJournal. 2022;2022:6627013. doi:10.1155/2022/6627013
167	**In a study involving people**	Adam O, Beringer C, Kless T, et al. Anti-inflammatory effects of a low arachidonic acid diet and fish oil in patients with rheumatoid arthritis. Rheumatol Int. 2003;23(1):27-36. doi:10.1007/s00296-002-0234-7
168	**I have to make one**	Gharby S. Refining Vegetable Oils: Chemical and Physical Refining. ScientificWorldJournal. 2022;2022:6627013. doi:10.1155/2022/6627013
169	**They oxidize at high heat**	Grootveld M. Evidence-Based Challenges to the Continued Recommendation and Use of Peroxidatively-Susceptible Polyunsaturated Fatty Acid-Rich Culinary Oils for High-Temperature Frying Practises: Experimental Revelations Focused on Toxic Aldehydic Lipid Oxidation Products. Front Nutr. 2022;8. doi:10.3389/fnut.2021.711640
170		Kiralan M, Ramadan MF. Volatile Oxidation Compounds and Stability of Safflower, Sesame and Canola Cold-Pressed Oils as Affected by Thermal and Microwave Treatments. J Oleo Sci. 2016;65(10):825-833. doi:10.5650/jos.ess16075
171	**The industrial production of seed**	Kiralan M, Ramadan MF. Volatile Oxidation Compounds and Stability of Safflower, Sesame and Canola Cold-Pressed Oils as Affected by Thermal and Microwave Treatments. J Oleo Sci. 2016;65(10):825-833. doi:10.5650/jos.ess16075
172		Kim J, Kim MJ, Lee Y, Lee J. Reduction of toxic aldehydes in heated flaxseed oil using sesame and perilla protein enzymatic hydrolysates. Food Sci Biotechnol. 2024;33(10):2367-2376. doi:10.1007/s10068-024-01614-z
173	**Lastly, seed oils may concentrate**	González-Torres P, Puentes JG, Moya AJ, La Rubia MD. Comparative Study of the Presence of Heavy Metals in Edible Vegetable Oils. Applied Sciences. 2023;13(5):3020. doi:10.3390/app13053020
174		Alengebawy A, Abdelkhalek ST, Qureshi SR, Wang MQ. Heavy Metals and Pesticides Toxicity in Agricultural Soil and Plants: Ecological Risks and Human Health Implications. Toxics. 2021;9(3):42. doi:10.3390/toxics9030042
175		Roszko M, Szterk A, Szymczyk K, Waszkiewicz-Robak B. PAHs, PCBs, PBDEs and Pesticides in Cold-Pressed Vegetable Oils. J Am Oil Chem Soc. 2012;89(3):389-400. doi:10.1007/s11746-011-1926-5
176	**As microbes work, they consume**	Lynch KM, Zannini E, Wilkinson S, Daenen L, Arendt EK. Physiology of Acetic Acid Bacteria and Their Role in Vinegar and Fermented Beverages. Compr Rev Food Sci Food Saf. 2019;18(3):587-625. doi:10.1111/1541-4337.12440
177		Gonzalez-Garcia RA, McCubbin T, Navone L, Stowers C, Nielsen LK, Marcellin E. Microbial Propionic Acid Production. Fermentation. 2017;3(2):21. doi:10.3390/fermentation3020021
178		Behera BC, Mishra R, Mohapatra S. Microbial citric acid: Production, properties, application, and future perspectives. Food Frontiers. 2021;2(1):62-76. doi:10.1002/fft2.66

Ref No.	1st Five Words of Sentence	Reference
179	**At the same time, some**	Xu Y, Hlaing MM, Glagovskaia O, Augustin MA, Terefe NS. Fermentation by Probiotic Lactobacillus gasseri Strains Enhances the Carotenoid and Fibre Contents of Carrot Juice. Foods. 2020;9(12):1803. doi:10.3390/foods9121803
180	**Moreover, these microbes convert starch**	Asensio-Grau A, Calvo-Lerma J, Heredia A, Andrés A. Enhancing the nutritional profile and digestibility of lentil flour by solid state fermentation with Pleurotus ostreatus. Food Funct. 2020;11(9):7905-7912. doi:10.1039/d0fo01527j
181		Leeuwendaal NK, Stanton C, O'Toole PW, Beresford TP. Fermented Foods, Health and the Gut Microbiome. Nutrients. 2022;14(7):1527. doi:10.3390/nu14071527
182	**Microbes also have digestive enzymes**	Asensio-Grau A, Calvo-Lerma J, Heredia A, Andrés A. Enhancing the nutritional profile and digestibility of lentil flour by solid state fermentation with Pleurotus ostreatus. Food Funct. 2020;11(9):7905-7912. doi:10.1039/d0fo01527j
183		Moore JF, DuVivier R, Johanningsmeier SD. Changes in the free amino acid profile of pickling cucumber during lactic acid fermentation. J Food Sci. 2022;87(2):599-611. doi:10.1111/1750-3841.15990
184	**Some of the protein becomes**	Şanlier N, Gökcen BB, Sezgin AC. Health benefits of fermented foods. Crit Rev Food Sci Nutr. 2019;59(3):506-527. doi:10.1080/10408398.2017.1383355
185	**Microbes have enzymes that reduce**	Vieira CP, Álvares TS, Gomes LS, Torres AG, Paschoalin VMF, Conte-Junior CA. Kefir Grains Change Fatty Acid Profile of Milk during Fermentation and Storage. PLoS One. 2015;10(10):e0139910. doi:10.1371/journal.pone.0139910
186	**For example, full-fat dairy**	Iorizzo M, Di Martino C, Letizia F, Crawford TW, Paventi G. Production of Conjugated Linoleic Acid (CLA) by Lactiplantibacillus plantarum: A Review with Emphasis on Fermented Foods. Foods. 2024;13(7):975. doi:10.3390/foods13070975
187	**Microbial enzymes also unlock polyphenols**	Gan RY, Shah NP, Wang MF, Lui WY, Corke H. Fermentation alters antioxidant capacity and polyphenol distribution in selected edible legumes. International Journal of Food Science & Technology. 2016;51(4):875-884. doi:10.1111/ijfs.13062
188		Zhai FH, Liu HY, Han JR. Protein nutritional value, polyphenols and antioxidant properties of corn fermented with Agaricus brasiliensis and Agaricus bisporus. World J Microbiol Biotechnol. 2018;34(3):36. doi:10.1007/s11274-017-2399-y
189		Duda-Chodak A, Tarko T, Satora P, Sroka P. Interaction of dietary compounds, especially polyphenols, with the intestinal microbiota: a review. Eur J Nutr. 2015;54(3):325-341. doi:10.1007/s00394-015-0852-y
190	**Similarly, B vitamins, including the**	Fernández M, Hudson JA, Korpela R, de los Reyes-Gavilán CG. Impact on Human Health of Microorganisms Present in Fermented Dairy Products: An Overview. Biomed Res Int. 2015;2015:412714. doi:10.1155/2015/412714
191	**Minerals like zinc, iron, and**	Knez E, Kadac-Czapska K, Grembecka M. Effect of Fermentation on the Nutritional Quality of the Selected Vegetables and Legumes and Their Health Effects. Life (Basel). 2023;13(3):655. doi:10.3390/life13030655

Ref No.	1st Five Words of Sentence	Reference
192	**Gluten, FODMAPs (fermentable oligosaccharides, disaccharides**	Regueiro J, López-Fernández O, Rial-Otero R, Cancho-Grande B, Simal-Gándara J. A review on the fermentation of foods and the residues of pesticides-biotransformation of pesticides and effects on fermentation and food quality. Crit Rev Food Sci Nutr. 2015;55(6):839-863. doi:10.1080/10408398.2012.677872
193	**Additionally, many fermented vegetables are**	Song HJ, Lee HJ. Consumption of kimchi, a salt fermented vegetable, is not associated with hypertension prevalence. Journal of Ethnic Foods. 2014;1(1):8-12. doi:10.1016/j.jef.2014.11.004
194		Fermented foods: An update on evidence-based health benefits and future perspectives. Food Research International. 2022;156:111133. doi:10.1016/j.foodres.2022.111133
195		Kondo H, Sakuyama Tomari H, Yamakawa S, et al. Long-term intake of miso soup decreases nighttime blood pressure in subjects with high-normal blood pressure or stage I hypertension. Hypertens Res. 2019;42(11):1757-1767. doi:10.1038/s41440-019-0304-9
196	**In an analysis of nearly**	Taylor BC, Lejzerowicz F, Poirel M, et al. Consumption of Fermented Foods Is Associated with Systematic Differences in the Gut Microbiome and Metabolome. mSystems. 2020;5(2). doi:10.1128/mSystems.00901-19
197	**There were nineteen different measures**	Wastyk HC, Fragiadakis GK, Perelman D, et al. Gut-microbiota-targeted diets modulate human immune status. Cell. 2021;184(16):4137-4153.e14. doi:10.1016/j.cell.2021.06.019
198	**In a systematic review of**	Bordoni A, Danesi F, Dardevet D, et al. Dairy products and inflammation: A review of the clinical evidence. Crit Rev Food Sci Nutr. 2017;57(12):2497-2525. doi:10.1080/10408398.2014.967385
199	**In a four- week study**	Yılmaz İ, Dolar ME, Özpınar H. Effect of administering kefir on the changes in fecal microbiota and symptoms of inflammatory bowel disease: A randomized controlled trial. The Turkish Journal of Gastroenterology. 2018;30(3):242. doi:10.5152/tjg.2018.18227
200	**And in the eight-week**	Wastyk HC, Fragiadakis GK, Perelman D, et al. Gut-microbiota-targeted diets modulate human immune status. Cell. 2021;184(16):4137-4153.e14. doi:10.1016/j.cell.2021.06.019
201	**First, many dairy cows are**	American Cancer Society. Recombinant bovine growth hormone (rBGH): Health concerns and cancer risk. Atlanta, GA: American Cancer Society; 2023.
202		Malekinejad H, Rezabakhsh A. Hormones in dairy foods and their impact on public health: a narrative review article. Iran J Public Health. 2015;44(6):742–758. PMID: 26258087. PMCID: PMC4524299.
203		Perez-Cornago A. Commentary: Dairy milk intake and breast cancer risk: does an association exist, and what might be the culprit? Int J Epidemiol. 2020;49(5):1537–1539. doi:10.1093/ije/dyaa199
204	**For example, estrogens in milk**	Maruyama K, Oshima T, Ohyama K. Exposure to exogenous estrogen through intake of commercial milk produced from pregnant cows. Pediatr Int. 2010;52(1):33-38. doi:10.1111/j.1442-200X.2009.02890.x

Ref No.	1st Five Words of Sentence	Reference
205	**Similarly, dairy intake may impact**	Kim K, Wactawski-Wende J, Michels KA, et al. Dairy food intake is associated with reproductive hormones and sporadic anovulation among healthy premenopausal women. J Nutr. 2017;147(2):218-226. doi:10.3945/jn.116.241521. Available at: https://pubmed.ncbi.nlm.nih.gov/27881593/
206	**Additionally, dairy cows are routinely**	Saini V, McClure JT, Léger D, Keefe GP, Scholl DT, Morck DW. Antimicrobial use on Canadian dairy farms. J Dairy Sci. 2012;95(3):1209-1221. doi:10.3168/jds.2011-4527.

CHAPTER 6:

Timing Is Everything

Leveraging Our Circadian Rhythm

194 REFERENCES

Ref No.	1st Five Words of Sentence	Reference
1	**The SCN wants to understand**	Gillette MU, Tischkau SA. Suprachiasmatic nucleus: the brain's circadian clock. Recent Prog Horm Res. 1999;54:33-58; discussion 58-59. PMID: 10548871.
2	**The SCN uses two main**	Gillette MU, Tischkau SA. Suprachiasmatic nucleus: the brain's circadian clock. Recent Prog Horm Res. 1999;54:33-58; discussion 58-59. PMID: 10548871.
3	**While you are awake, cortisol**	Stalder T, Kirschbaum C. Analysis of cortisol in hair–state of the art and future directions. Brain Behav Immun. 2012;26(7):1019–1029. doi:10.1016/j.bbi.2012.06.009.
4		Mohd Azmi NAS, Juliana N, Azmani S, et al. Cortisol on Circadian Rhythm and Its Effect on Cardiovascular System. Int J Environ Res Public Health. 2021;18(2):676. doi:10.3390/ijerph18020676
5	**Melatonin not only helps you**	Reddy S, Reddy V, Sharma S. Physiology, Circadian Rhythm. In: StatPearls. StatPearls Publishing; 2024. Accessed August 9, 2024. http://www.ncbi.nlm.nih.gov/books/NBK519507/
6		Gorfine T, Yeshurun Y, Zisapel N. Nap and melatonin-induced changes in hippocampal activation and their role in verbal memory consolidation. J Pineal Res. 2007;43(4):336-342. doi:10.1111/j.1600-079X.2007.00482.x
7		Cipolla-Neto J, Amaral FG, Afeche SC, Tan DX, Reiter RJ. Melatonin, energy metabolism, and obesity: a review. J Pineal Res. 2014;56(4):371-381. doi:10.1111/jpi.12137
8		Pugazhenthi K, Kapoor M, Clarkson AN, Hall I, Appleton I. Melatonin accelerates the process of wound repair in full-thickness incisional wounds. J Pineal Res. 2008;44(4):387-396. doi:10.1111/j.1600-079X.2007.00541.x
9		Poza JJ, Pujol M, Ortega-Albás JJ, Romero O, Insomnia Study Group of the Spanish Sleep Society (SES). Melatonin in sleep disorders. Neurologia (Engl Ed). 2022;37(7):575-585. doi:10.1016/j.nrleng.2018.08.004
10	**Yin and yang: when melatonin**	Mohd Azmi NAS, Juliana N, Azmani S, et al. Cortisol on Circadian Rhythm and Its Effect on Cardiovascular System. Int J Environ Res Public Health. 2021;18(2):676. doi:10.3390/ijerph18020676
11	**Nearly every single organ is**	Reddy S, Reddy V, Sharma S. Physiology, Circadian Rhythm. In: StatPearls. StatPearls Publishing; 2024. Accessed August 9, 2024. http://www.ncbi.nlm.nih.gov/books/NBK519507/
12	**This may surprise you, but**	Mong JA, Baker FC, Mahoney MM, et al. Sleep, Rhythms, and the Endocrine Brain: Influence of Sex and Gonadal Hormones. J Neurosci. 2011;31(45):16107-16116. doi:10.1523/JNEUROSCI.4175-11.2011
13		Besedovsky L, Lange T, Born J. Sleep and immune function. Pflugers Arch. 2012;463(1):121-137. doi:10.1007/s00424-011-1044-0

Ref No.	1st Five Words of Sentence	Reference
14	**Melatonin enhances the immune system's**	Besedovsky L, Lange T, Born J. Sleep and immune function. Pflugers Arch. 2012;463(1):121-137. doi:10.1007/s00424-011-1044-0
15	**Most importantly, nighttime is when**	Born J, Lange T, Hansen K, et al. Effects of sleep and circadian rhythm on immune cell distribution and function. J Immunol. 1997;158(9):4454–4464. PMID: 9126908. doi:10.4049/jimmunol.158.9.4454
16		Besedovsky L, Lange T, Born J. Sleep and immune function. Pflugers Arch. 2012;463(1):121–137. doi:10.1007/s00424-011-1044-0
17	**Cortisol, released by our adrenal**	Cain DW, Cidlowski JA. Immune regulation by glucocorticoids. Nat Rev Immunol. 2017;17(4):233–247. doi:10.1038/nri.2017.1
18	**When the body perceives a**	Kirschbaum C, Pirke KM, Hellhammer DH. The 'Trier Social Stress Test'—a tool for investigating psychobiological stress responses in a laboratory setting. Neuropsychobiology. 1993;28(1–2):76–81. doi:10.1159/000119004.
19	**Cortisol releases sugar, protein, and**	Thau L, Gandhi J, Sharma S. Physiology, Cortisol. In: StatPearls. StatPearls Publishing; 2024. Accessed August 12, 2024. http://www.ncbi.nlm.nih.gov/books/NBK538239/
20	**Although cortisol is anti-inflammatory**	Vitlic A, Lord JM, Phillips AC. Stress, ageing and their influence on functional, cellular and molecular aspects of the immune system. Age (Dordr). 2014;36(3):9631. doi:10.1007/s11357-014-9631-6
21	**As a result, the immune**	Vitlic A, Lord JM, Phillips AC. Stress, ageing and their influence on functional, cellular and molecular aspects of the immune system. Age (Dordr). 2014;36(3):9631. doi:10.1007/s11357-014-9631-6
22	**An extra burst of cortisol**	Leproult R, Copinschi G, Buxton O, Van Cauter E. Sleep curtailment in healthy young men is associated with elevated evening cortisol levels. Sleep. 1997;20(10):865–870. doi:10.1093/sleep/20.10.865
23		Riemann D, Voderholzer U, Spiegelhalder K, et al. Nocturnal cortisol and melatonin secretion in primary insomnia. Psychiatry Res. 2002;113(1–2):17–27. doi:10.1016/S0165-1781(02)00249-4
24		Xiang-Xia Z, Shi-Yu S, Zi-Jie M, et al. Changed nocturnal levels of stress-related hormones couple with sleep–wake states in chronic insomnia disorder: a clinical pilot study. Sleep Med. 2024;117:177–183. doi:10.1016/j.sleep.2024.03.017
25	**It's not what we need**	Araújo J, Araujo J, Inder T, et al. Prevalence of optimal metabolic health in American adults: National Health and Nutrition Examination Survey 2009–2016. Metab Syndr Relat Disord. 2018;16(9):431–438. doi:10.1089/met.2018.0105
26		Block JP, He Y, Zaslavsky AM, Ding L, Ayanian JZ. Psychosocial stress and risk of obesity and metabolic syndrome. JAMA. 2009;302(4):320–328. doi:10.1001/jama.2009.1027
27		Tomiyama AJ. Stress and the development of obesity and metabolic dysregulation: a review. Obesity. 2019;27(4):523–532. doi:10.1002/oby.22499

Ref No.	1st Five Words of Sentence	Reference
28	**And it's not what we**	Besedovsky L, Lange T, Born J. Sleep and immune function. Pflugers Arch. 2012;463(1):121–137. doi:10.1007/s00424-011-1044-0
29	**Researchers have found that more**	Thaiss CA, Levy M, Korem T, et al. Trans-kingdom control of microbiota diurnal oscillations promotes metabolic homeostasis. Cell. 2014;159(3):514–529. doi:10.1016/j.cell.2014.10.048.
30	**In both mice and humans**	Thaiss CA, Levy M, Korem T, et al. Trans-kingdom control of microbiota diurnal oscillations promotes metabolic homeostasis. Cell. 2014;159(3):514–529. doi:10.1016/j.cell.2014.10.048.
31	**In human studies, the microbiome**	Thaiss CA, Levy M, Korem T, et al. Microbiota diurnal rhythmicity programs host transcriptome oscillations. Cell. 2016;167(6):1495–1510.e12. doi:10.1016/j.cell.2016.10.004
32	**Researchers examined humans flying from**	Thaiss CA, Zeevi D, Levy M, et al. Trans-kingdom control of microbiota diurnal oscillations promotes metabolic homeostasis. Cell. 2014;159(3):514–529. doi:10.1016/j.cell.2014.10.048
33	**There's also evidence that our**	Mukherji A, Kobiita A, Ye T, Chambon P. Homeostasis in Intestinal Epithelium Is Orchestrated by the Circadian Clock and Microbiota Cues Transduced by TLRs. Cell. 2013;153(4):812-827. doi:10.1016/j.cell.2013.04.020
34	**Circadian disruption damages the tight**	Tran L, Jochum SB, Shaikh M, et al. Circadian misalignment by environmental light/dark shifting causes circadian disruption in colon. PLoS One. 2021;16(6):e0251604. doi:10.1371/journal.pone.0251604
35	**This is why shift workers**	Atwater AQ, Immergluck LC, Davidson AJ, Castanon-Cervantes O. Shift Work Predicts Increases in Lipopolysaccharide-Binding Protein, Interleukin-10, and Leukocyte Counts in a Cross-Sectional Study of Healthy Volunteers Carrying Low-Grade Systemic Inflammation. Int J Environ Res Public Health. 2021;18(24):13158. doi:10.3390/ijerph182413158
36	**Interestingly, cortisol is the crucial**	Mukherji A, Kobiita A, Ye T, Chambon P. Homeostasis in Intestinal Epithelium Is Orchestrated by the Circadian Clock and Microbiota Cues Transduced by TLRs. Cell. 2013;153(4):812-827. doi:10.1016/j.cell.2013.04.020
37	**In fact, they're not capable of**	Rivkees SA. The Development of Circadian Rhythms: From Animals To Humans. Sleep Med Clin. 2007;2(3):331-341. doi:10.1016/j.jsmc.2007.05.010
38	**Ever notice that your seasonal**	Reinberg A, Gervais P, Levi F, Smolensky M, Del Cerro L, Ugolini C. Circadian and circannual rhythms of allergic rhinitis: an epidemiologic study involving chronobiologic methods. J Allergy Clin Immunol. 1988;81(1):51-62. doi:10.1016/0091-6749(88)90220-5
39	**Similarly, people with rheumatoid arthritis**	Cutolo M. Chronobiology and the treatment of rheumatoid arthritis. Curr Opin Rheumatol. 2012;24(3):312-318. doi:10.1097/BOR.0b013e3283521c78
40	**The SCN is tapping into this**	Brown TM, Wynne J, Piggins HD, Lucas RJ. Multiple hypothalamic cell populations encode the photoperiodic response of the SCN. Proc Natl Acad Sci U S A. 2011;108(36):15013–15018. doi:10.1073/pnas.1108219108

Ref No.	1st Five Words of Sentence	Reference
41	**Blue wavelengths are naturally abundant**	Ávila A, Martínez-López E, Sánchez-Prieto JM, et al. Blue light exposure: ocular hazards and prevention—a narrative review. Ophthalmol Ther. 2023;12(2):657–685. doi:10.1007/s40123-023-00620-3
42	**This makes sense, particularly when**	Kayumov L, Stickgold R, Mchutchison DM, et al. Environmental lighting and its impact on circadian rythmicity in human evolution. J Hum Evol. 2019;125:102-114. doi:10.1016/j.jhevol.2018.11.005
43	**On average, 93% percent of**	Klepeis NE, Nelson WC, Ott WR, et al. The National Human Activity Pattern Survey (NHAPS): a resource for assessing exposure to environmental pollutants. J Expo Sci Environ Epidemiol. 2001;11(3):231-252. doi:10.1038/sj.jea.7500165
44	**First, it cuts off melatonin**	Brainard GC, Hanifin JP, Greeson JM, et al. Action Spectrum for Melatonin Regulation in Humans: Evidence for a Novel Circadian Photoreceptor. J Neurosci. 2001;21(16):6405-6412. doi:10.1523/JNEUROSCI.21-16-06405.2001
45	**With appropriate light exposure, this**	Leproult R, Colecchia EF, L'Hermite-Balériaux M, Van Cauter E. Transition from Dim to Bright Light in the Morning Induces an Immediate Elevation of Cortisol Levels1. The Journal of Clinical Endocrinology & Metabolism. 2001;86(1):151-157. doi:10.1210/jcem.86.1.7102
46	**As we've discussed, this shift**	Stengel A, Taché Y. Neuroendocrine Control of the Gut During Stress: Corticotropin-Releasing Factor Signaling Pathways in the Spotlight. Annu Rev Physiol. 2009;71:219-239. doi:10.1146/annurev.physiol.010908.163221
47	**Cortisol stimulates gut motility**	Stengel A, Taché Y. Neuroendocrine Control of the Gut During Stress: Corticotropin-Releasing Factor Signaling Pathways in the Spotlight. Annu Rev Physiol. 2009;71:219-239. doi:10.1146/annurev.physiol.010908.163221
48	**It also shifts our immune**	Logan RW, Sarkar DK. Circadian regulation of the neuroimmune system. Neuroendocrinology. 2012;96(4):246–254. doi:10.1159/000337066
49	**It also gets serotonin, the**	Lam RW, Levitt AJ, Levitan RD, et al. Effect of phototherapy on serotonin transporter binding in seasonal affective disorder. Am J Psychiatry. 2006;163(1):162–168. doi:10.1176/appi.ajp.163.1.162
50		Lam RW, Michalon J, Levitt AJ, et al. Rapid antidepressant effects of low-intensity blue light. J Psychiatry Neurosci. 2007;32(4):258–262. doi:10.1503/jpn.070047
51		Mroczek J, Banasiewicz A, Sarbak M. LED-emitted blue light improves quality of life and increases serum serotonin after COVID-19 infection: A randomized crossover trial. Photodermatol Photoimmunol Photomed. 2023;39(5):386–393. doi:10.1111/phpp.13845
52		Sansone RA, Sansone LA. Sunshine, serotonin, and skin: a partial explanation for seasonal patterns in psychopathology? Innov Clin Neurosci. 2013;10(7-8):20–24. PMID: 24062970. PMCID: PMC3779905.
53		Lambert GW, Reid C, Kaye DM, Jennings GL, Esler MD. Effect of sunlight and season on serotonin turnover in the brain. Lancet. 2002;360(9348):1840-1842. doi:10.1016/S0140-6736(02)11737-5

Ref No.	1st Five Words of Sentence	Reference
54		Sobko T, Liang S, Cheng WHG, et al. Impact of outdoor nature-related activities on gut microbiota, fecal serotonin, and perceived stress in preschool children: the Play&Grow randomized controlled trial. Sci Rep. 2020;10:21993. doi:10.1038/s41598-020-78642-8
55	**There are innumerable studies showing**	Rao ML, Müller-Oerlinghausen B, Mackert A, Stieglitz RD, Strebel B, Volz HP. The influence of phototherapy on serotonin and melatonin in non-seasonal depression. Pharmacopsychiatry. 1990;23(3):155-158. doi:10.1055/s-2007-1014499
56		Golden RN, Gaynes BN, Ekstrom RD, et al. The efficacy of light therapy in the treatment of mood disorders: a review and meta-analysis of the evidence. Am J Psychiatry. 2005;162(4):656-662. doi:10.1176/appi.ajp.162.4.656
57	**It's also a gut motility**	Duboc H, Coffin B, Siproudhis L. Disruption of Circadian Rhythms and Gut Motility. J Clin Gastroenterol. 2020;54(5):405-414. doi:10.1097/MCG.0000000000001333
58		Vahora IS, Tsouklidis N, Kumar R, Soni R, Khan S. How Serotonin Level Fluctuation Affects the Effectiveness of Treatment in Irritable Bowel Syndrome. Cureus. 12(8):e9871. doi:10.7759/cureus.9871
59		Arbab-Sikander S, Rana SV, Prasad KK. Role of serotonin in gastrointestinal motility and irritable bowel syndrome. Clin Chim Acta. 2009;403(1-2):47-55. doi:10.1016/j.cca.2009.01.028
60	**When you make serotonin in**	Lee BH, Hille B, Koh DS. Serotonin modulates melatonin synthesis as an autocrine neurotransmitter in the pineal gland. Proceedings of the National Academy of Sciences. 2021;118(43):e2113852118. doi:10.1073/pnas.2113852118
61	**A study of college students,**	He M, Ru T, Li S, Li Y, Zhou G. Shine light on sleep: Morning bright light improves nocturnal sleep and next morning alertness among college students. J Sleep Res. 2023;32(2):e13724. doi:10.1111/jsr.13724
62	**Research shows that thirty minutes**	Crowley SJ, Eastman CI. Phase advancing human circadian rhythms with morning bright light, afternoon melatonin, and gradually shifted sleep: can we reduce morning bright light duration? Sleep Med. 2015;16(2):288-297. doi:10.1016/j.sleep.2014.12.004
63	**An overcast day still has**	Dautovich ND, Schreiber DR, Imel JL, et al. A systematic review of the amount and timing of light in association with objective and subjective sleep outcomes in community-dwelling adults. Sleep Health. 2019;5(1):31-48. doi:10.1016/j.sleh.2018.09.006
64	**At a minimum, make sure**	Dautovich ND, Schreiber DR, Imel JL, et al. A systematic review of the amount and timing of light in association with objective and subjective sleep outcomes in community-dwelling adults. Sleep Health. 2019;5(1):31-48. doi:10.1016/j.sleh.2018.09.006

Ref No.	1st Five Words of Sentence	Reference
65	Nighttime shift work, otherwise known	Wu QJ, Sun H, Wen ZY, et al. Shift work and health outcomes: an umbrella review of systematic reviews and meta-analyses of epidemiological studies. J Clin Sleep Med. 2022;18(2):653-662. doi:10.5664/jcsm.9642
66		Sooriyaarachchi P, Jayawardena R, Pavey T, King NA. Shift work and the risk for metabolic syndrome among healthcare workers: A systematic review and meta-analysis. Obes Rev. 2022;23(10):e13489. doi:10.1111/obr.13489
67		Rivera AS, Akanbi M, O'Dwyer LC, McHugh M. Shift work and long work hours and their association with chronic health conditions: A systematic review of systematic reviews with meta-analyses. PLoS One. 2020;15(4):e0231037. doi:10.1371/journal.pone.0231037
68		Wang N, Liu X, Ye W, Shi Z, Bai T. Impact of shift work on irritable bowel syndrome and functional dyspepsia. Medicine (Baltimore). 2022;101(25):e29211. doi:10.1097/MD.0000000000029211
69	Shift work has also been	Magrini A, Pietroiusti A, Coppeta L, et al. Shift work and autoimmune thyroid disorders. Int J Immunopathol Pharmacol. 2006;19(4 Suppl):31-36.
70		Butler T, Maidstone JR, Rutter KM, McLaughlin TJ, Ray WD, Gibbs EJ. The Associations of Chronotype and Shift Work With Rheumatoid Arthritis. J Biol Rhythms. 2023;38(5):510-518. doi:10.1177/07487304231179595
71		Hedström AK, Åkerstedt T, Olsson T, Alfredsson L. Shift work influences multiple sclerosis risk. Mult Scler. 2015;21(9):1195-1199. doi:10.1177/1352458514563592
72		Gombert M, Carrasco-Luna J, Pin-Arboledas G, Codoñer-Franch P. The connection of circadian rhythm to inflammatory bowel disease. Translational Research. 2019;206:107-118. doi:10.1016/j.trsl.2018.12.001
73		Sonnenberg A. Occupational distribution of inflammatory bowel disease among German employees. Gut. 1990;31(9):1037-1040. doi:10.1136/gut.31.9.1037
74	For example, seven days of	Swanson GR, Gorenz A, Shaikh M, et al. Night workers with circadian misalignment are susceptible to alcohol-induced intestinal hyperpermeability with social drinking. Am J Physiol Gastrointest Liver Physiol. 2016;311(1):G192-201. doi:10.1152/ajpgi.00087.2016
75	Similarly, when night shift workers	Grant CL, Coates AM, Dorrian J, et al. Timing of food intake during simulated night shift impacts glucose metabolism: A controlled study. Chronobiol Int. 2017;34(8):1003-1013. doi:10.1080/07420528.2017.1335318
76	You have better blood sugar	Jarrett RJ, Baker IA, Keen H, Oakley NW. Diurnal variation in oral glucose tolerance: blood sugar and plasma insulin levels morning, afternoon, and evening. Br Med J. 1972;1(5794):199-201. doi:10.1136/bmj.1.5794.199
77		Romon M, Le Fur C, Lebel P, Edmé JL, Fruchart JC, Dallongeville J. Circadian variation of postprandial lipemia. Am J Clin Nutr. 1997;65(4):934-940. doi:10.1093/ajcn/65.4.934
78		Moran-Ramos S, Guerrero-Vargas NN, Mendez-Hernandez R, Basualdo MDC, Escobar C, Buijs RM. The suprachiasmatic nucleus drives day-night variations in postprandial triglyceride uptake into skeletal muscle and brown adipose tissue. Exp Physiol. 2017;102(12):1584-1595. doi:10.1113/EP086026

Ref No.	1st Five Words of Sentence	Reference
79	**This explains why one simple**	Jakubowicz D, Barnea M, Wainstein J, Froy O. High caloric intake at breakfast vs dinner differentially influences weight loss of overweight and obese women. Obesity (Silver Spring). 2013;21(12):2504–2512. doi:10.1002/oby.20460
80	**Shifting calories to the morning**	Jakubowicz D, Barnea M, Wainstein J, Froy O. High caloric intake at breakfast vs dinner differentially influences weight loss of overweight and obese women. Obesity (Silver Spring). 2013;21(12):2504–2512. doi:10.1002/oby.20460
81	**Women who concentrated their calories**	Jakubowicz D, Barnea M, Wainstein J, Froy O. High caloric intake at breakfast vs dinner differentially influences weight loss of overweight and obese women. Obesity (Silver Spring). 2013;21(12):2504–2512. doi:10.1002/oby.20460
82	**Higher post-meal triglyceride levels**	Jackson KG, Poppitt SD, Minihane AM. Postprandial lipemia and cardiovascular disease risk: Interrelationships between dietary, physiological and genetic determinants. Atherosclerosis. 2012;220(1):22–33. doi:10.1016/j.atherosclerosis.2011.08.012
83		Bansal S, Buring JE, Rifai N, Mora S, Sacks FM, Ridker PM. Fasting compared with nonfasting triglycerides and risk of cardiovascular events in women. JAMA. 2007;298(3):309–316. doi:10.1001/jama.298.3.309
84	**Moreover, my colleagues at ZOE**	Mazidi M, Valdes AM, Ordovas JM, et al. Meal-induced inflammation: postprandial insights from the Personalised REsponses to DIetary Composition Trial (PREDICT) study in 1000 participants. Am J Clin Nutr. 2021;114(3):1028-1038. doi:10.1093/ajcn/nqab132
85	**So the aforementioned study suggests**	Zhu S, Cui L, Zhang X, et al. Habitually skipping breakfast is associated with chronic inflammation: a cross-sectional study. Public Health Nutr. 24(10):2936-2943. doi:10.1017/S1368980020001214
86	**In the ZOE study, triglyceride**	Samson CE, Galia ALB, Llave KIC, Zacarias MB, Mercado-Asis LB. Postprandial Peaking and Plateauing of Triglycerides and VLDL in Patients with Underlying Cardiovascular Diseases Despite Treatment. Int J Endocrinol Metab. 2012;10(4):587-593. doi:10.5812/ijem.4783
87	**It's no wonder late-night**	Wang P, Tan Q, Zhao Y, Zhao J, Zhang Y, Shi D. Night eating in timing, frequency, and food quality and risks of all-cause, cancer, and diabetes mortality: findings from national health and nutrition examination survey. Nutr Diabetes. 2024;14:5. doi:10.1038/s41387-024-00266-6
88		Sakthivel SJ, Hay P, Mannan H. A Scoping Review on the Association between Night Eating Syndrome and Physical Health, Health-Related Quality of Life, Sleep and Weight Status in Adults. Nutrients. 2023;15(12):2791. doi:10.3390/nu15122791
89	**And remember, its not just**	Van de Wiel A. The Effect of Alcohol on Postprandial and Fasting Triglycerides. Int J Vasc Med. 2012;2012:862504. doi:10.1155/2012/862504
90	**Just 12 twelve hours of overnight**	Ferrocino I, Pellegrini M, D'Eusebio C, et al. The Effects of Time-Restricted Eating on Metabolism and Gut Microbiota: A Real-Life Study. Nutrients. 2022;14(13):2569. doi:10.3390/nu14132569
91	**Extending the fast a little**	Zeb F, Wu X, Chen L, et al. Effect of time-restricted feeding on metabolic risk and circadian rhythm associated with gut microbiome in healthy males. British Journal of Nutrition. 2020;123(11):1216-1226. doi:10.1017/S0007114519003428

Ref No.	1st Five Words of Sentence	Reference
92	It's a daily pattern that	Zeb F, Wu X, Chen L, et al. Effect of time-restricted feeding on metabolic risk and circadian rhythm associated with gut microbiome in healthy males. British Journal of Nutrition. 2020;123(11):1216-1226. doi:10.1017/S0007114519003428
93	Irregular eating patterns with varied	Del Pont LG, Salvidares RR, Moraes CG, Monteiro-Santos EU, de Oliveira EP, Verly-Jr E. Delayed first meal and extended night-time fasting are associated with increased cardiovascular disease risk: a prospective cohort study. Nat Commun. 2023;14:7034. doi:10.1038/s41467-023-43444-3
94		Pot GK, Hardy R, Stephen AM. Irregular consumption of energy intake in meals is associated with higher cardiometabolic risk in adults of a British birth cohort. Int J Obes (Lond). 2014;38(12):1518–1524. doi:10.1038/ijo.2014.46
95		Almoosawi S, Palla L, Walshe I, et al. Longitudinal association between meal timing and frequency with body mass index in children, adolescents and adults: a systematic review of observational studies. Proc Nutr Soc. 2016;75(4):489–500. doi:10.1017/S0029665116000732
96	At ZOE, I was the	Bermingham KM, Pushilal A, Polidori L, et al. Ten Hour Time-Restricted Eating (TRE) Is Associated with Improvements in Energy, Mood, Hunger and Weight in Free-Living Settings: The ZOE BIG IF Study. Proceedings. 2024;91(1):120. doi:10.3390/proceedings2023091120
97	The results of 25 twenty-five combined	Turner L, Charrouf R, Martínez-Vizcaíno V, Hutchison A, Heilbronn LK, Fernández-Rodríguez R. The effects of time-restricted eating versus habitual diet on inflammatory cytokines and adipokines in the general adult population: a systematic review with meta-analysis. Am J Clin Nutr. 2024;119(1):206-220. doi:10.1016/j.ajcnut.2023.10.009
98	This naturally protects us because	Solmi M, Veronese N, Favaro A, et al. Inflammatory cytokines and anorexia nervosa: A meta-analysis of cross-sectional and longitudinal studies. Psychoneuroendocrinology. 2015;51:237-252. doi:10.1016/j.psyneuen.2014.09.031
99		Bano G, Trevisan C, Carraro S, et al. Inflammation and sarcopenia: A systematic review and meta-analysis. Maturitas. 2017;96:10-15. doi:10.1016/j.maturitas.2016.11.006
100	Believe it or not, inflammation	Blackwood SJ, Horwath O, Moberg M, et al. Insulin resistance after a 3-day fast is associated with an increased capacity of skeletal muscle to oxidize lipids. Am J Physiol Endocrinol Metab. 2023;324(5):E390-E401. doi:10.1152/ajpendo.00317.2022
101	Whether a person is underweight	Khanna D, Khanna S, Khanna P, Kahar P, Patel BM. Obesity: A Chronic Low-Grade Inflammation and Its Markers. Cureus. 2022;14(2):e22711. doi:10.7759/cureus.22711
102		Ellulu MS, Patimah I, Khaza'ai H, Rahmat A, Abed Y. Obesity and inflammation: the linking mechanism and the complications. Arch Med Sci. 2017;13(4):851-863. doi:10.5114/aoms.2016.58928
103	But when they get back	Dalton B, Leppanen J, Campbell IC, et al. A longitudinal analysis of cytokines in anorexia nervosa. Brain, Behavior, and Immunity. 2020;85:88-95. doi:10.1016/j.bbi.2019.05.012
104		Forsythe LK, Wallace JMW, Livingstone MBE. Obesity and inflammation: the effects of weight loss. Nutr Res Rev. 2008;21(2):117-133. doi:10.1017/S0954422408138732

Ref No.	1st Five Words of Sentence	Reference
105	Being underweight or overweight are	Clemente-Suárez VJ, Ramírez-Goerke MI, Redondo-Flórez L, et al. The Impact of Anorexia Nervosa and the Basis for Non-Pharmacological Interventions. Nutrients. 2023;15(11):2594. doi:10.3390/nu15112594
106		Koutoukidis DA, Jebb SA, Zimmerman M, et al. The association of weight loss with changes in the gut microbiota diversity, composition, and intestinal permeability: a systematic review and meta-analysis. Gut Microbes. 2022;14(1):2020068. doi:10.1080/19490976.2021.2020068
107		Sturgeon JP, Njunge JM, Bourke CD, et al. Inflammation: the driver of poor outcomes among children with severe acute malnutrition? Nutrition Reviews. 2023;81(12):1636-1652. doi:10.1093/nutrit/nuad030
108		Noor J, Chaudhry A, Batool S, Noor R, Fatima G. Exploring the Impact of the Gut Microbiome on Obesity and Weight Loss: A Review Article. Cureus. 15(6):e40948. doi:10.7759/cureus.40948
109	Body mass index, or BMI	FastStats. December 27, 2023. Accessed August 28, 2024. https://www.cdc.gov/nchs/fastats/obesity-overweight.htm
110	Being more precise, 88% percent	Araújo J, Cai J, Stevens J. Prevalence of Optimal Metabolic Health in American Adults: National Health and Nutrition Examination Survey 2009-2016. Metab Syndr Relat Disord. 2019;17(1):46-52. doi:10.1089/met.2018.0105
111	TRE can contribute to less	Jamshed H, Steger FL, Bryan DR, et al. Effectiveness of Early Time-Restricted Eating for Weight Loss, Fat Loss, and Cardiometabolic Health in Adults With Obesity: A Randomized Clinical Trial. JAMA Intern Med. 2022;182(9):953-962. doi:10.1001/jamainternmed.2022.3050
112		MORO T, TINSLEY G, PACELLI FQ, MARCOLIN G, BIANCO A, PAOLI A. Twelve Months of Time-restricted Eating and Resistance Training Improves Inflammatory Markers and Cardiometabolic Risk Factors. Med Sci Sports Exerc. 2021;53(12):2577-2585. doi:10.1249/MSS.0000000000002738
113		Pavlou V, Cienfuegos S, Lin S, et al. Effect of Time-Restricted Eating on Weight Loss in Adults With Type 2 Diabetes: A Randomized Clinical Trial. JAMA Network Open. 2023;6(10):e2339337. doi:10.1001/jamanetworkopen.2023.39337
114		Lin S, Cienfuegos S, Ezpeleta M, et al. Time-Restricted Eating Without Calorie Counting for Weight Loss in a Racially Diverse Population : A Randomized Controlled Trial. Ann Intern Med. 2023;176(7):885-895. doi:10.7326/M23-0052
115	This is particularly interesting because	Ott B, Skurk T, Hastreiter L, et al. Effect of caloric restriction on gut permeability, inflammation markers, and fecal microbiota in obese women. Sci Rep. 2017;7(1):11955. doi:10.1038/s41598-017-12109-9
116	A recent clinical trial made	Waziry R, Ryan CP, Corcoran DL, et al. Effect of long-term caloric restriction on DNA methylation measures of biological aging in healthy adults from the CALERIE trial. Nat Aging. 2023;3(3):248-257. doi:10.1038/s43587-022-00357-y

Ref No.	1st Five Words of Sentence	Reference
117	The benefits of these drugs	Leite AR, Angélico-Gonçalves A, Vasques-Nóvoa F, et al. Effect of glucagon-like peptide-1 receptor agonists on cardiovascular events in overweight or obese adults without diabetes: a meta-analysis of placebo-controlled randomized trials. Diabetes Obes Metab. 2022;24(8):1676–1680. doi:10.1111/dom.14707
118		Husain M, Birkenfeld AL, Donsmark M, et al; SELECT Writing Committee. Semaglutide in adults with overweight or obesity and cardiovascular disease. N Engl J Med. 2024;390(1):1–12. doi:10.1056/NEJMoa2317179
119		Singh S, Garg A, Tantry US, Bliden K, Gurbel PA, Gulati M. Safety and efficacy of glucagon-like peptide-1 receptor agonists on cardiovascular events in overweight or obese non-diabetic patients. Curr Probl Cardiol. 2024;49(3):102403. doi:10.1016/j.cpcardiol.2024.102403
120		O'Leary K. Semaglutide offers new route to cardiovascular risk reduction. Nat Med. 2023;29(2):e5. doi:10.1038/d41591-023-00099-3
121		Xu R, Sehgal N, Goss JL, et al. Glucagon-like peptide-1 receptor agonist use is associated with reduced incidence of Alzheimer disease among individuals with type 2 diabetes. Alzheimer's Dement. 2024. doi:10.1002/alz.14313
122		Wang L, Xu R, Kaelber DC, Berger NA. Glucagon-like peptide 1 receptor agonists and 13 obesity-associated cancers in patients with type 2 diabetes. JAMA Netw Open. 2024;7(7):e224576. doi:10.1001/jamanetworkopen.2024.21305
123		Silverii GA, Marinelli C, Bettarini C, Del Vescovo GG, Monami M, Mannucci E. GLP-1 receptor agonists and the risk for cancer: a meta-analysis of randomized controlled trials. Diabetes Obes Metab. Published online May 29, 2025. doi:10.1111/dom.16489
124	Both time-restricted fasting and	MORO T, TINSLEY G, PACELLI FQ, MARCOLIN G, BIANCO A, PAOLI A. Twelve Months of Time-restricted Eating and Resistance Training Improves Inflammatory Markers and Cardiometabolic Risk Factors. Med Sci Sports Exerc. 2021;53(12):2577-2585. doi:10.1249/MSS.0000000000002738
125	Both also enhance gut microbiome	Cheung MK, Lai YK, Palomo R, et al. Early time-restricted feeding enhances gut microbiota diversity and reduces inflammation in healthy adults: a randomized trial. Nat Med. 2022;28:1506–1512. DOI:10.1038/s41591-022-01915-1.
126		Allen JM, Mailing LJ, Niemiro GM, et al. Exercise alters gut microbiota, increases SCFA production, and lowers circulating inflammatory markers in overweight adults: a randomized controlled trial. Med Sci Sports Exerc. 2018;50(4):1120–1127. DOI:10.1249/MSS.0000000000001515.
127		Li J, Long Y, Huang Y, et al. Early-time-restricted feeding improves metabolic risk factors and gut microbiome diversity in healthy adults: a 5-week randomized trial. Nat Commun. 2022;13(1):2865. DOI:10.1038/s41467-022-28662-5.
128		Ferrocino I, Pellegrini M, D'Eusebio C, et al. The effects of time-restricted eating on metabolism and gut microbiota: a real-life trial. Nutrients. 2022;14(13):2569. DOI:10.3390/nu14132569.
129		Quiroga R, Nistal E, Estébanez B, et al. Combined strength and endurance training modulates gut microbiota and inflammation in obese children: A 12-week randomized trial. Exp Mol Med. 2020;52:1048-1061. DOI:10.1038/s12276-020-0459-0.

Ref No.	1st Five Words of Sentence	Reference
130	It helps to activate our	Trine MR, Morgan WP. Influence of time of day on psychological responses to exercise. A review. Sports Med. 1995;20(5):328-337. doi:10.2165/00007256-199520050-00004
131		Kalak N, Gerber M, Kirov R, et al. Daily morning running for 3 weeks improved sleep and psychological functioning in healthy adolescents compared with controls. J Adolesc Health. 2012;51(6):615-622. doi:10.1016/j.jadohealth.2012.02.020
132		Wender CLA, Manninen M, O'Connor PJ. The Effect of Chronic Exercise on Energy and Fatigue States: A Systematic Review and Meta-Analysis of Randomized Trials. Front Psychol. 2022;13:907637. doi:10.3389/fpsyg.2022.907637
133		Schumacher LM, Thomas JG, Raynor HA, Rhodes RE, Bond DS. Consistent Morning Exercise May Be Beneficial For Individuals with Obesity. Exerc Sport Sci Rev. 2020;48(4):201-208. doi:10.1249/JES.0000000000000226
134	This is when your body's	Atkinson G, Reilly T. Circadian variation in sports performance. Sports Med. 1996;21(4):292–312. doi:10.2165/00007256-199621040-00005
135	Alternatively, fasted morning exercise can	Schoenfeld BJ, Aragon AA, Krieger JW. Effects of fasted vs fed-state resistance training on body composition: A systematic review. J Int Soc Sports Nutr. 2016;13:1–11. doi:10.1186/s12970-016-0116-4
136		Van Proeyen K, Szlufcik K, Nielens H, Ramaekers M, Hespel P. Training in the fasted state improves glucose tolerance during fat-rich diet. J Physiol. 2010;588(Pt 21):4289–4302. doi:10.1113/jphysiol.2010.197232
137	My one request is that	Miller DJ, Roach GD, Lastella M, Capodilupo ER, Sargent C. Hit the gym or hit the hay: can evening exercise characteristics predict compromised sleep in healthy adults? Front Physiol. 2023;14:1231835. doi:10.3389/fphys.2023.1231835
138	In mice, sleep deprivation accelerates	Palma BD, Gabriel A, Colugnati FAB, Tufik S. Effects of sleep deprivation on the development of autoimmune disease in an experimental model of systemic lupus erythematosus. Am J Physiol Regul Integr Comp Physiol. 2006;291(5):R1527-1532. doi:10.1152/ajpregu.00186.2006
139	In humans, sleep disturbance activates	Irwin MR, Olmstead R, Carroll JE. Sleep Disturbance, Sleep Duration, and Inflammation: A Systematic Review and Meta-Analysis of Cohort Studies and Experimental Sleep Deprivation. Biol Psychiatry. 2016;80(1):40-52. doi:10.1016/j.biopsych.2015.05.014
140	Perhaps that explains why people	Kok VC, Horng JT, Hung GD, et al. Risk of Autoimmune Disease in Adults with Chronic Insomnia Requiring Sleep-Inducing Pills: A Population-Based Longitudinal Study. J Gen Intern Med. 2016;31(9):1019-1026. doi:10.1007/s11606-016-3717-z
141		Young KA, Munroe ME, Harley JB, et al. Less than Seven Hours of Sleep per Night is Associated with Transitioning to Systemic Lupus Erythematosus. Lupus. 2018;27(9):1524-1531. doi:10.1177/0961203318778368
142	Less than seven hours of	Chaput JP, Dutil C, Featherstone R, et al. Sleep duration and health in adults: an overview of systematic reviews. Appl Physiol Nutr Metab. 2020;45(10 (Suppl. 2)):S218-S231. doi:10.1139/apnm-2020-0034

Ref No.	1st Five Words of Sentence	Reference
143	**But when done properly, sleep**	Cappuccio FP, D'Elia L, Strazzullo P, Miller MA. Sleep Duration and All-Cause Mortality: A Systematic Review and Meta-Analysis of Prospective Studies. Sleep. 2010;33(5):585-592.
144	**Check this out . . . In one**	Benedict C, Vogel H, Jonas W, et al. Gut microbiota and glucometabolic alterations in response to recurrent partial sleep deprivation in normal-weight young individuals. Mol Metab. 2016;5(12):1175-1186. doi:10.1016/j.molmet.2016.10.003
145	**This would result in more**	Rodin J, Wack J, Ferrannini E, DeFronzo RA. Effect of insulin and glucose on feeding behavior. Metabolism. 1985;34(9):826-831. doi:10.1016/0026-0495(85)90106-4
146	**In another study, insomnia was**	Cai Y, Gong D, Xiang T, Zhang X, Pan J. Markers of intestinal barrier damage in patients with chronic insomnia disorder. Front Psychiatry. 2024;15. doi:10.3389/fpsyt.2024.1373462
147	**Researchers recently discovered that there**	Yue M, Jin C, Jiang X, et al. Causal Effects of Gut Microbiota on Sleep-Related Phenotypes: A Two-Sample Mendelian Randomization Study. Clocks Sleep. 2023;5(3):566-580. doi:10.3390/clockssleep5030037
148	**Fiber has been associated with**	Lin D, Peters BA, Friedlander C, et al. Association of dietary fibre intake and gut microbiota in adults. Br J Nutr. 2018;120(9):1014-1022. doi:10.1017/S0007114518002465
149	**This was confirmed in a**	St-Onge MP, Roberts A, Shechter A, Choudhury AR. Fiber and Saturated Fat Are Associated with Sleep Arousals and Slow Wave Sleep. Journal of Clinical Sleep Medicine : JCSM : Official Publication of the American Academy of Sleep Medicine. 12(1):19. doi:10.5664/jcsm.5384
150	**Gut microbiome diversity has been**	Smith RP, Easson C, Lyle SM, et al. Gut microbiome diversity is associated with sleep physiology in humans. PLoS One. 2019;14(10):e0222394. doi:10.1371/journal.pone.0222394
151	**I mentioned earlier that melatonin**	Reiter RJ, Tan DX, Manchester LC, El-Sokkary GH, Kim SJ. Melatonin: the hormone of darkness. Parasitol Today. 2002;18(12):236. doi:10.1016/S0169-4758(02)02279-6.
152		Klein DC, Coon SL, Roseboom PH, et al. The melatonin rhythm-generating enzyme: Molecular regulation of serotonin N-acetyltransferase in the pineal gland. Rec Prog Horm Res. 1997;52:307–357.
153	**When we get our morning**	Sansone RA, Sansone LA. Sunshine, Serotonin, and Skin: A Partial Explanation for Seasonal Patterns in Psychopathology? Innov Clin Neurosci. 2013;10(7-8):20-24.
154	**This partially explains why during**	Sansone RA, Sansone LA. Sunshine, Serotonin, and Skin: A Partial Explanation for Seasonal Patterns in Psychopathology? Innov Clin Neurosci. 2013;10(7-8):20-24.
155	**But morning light exposure also**	Tan DX. Melatonin and Brain. Curr Neuropharmacol. 2010;8(3):161. doi:10.2174/157015910792246263
156	**Evening light exposure, especially from**	Wright KP, McHill AW, Birks BR, Griffin BR, Rusterholz T, Chinoy ED. Entrainment of the Human Circadian Clock to the Natural Light-Dark Cycle. Curr Biol. 2013;23(16):1554-1558. doi:10.1016/j.cub.2013.06.039

Ref No.	1st Five Words of Sentence	Reference
157	**The blue light signals to**	Chang AM, Aeschbach D, Duffy JF, Czeisler CA. Evening use of light-emitting eReaders negatively affects sleep, circadian timing, and next-morning alertness. Proc Natl Acad Sci U S A. 2015;112(4):1232–1237. doi:10.1073/pnas.1418490112.
158		Brainard GC, Hanifin JP, Greeson JM, et al. Action spectrum for melatonin regulation in humans: evidence for a novel circadian photoreceptor. J Neurosci. 2001;21(16):6405–6412. doi:10.1523/JNEUROSCI.21-16-06405.
159	**This misalignment with our natural**	Wright KP Jr, Bogan RK, Wyatt JK. Circadian misalignment and health consequences. Sleep Med Clin. 2013;8(4): 497–505.
160		Emens JS, Lewy AJ. Circadian misalignment and mood dysregulation. Curr Opin Psychiatry. 2014;27(6): 467–473.
161		Potter GD, Cade JE, Grant PJ, Hardie LJ. Meal timing and obesity: Exploring metabolic consequences of circadian misalignment. Proc Nutr Soc. 2016;75(3): 375–383.
162		Wittmann M, Dinich J, Merrow M, Roenneberg T. Social jetlag: misalignment of biological and social time. Chronobiol Int. 2006;23(1–2): 497–509.
163		Levandovski R, Dantas G, Fernandes L, et al. Depression scores associate with chronotype and social jetlag in a rural population. Chronobiol Int. 2011;28(1): 77–85.
164	**The melatonin released by the**	Raikhlin NT, Kvetnoy IM. Melatonin may be synthesised in enterochromaffin cells. Nature. 1975;255(5506):344–345. doi:10.1038/255344a0.
165		Kvetnoy IM, Ingel IE, Kvetnaia TV, et al. Gastrointestinal melatonin: cellular identification and biological role. Neuro Endocrinol Lett. 2002;23(2):121–132. PMID:12011798.
166		Salvetti F, Pallone F, Monteleone G. Evaluation of enterochromaffin cells and melatonin secretion in human gut. World J Gastroenterol. 2013;19(23):3602–3610.
167	**Your gut microbes and the**	Zhou Y, Teng T, Qi X, et al. Microbial melatonin metabolism in the human intestine as a linkage of host–microbe circadian crosstalk. npj Biofilms Microbiomes. 2024;10(1):6. doi:10.1038/s41522-024-00605-6.
168		Liu B, Fan L, Wang Y, et al. Gut microbiota regulates host melatonin production through epithelial cell MyD88. Gut Microbes. 2024;16(1):2313769. doi:10.1080/19490976.2024.2313769
169	**It's been well documented that**	Chaudhry TS, Senapati SG, Gadam S, et al. The Impact of Microbiota on the Gut–Brain Axis: Examining the Complex Interplay and Implications. J Clin Med. 2023;12(16):5231. doi:10.3390/jcm12165231
170	**But did you know that**	Bubenik GA. Gastrointestinal melatonin: localization, function, and clinical relevance. Dig Dis Sci. 2002;47(10):2336–2348. doi:10.1023/a:1020107915919
171	**It promotes the growth of**	Ahmadi S, Taghizadieh M, Mehdizadehfar E, et al. Gut microbiota in neurological diseases: Melatonin plays an important regulatory role. Biomedicine & Pharmacotherapy. 2024;174:116487. doi:10.1016/j.biopha.2024.116487

Ref No.	1st Five Words of Sentence	Reference
172	Interestingly, it also helps promote	Kim SW, Kim S, Son M, Cheon JH, Park YS. Melatonin controls microbiota in colitis by goblet cell differentiation and antimicrobial peptide production through Toll-like receptor 4 signalling. Sci Rep. 2020;10:2232. doi:10.1038/s41598-020-59314-7
173		Zhu D, Ma Y, Ding S, Jiang H, Fang J. Effects of Melatonin on Intestinal Microbiota and Oxidative Stress in Colitis Mice. Biomed Res Int. 2018;2018:2607679. doi:10.1155/2018/2607679
174	But they're not the only	Chojnacki C, Wisniewska-Jarosinska M, Walecka-Kapica E, Klupinska G, Jaworek J, Chojnacki J. Evaluation of melatonin effectiveness in the adjuvant treatment of ulcerative colitis. J Physiol Pharmacol. 2011;62(3):327-334.
175	When melatonin levels go up,	Swanson GR, Gorenz A, Shaikh M, et al. Decreased melatonin secretion is associated with increased intestinal permeability and marker of endotoxemia in alcoholics. Am J Physiol Gastrointest Liver Physiol. 2015;308(12):G1004-G1011. doi:10.1152/ajpgi.00002.2015
176	Immune cells have melatonin receptors	Iesanu MI, Zahiu CDM, Dogaru IA, et al. Melatonin–Microbiome Two-Sided Interaction in Dysbiosis-Associated Conditions. Antioxidants (Basel). 2022;11(11):2244. doi:10.3390/antiox11112244
177	Melatonin has a direct impact	Iesanu MI, Zahiu CDM, Dogaru IA, et al. Melatonin–Microbiome Two-Sided Interaction in Dysbiosis-Associated Conditions. Antioxidants (Basel). 2022;11(11):2244. doi:10.3390/antiox11112244
178	Beyond bolstering the immune system	Iesanu MI, Zahiu CDM, Dogaru IA, et al. Melatonin–Microbiome Two-Sided Interaction in Dysbiosis-Associated Conditions. Antioxidants (Basel). 2022;11(11):2244. doi:10.3390/antiox11112244
179	Second, exercise has been shown	Wang L, Wu H, Han J, et al. Examining the interaction between exercise, gut microbiota, and neurotransmitter synthesis: implications for serotonin. PLoS ONE. 2022;17(4):e0266128. PMID: 35412345.
180		Allen JM, Mailing LB, Niemiro GM, et al. Exercise–microbiota interactions: mechanistic insights into health benefits. Physiol Behav. 2018;192:1–10. PMID: 29331086.
181	Movement—especially aerobic activities like	Labban S, Van Antwerp M, Ding H, et al. Exercise increases tryptophan availability to the brain in older men. J Gerontol A Biol Sci Med Sci. 2012;67(6):645–651. doi:10.1093/gerona/glr205. PMID: 22051569.
182		Patrick RP, Ames BN. Effects of aerobic exercise on tryptophan availability to the brain. Front Psychol. 2015;6:1890. https://doi.org/10.3389/fpsyg.2015.01890
183		Robergs RA, Kelley EL, Roberts TJ. Serum serotonin response to exercise in paraplegic and active participants. Spinal Cord. 1998;36(1):18–20. https://doi.org/10.1038/sj.sc.3100516
184	Meanwhile, exercise also enhances gut	Al-Beltagi M, Saeed NK, Bediwy AS, El-Sawaf Y, Elbatarny A, Elbeltagi R. Exploring the gut-exercise link: a systematic review of gastrointestinal disorders in physical activity. World J Gastroenterol. 2025;31(22):106835. doi:10.3748/wjg.v31.i22.106835
185		Vazquez-Medina A, Rodriguez-Trujillo N, Ayuso-Rodriguez K, et al. Exploring the interplay between running exercises, microbial diversity, and tryptophan metabolism along the microbiota-gut-brain axis. Front Microbiol. 2024;15:1326584. doi:10.3389/fmicb.2024.1326584

Ref No.	1st Five Words of Sentence	Reference
186	This explains why exercise is	Hartescu I, Morgan K, Stevinson CD. Increased physical activity improves sleep and mood outcomes in inactive people with insomnia: a randomized controlled trial. J Sleep Res. 2015;24(5):526-34. doi:10.1111/jsr.12297
187		Reid KJ, Baron KG, Lu B, et al. Aerobic exercise improves self-reported sleep and quality of life in older adults with insomnia. Sleep Med. 2010;11(9):934-40.
188		Gao R, Tao Y, Zhou C, et al. Exercise therapy in patients with constipation: a systematic review and meta-analysis of randomized controlled trials. Scand J Gastroenterol. 2019;54(2):169–177. doi:10.1080/00365521.2019.1568544
189		Al-Beltagi M, Saeed NK, Bediwy AS, El-Sawaf Y, Elbatarny A, Elbeltagi R. Exploring the gut-exercise link: a systematic review of gastrointestinal disorders in physical activity. World J Gastroenterol. 2025;31(22):106835. doi:10.3748/wjg.v31.i22.106835
190		Christiansen L, Beck MM, Bilenberg N, Wienecke J, Astrup A, Lundbye-Jensen J. Effects of exercise on cognitive performance in children and adolescents with ADHD: potential mechanisms and evidence-based recommendations. J Clin Med. 2019;8(6):841. doi:10.3390/jcm8060841
191		Singh B, Bennett H, Miatke A, et al. Effectiveness of exercise for improving cognition, memory and executive function: a systematic umbrella review and meta-meta-analysis. Br J Sports Med. 2025;59(12):866–876. doi:10.1136/bjsports-2024-108589
192	Tryptophan, one of the nine	Gao K, Mu C long, Farzi A, Zhu W yun. Tryptophan Metabolism: A Link Between the Gut Microbiota and Brain. Adv Nutr. 2020;11(3):709-723. doi:10.1093/advances/nmz127
193	That said, tryptophan is indeed	Gao K, Mu C long, Farzi A, Zhu W yun. Tryptophan Metabolism: A Link Between the Gut Microbiota and Brain. Adv Nutr. 2020;11(3):709-723. doi:10.1093/advances/nmz127
194		Dicks LMT. Gut Bacteria and Neurotransmitters. Microorganisms. 2022;10(9):1838. doi:10.3390/microorganisms10091838

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113 REFERENCES

Ref No.	1st Five Words of Sentence	Reference
1	**These trials cost an average**	Mullard A. How much do phase III trials cost? Nature Reviews Drug Discovery. 2018;17(11):777-777. doi:10.1038/nrd.2018.198
2	**Growth of SCFA-producing gut**	Blatchford P, Stoklosinski H, Eady S, et al. Consumption of kiwifruit capsules increases Faecalibacterium prausnitzii abundance in functionally constipated individuals: a randomised controlled human trial. J Nutr Sci. 2017;6:e52. doi:10.1017/jns.2017.52
3		Goya-Jorge, E., Bondue, P., Gonza, I., Laforêt, F., Antoine, C., Boutaleb, S., ... & Delcenserie, V. (2023). Butyrogenic, bifidogenic and slight anti-inflammatoryeffects of a green kiwifruit powder (Kiwi FFG®) in a human gastrointestinal model simulating mild constipation. Food Research International, 173, 113348.
4		Graham, E., McKeen, S., Lewis, E. D., Evans, M., Li, Z., Henning, S. M., ... & Rosendale, D. (2024). Actazin® green kiwifruit powder consumption at 600 mg perday for 28 days improves stool form and relieves occasional constipation in healthy individuals: a randomized controlled trial. Carbohydrates and DietaryFibre, 100436.
5		Edelman M, Wang Q, Ahnen R, Slavin J. The Dose-Response Effects of Partially Hydrolyzed Guar Gum on Gut Microbiome of Healthy Adults. Appl Microbiol. 2024;4(2):720–730. https://doi.org/10.3390/applmicrobiol4020049
6		Bush JR, Baisley J, Harding SV, Alfa MJ. Consumption of Solnul™ resistant potato starch produces a prebiotic effect in a randomized, placebo-controlled clinical trial. Nutrients. 2023;15(7):1582. doi:10.3390/nu15071582
7	**Reduced counts of unhealthy microbes**	Dewulf EM, Cani PD, Claus SP, et al. Insight into the prebiotic concept: lessons from an exploratory, double blind intervention study with inulin-type fructans in obese women. Gut. 2013;62(8):1112–1121. doi:10.1136/gutjnl-2012-303304
8	**Increased short-chain fatty acid**	Effects of Dietary Fibers on Short-Chain Fatty Acids and Gut Microbiota Composition in Healthy Adults: A Systematic Review - PMC. Accessed January 7, 2025. https://pmc.ncbi.nlm.nih.gov/articles/PMC9268559/
9	**Improved gut barrier function**	Russo F, Linsalata M, Clemente C, et al. Inulin-enriched pasta improves intestinal permeability and modifies the circulating levels of zonulin and glucagon-like peptide 2 in healthy young volunteers. Nutr Res. 2012;32(12):940-946. doi:10.1016/j.nutres.2012.09.010
10	**Reduced bacterial endotoxin levels**	Dehghan P, Gargari BP, Jafar-Abadi MA. Oligofructose-enriched inulin improves some inflammatory markers and metabolic endotoxemia in women with type 2 diabetes mellitus: a randomized controlled clinical trial. Nutrition. 2014;30(4):418-423. doi:10.1016/j.nut.2013.09.019.
11		Aliasgharzadeh A, Dehghan P, Gargari BP, Jafar-Abadi MA. Resistant dextrin, as a prebiotic, improves insulin resistance and inflammation in women with type 2 diabetes: a randomized controlled clinical trial. Br J Nutr. 2015;113(2):321-330. doi:10.1017/S0007114514003915.

Ref No.	1st Five Words of Sentence	Reference
12	**Reduced inflammatory markers like C-reactive**	Dehghan P, Gargari BP, Jafar-Abadi MA. Oligofructose-enriched inulin improves some inflammatory markers and metabolic endotoxemia in women with type 2 diabetes mellitus: a randomized controlled clinical trial. Nutrition. 2014;30(4):418-423. doi:10.1016/j.nut.2013.09.019.
13	**Enhanced immune function**	Lomax AR, Calder PC. Prebiotics, immune function, infection and inflammation: a review of the evidence. Br J Nutr. 2009;101(5):633-658. doi:10.1017/S0007114508055608
14	**Improved gut motility**	Cook IJ, Irvine EJ, Campbell D, Shannon S, Reddy SN, Collins SM. Effect of dietary fiber on symptoms and rectosigmoid motility in patients with irritable bowel syndrome. A controlled, crossover study. Gastroenterology. 1990;98(1):66-72. doi:10.1016/0016-5085(90)91292-e
15	**Less visceral sensitivity**	Shulman RJ, Chumpitazi BP, Abdel-Rahman SM, et al. Psyllium fiber reduces abdominal pain in children with irritable bowel syndrome in a randomized, double-blind trial. Clin Gastroenterol Hepatol. 2017;15(5):712-719.e4. doi:10.1016/j.cgh.2016.11.038.
16	**Improvement of both diarrhea and**	van der Schoot A, Drysdale C, Whelan K, Dimidi E. The Effect of Fiber Supplementation on Chronic Constipation in Adults: An Updated Systematic Review and Meta-Analysis of Randomized Controlled Trials. Am J Clin Nutr. 2022;116(4):953-969. doi:10.1093/ajcn/nqac184
17		Kaewdech A, Sripongpun P, Wetwittayakhlang P, Churuangsuk C. The effect of fiber supplementation on the prevention of diarrhea in hospitalized patients receiving enteral nutrition: A meta-analysis of randomized controlled trials with the GRADE assessment. Front Nutr. 2022;9:1008464. doi:10.3389/fnut.2022.1008464
18		Wang L, Li Y, Zhang YJ, Peng LH. Relationship between dietary fiber intake and chronic diarrhea in adults. World J Clin Cases. 2024;12(19):3692-3700. doi:10.12998/wjcc.v12.i19.3692
19	**Improvements in irritable bowel syndrome**	El-Salhy M, Ystad SO, Mazzawi T, Gundersen D. Dietary fiber in irritable bowel syndrome (Review). Int J Mol Med. 2017;40(3):607-613. doi:10.3892/ijmm.2017.3072
20	**Better diabetes and blood sugar**	Xie Y, Gou L, Peng M, Zheng J, Chen L. Effects of soluble fiber supplementation on glycemic control in adults with type 2 diabetes: a systematic review and meta-analysis of randomized controlled trials. Clin Nutr. 2021;40(4):1800–1810. doi:10.1016/j.clnu.2020.10.032
21	**Improvements in blood lipid parameters**	Xie Y, Gou L, Peng M, Zheng J, Chen L. Effects of soluble fiber supplementation on lipid parameters in adults with type 2 diabetes: a systematic review and meta-analysis of randomized controlled trials. Clin Nutr. 2024;43(4):–. doi:10.1016/j.clnu.2020.10.032
22		Jovanovski E, Yashpal S, Komishon A, et al. Effect of psyllium (Plantago ovata) fiber on LDL cholesterol and alternative lipid targets, non-HDL cholesterol and apolipoprotein B: a systematic review and meta-analysis of randomized controlled trials. Am J Clin Nutr. 2018;108(5):922–932. doi:10.1093/ajcn/nqy115
23	**Less fat mass and less**	Pokushalov E, Ponomarenko A, Garcia C, et al. The Impact of Glucomannan, Inulin, and Psyllium Supplementation (SolowaysTM) on Weight Loss in Adults with FTO, LEP, LEPR, and MC4R Polymorphisms: A Randomized, Double-Blind, Placebo-Controlled Trial. Nutrients. 2024;16(4):557. doi:10.3390/nu16040557

Ref No.	1st Five Words of Sentence	Reference
24	Natural increase in satiety hormones	Karhunen L, et al. A psyllium fiber-enriched meal strongly modified postprandial glucose, insulin, ghrelin, GLP-1, and PYY responses. J Nutr. 2010;140(4):737-744. doi:10.3945/jn.109.113987.
25		Ye Z, Arumugam V, Haugabrooks E, Williamson P, Hendrich S. Soluble dietary fiber (Fibersol-2) decreased hunger and increased satiety hormones in humans when ingested with a meal. Nutr Res. 2015;35(5):393–400. doi:10.1016/j.nutres.2015.03.004
26		Tolhurst G, Heffron H, Lam YS, et al. Short-chain fatty acids stimulate glucagon-like peptide-1 secretion via the G-protein–coupled receptor FFAR2. Diabetes. 2012;61(2):364–371. doi:10.2337/db11-1019
27		Psichas A, Sleeth ML, Murphy KG, et al. The short chain fatty acid propionate stimulates GLP-1 and PYY secretion via free fatty acid receptor 2 in rodents. Int J Obes (Lond). 2015;39(3):424–429. doi:10.1038/ijo.2014.153
28		Christiansen CB, Gabe MBN, Svendsen B, Dragsted LO, Rosenkilde MM, Holst JJ. The impact of short-chain fatty acids on GLP-1 and PYY secretion from the isolated perfused rat colon. Am J Physiol Gastrointest Liver Physiol. 2018;315(1):G53–G65. doi:10.1152/ajpgi.00346.2017
29	Suppression of the hormonal stress	Schmidt K, Cowen PJ, Harmer CJ, Tzortzis G, Errington S, Burnet PW. Prebiotic intake reduces the waking cortisol response and alters emotional bias in healthy volunteers. Psychopharmacology (Berl). 2015;232(10):1793-1801. doi:10.1007/s00213-014-3810-0
30	Improved absorption of calcium and	Whisner CM, Martin BR, Nakatsu CH, et al. Soluble corn fiber increases calcium absorption associated with shifts in the gut microbiota: a randomized dose-response trial in free-living pubertal females. J Nutr. 2016;146(7):1298-1306. doi:10.3945/jn.116.230466.
31	Reduced risk of non-alcoholic fatty	Krawczyk M, Maciejewska D, Ryterska K, et al. Gut permeability might be improved by dietary fiber supplementation in individuals with nonalcoholic fatty liver disease (NAFLD) undergoing weight reduction. Nutrients. 2018;10(11):1793. doi:10.3390/nu10111793.
32	Improved cognitive performance	Berding K, Long-Smith CM, Carbia C, et al. A specific dietary fibre supplementation improves cognitive performance-an exploratory randomised, placebo-controlled, crossover study. Psychopharmacology (Berl). 2021;238(1):149-163. doi:10.1007/s00213-020-05665-y
33	Probiotics don't typically stick around	Zmora N, Zilberman-Schapira G, Suez J, et al. Personalized gut mucosal colonization resistance to empiric probiotics is associated with unique host and microbiome features. Cell. 2018;174(6):1388-1405.e21. doi:10.1016/j.cell.2018.08.041
34	While probiotics don't tend to	Bush JR, Baisley J, Harding SV, Alfa MJ. Consumption of Solnul™ resistant potato starch produces a prebiotic effect in a randomized, placebo-controlled clinical trial. Nutrients. 2023;15(7):1582. doi:10.3390/nu15071582.
35	These microbes play vital roles	Plovier H, Everard A, Druart C, et al. A purified membrane protein from Akkermansia muciniphila or the pasteurized bacterium improves metabolism in obese and diabetic mice. Nat Med. 2017;23(1):107-113. doi:10.1038/nm.4236.
36		Rivière A, Selak M, Lantin D, Leroy F, De Vuyst L. Bifidobacteria and butyrate-producing colon bacteria: importance and strategies for their stimulation in the human gut. Front Microbiol. 2016;7:979. doi:10.3389/fmicb.2016.00979.

Ref No.	1st Five Words of Sentence	Reference
37	**Similarly, fiber from green kiwis**	Taladriz-Grimaldo B, Prieto I, Fenoll J, et al. Effects of green kiwifruit powder (Actinidia deliciosa var. Hayward) on colonic fermentation: increased butyrate production and stimulation of beneficial microbes including Akkermansia muciniphila and Faecalibacterium prausnitzii in a SHIME® gut model. J Nutr Sci. 2017;6:e52. doi:10.1017/jns.2017.52
38		Blatchford P, Stoklosinski H, Eady S, et al. Consumption of kiwifruit capsules increases Faecalibacterium prausnitzii abundance in functionally constipated individuals: a randomized, controlled human trial. J Nutr Sci. 2017;6:e52. doi:10.1017/jns.2017.52
39	**For example, in patients with**	Robin Spiller, Fanny Pélerin, Amélie Cayzeele-Decherf, et al. Randomized, double-blind, placebo-controlled trial of Saccharomyces cerevisiae CNCM I-3856 in patients with irritable bowel syndrome: improvement in abdominal pain and bloating in those with predominant constipation. Clin Exp Gastroenterol. 2016;9:17-28. doi:10.2147/CEG.S97900.
40		Cayzeele-Decherf A, Pélerin F, Leuillet S, et al. Saccharomyces cerevisiae CNCM I-3856 in irritable bowel syndrome: an individual subject meta-analysis. World J Gastroenterol. 2017;23(2):336-344. doi:10.3748/wjg.v23.i2.336.
41	**Similarly, for antibiotic-associated diarrhea**	Szajewska H, Kołodziej M. Systematic review with meta-analysis: Lactobacillus rhamnosus GG in the prevention of antibiotic-associated diarrhoea in children and adults. Aliment Pharmacol Ther. 2015 Nov;42(10):1149-1157. doi:10.1111/apt.13404. PMID:26365389.
Table: Targeted Probiotics for Specific Conditions		
42	**Saccharomyces cerevisae for IBS with bloating**	Cayzeele-Decherf A, Pélerin F, Leuillet S, et al. Saccharomyces cerevisiae CNCM I-3856 in irritable bowel syndrome: an individual subject meta-analysis. World J Gastroenterol. 2017;23(2):336-344. doi:10.3748/wjg.v23.i2.336.
43	**Saccharomyces boulardii for antibiotic-associated diarrhea**	Szajewska H, Kołodziej M. Systematic review with meta-analysis: Saccharomyces boulardii in the prevention of antibiotic-associated diarrhoea in children and adults. Aliment Pharmacol Ther. 2015 Oct;42(8):793-801. doi:10.1111/apt.13404. PMID:26216624.
44	**Lactobacillus rhamnosus GG for Acute diarrhea**	Huang JCU, Sohn KM, and colleagues. A randomized, double-blind, placebo-controlled trial of Lactobacillus rhamnosus GG in adults with acute infectious diarrhea. Mayo Clin Proc. 2001;76(8):883–889. doi:10.4065/76.8.883.
45	**Bifidobacterium lactis DN-173010 for constipation**	Yang YX, He M, Hu G, et al. Effect of a fermented milk containing Bifidobacterium lactis DN-173 010 on Chinese constipated women. World J Gastroenterol. 2008;14(40):6237-6243. doi:10.3748/wjg.14.6237.
46	**E. coli Nissle 1917 for Ulcerative colitis (remission)**	Kruis W, Fric P, Pokrotnieks J, et al. Maintaining remission of ulcerative colitis with the probiotic Escherichia coli Nissle 1917 is as effective as with standard mesalazine. Gut. 2004 Nov;53(11):1617–1623. doi:10.1136/gut.2003.037747.
47	**Most Vitamin D is produced**	Mostafa WZ, Hegazy RA. Vitamin D and the skin: focus on a complex relationship—a review. J Adv Res. 2014;6(6):793-804. doi:10.1016/j.jare.2014.01.011.

Ref No.	1st Five Words of Sentence	Reference
46	**E. coli Nissle 1917 for Ulcerative colitis (remission)**	Kruis W, Fric P, Pokrotnieks J, et al. Maintaining remission of ulcerative colitis with the probiotic Escherichia coli Nissle 1917 is as effective as with standard mesalazine. Gut. 2004 Nov;53(11):1617–1623. doi:10.1136/gut.2003.037747.
47	**Most Vitamin D is produced**	Mostafa WZ, Hegazy RA. Vitamin D and the skin: focus on a complex relationship—a review. J Adv Res. 2014;6(6):793-804. doi:10.1016/j.jare.2014.01.011.
48	**Specifically, it is ultraviolet B**	Holick MF, Tian XQ, Allan R, et al. UVB-induced conversion of 7-dehydrocholesterol to 1α,25-dihydroxyvitamin D_3 (calcitriol) in a human skin equivalent model: wavelength and dose dependence. J Clin Invest. 2001;108(3):387–392. doi:10.1172/JCI11709.
49	**From the skin, it is**	Mostafa WZ, Hegazy RA. Vitamin D and the skin: focus on a complex relationship—a review. J Adv Res. 2014;6(6):793-804. doi:10.1016/j.jare.2014.01.011.
50		Pike JW, Meyer MB, Lee SM, Onal M, Benkusky NA. The vitamin D receptor: contemporary genomic approaches reveal new basic and translational insights. J Clin Invest. 2017;127(4):1146-1154. doi:10.1172/JCI88887.
51	**In that study, they found**	Hahn J, Cook NR, Alexander EK, et al. Vitamin D and marine omega 3 fatty acid supplementation and incident autoimmune disease: VITAL randomized controlled trial. BMJ. 2022;376:e066452. doi:10.1136/bmj-2021-066452
52	**Another study showed that Vitamin**	Singh P, Rawat A, Alwakeel M, Sharif E, Al Khodor S. The potential role of vitamin D supplementation as a gut microbiota modifier in healthy individuals. Sci Rep. 2020;10(1):21641. doi:10.1038/s41598-020-77806-4
53	**In patients with inflammatory bowel**	Garg M, Hendy P, Ding JN, Shaw S, Hold G, Hart A. The Effect of Vitamin D on Intestinal Inflammation and Faecal Microbiota in Patients with Ulcerative Colitis. J Crohns Colitis. 2018;12(8):963-972. doi:10.1093/ecco-jcc/jjy052
54	**This goes along with a**	Li J, Chen N, Wang D, Zhang J, Gong X. Efficacy of vitamin D in treatment of inflammatory bowel disease. Medicine (Baltimore). 2018;97(46):e12662. doi:10.1097/MD.0000000000012662
55	**Levels below 20 ng/mL**	Vieth R. Why the minimum desirable serum 25-hydroxyvitamin D level should be 75 nmol/L (30 ng/mL). Best Pract Res Clin Endocrinol Metab. 2011;25(4):681-691. doi:10.1016/j.beem.2011.06.009. PMID:21872808.
56	**For those with autoimmune conditions**	Sîrbe C, Rednic S, Grama A, Pop TL. An update on the effects of vitamin D on the immune system and autoimmune diseases. Int J Mol Sci. 2022;23(17):9784. doi:10.3390/ijms23179784.
57	**Vitamin D is fat-soluble,**	Dawson-Hughes B, Harris SS, Lichtenstein AH, et al. Dietary fat increases vitamin D_3 absorption. J Acad Nutr Diet. 2015;115(2):225–230. doi:10.1016/j.jand.2014.09.014.
58	**Magnesium aids in vitamin D**	Dai Q, Zhu X, Manson JE, et al. Magnesium status and supplementation influence vitamin D metabolism: results from a randomized trial. Am J Clin Nutr. 2018;108(6):1249–1258. doi:10.1093/ajcn/nqy274. PMID:30541089.

Ref No.	1st Five Words of Sentence	Reference
59	**DHA, in particular, plays a**	Seethaler B, Lehnert K, Yahiaoui-Doktor M, et al. Omega-3 polyunsaturated fatty acids improve intestinal barrier integrity—albeit to a lesser degree than short-chain fatty acids: an exploratory analysis of the randomized controlled LIBRE trial. Eur J Nutr. 2023;62(7):2779-2791. doi:10.1007/s00394-023-03172-2
60		Costantini L, Molinari R, Farinon B, Merendino N. Impact of Omega-3 Fatty Acids on the Gut Microbiota. Int J Mol Sci. 2017;18(12):2645. doi:10.3390/ijms18122645
61	**Unfortunately, the conversion of ALA**	Brenna JT, Salem N, Sinclair AJ, Cunnane SC. Alpha-linolenic acid supplementation and conversion to n-3 long-chain polyunsaturated fatty acids in humans. Prostaglandins Leukot Essent Fatty Acids. 2009;80(2-3):85-91.
62	**Studies show that EPA and**	Banaszak M, Dobrzyńska M, Kawka A, et al. Role of Omega-3 fatty acids eicosapentaenoic (EPA) and docosahexaenoic (DHA) as modulatory and anti-inflammatory agents in noncommunicable diet-related diseases – Reports from the last 10 years. Clinical Nutrition ESPEN. 2024;63:240-258. doi:10.1016/j.clnesp.2024.06.053
63		Menni C, Zierer J, Pallister T, et al. Omega-3 fatty acids correlate with gut microbiome diversity and production of N-carbamylglutamate in middle aged and elderly women. Sci Rep. 2017;7:11079. doi:10.1038/s41598-017-10382-2
64		Kumar M, Pal N, Sharma P, et al. Omega-3 Fatty Acids and Their Interaction with the Gut Microbiome in the Prevention and Amelioration of Type-2 Diabetes. Nutrients. 2022;14(9):1723. doi:10.3390/nu14091723
65	**For example, omega-3 supplementation**	Vijay A, Astbury S, Le Roy C, Spector TD, Valdes AM. The prebiotic effects of omega-3 fatty acid supplementation: A six-week randomised intervention trial. Gut Microbes. 13(1):1-11. doi:10.1080/19490976.2020.1863133
66	**Omega-3's were included in that**	Hahn J, Cook NR, Alexander EK, et al. Vitamin D and marine omega 3 fatty acid supplementation and incident autoimmune disease: VITAL randomized controlled trial. BMJ. 2022;376:e066452. doi:10.1136/bmj-2021-066452
67	**A level below 4% percent**	Harris WS, von Schacky C. The omega-3 index: a new risk factor for death from coronary heart disease? Prev Med. 2004;39(1):212-220. doi:10.1016/j.ypmed.2004.02.030.
68	**Supplementing with melatonin can improve**	Zhdanova IV, Wurtman RJ, Regan MM, Taylor JA, Shi JP, Leclair OU. Melatonin treatment for age-related insomnia. J Clin Endocrinol Metab. 2001;86(10):4727-4730. doi:10.1210/jcem.86.10.7901
69	**With that in mind, there**	Song GH, Leng PH, Gwee KA, Moochhala SM, Ho KY. Melatonin improves abdominal pain in irritable bowel syndrome patients who have sleep disturbances: a randomized, double-blind, placebo-controlled study. Gut. 2005;54(10):1402–1407. doi:10.1136/gut.2004.062034.
70		Lu WZ, Gwee KA, Moochhala SM, Ho KY. Melatonin improves bowel symptoms in female patients with irritable bowel syndrome: a double-blind, placebo-controlled study. Aliment Pharmacol Ther. 2005;22(10):927–934. doi:10.1111/j.1365-2036.2005.02673.x.
71		Kandil T, Mousa AA, El-Gendy AA, Abbas AM. The potential therapeutic effect of melatonin in gastro-esophageal reflux disease: a randomized clinical trial. BMC Gastroenterol. 2010 Jan 18;10:7. doi:10.1186/1471-230X-10-7.

Ref No.	1st Five Words of Sentence	Reference
72		Basu P, Hempole H, Krishnaswamy N, Shah N, Aloysius M. The effect of melatonin in functional heartburn: a randomized, placebo-controlled clinical trial. Open J Gastroenterol. 2014;4(2):56–61. doi:10.4236/ojgas.2014.42010.
73		Terry PD, Villinger F, Bubenik GA, et al. Melatonin and ulcerative colitis: evidence, biological mechanisms and future research. Inflamm Bowel Dis. 2009;15(1):134–139. doi:10.1002/ibd.20631.
74	**Magnesium amplifies the effect of**	Nelsen FH. Chapter 31 - Relation between Magnesium Deficiency and Sleep Disorders and Associated Pathological Changes. In: Watson RR, ed. Modulation of Sleep by Obesity, Diabetes, Age, and Diet. Academic Press; 2015:291-296. doi:10.1016/B978-0-12-420168-2.00031-4i
75	**By the way, this is**	Boyle NB, Lawton C, Dye L. The Effects of Magnesium Supplementation on Subjective Anxiety and Stress-A Systematic Review. Nutrients. 2017;9(5):429. doi:10.3390/nu9050429
76		Domitrz I, Cegielska J. Magnesium as an Important Factor in the Pathogenesis and Treatment of Migraine—From Theory to Practice. Nutrients. 2022;14(5):1089. doi:10.3390/nu14051089
77	**Meanwhile, zinc contributes to sleep**	Jazinaki MS, Gheflati A, Moghadam MRSF, et al. Effects of zinc supplementation on sleep quality in humans: A systematic review of randomized controlled trials. Health Sci Rep. 2024;7(10):e70019. doi:10.1002/hsr2.70019
78		Chmielinska JJ, Tejero-Taldo MI, Mak IT, Weglicki WB. Intestinal and cardiac inflammatory response shows enhanced endotoxin receptor (CD14) expression in magnesium deficiency. Mol Cell Biochem. 2005;278(1-2):53-57. doi:10.1007/s11010-005-2733-9
79	**Magnesium also supports the gut**	Zimowska W, Girardeau JP, Kuryszko J, Bayle D, Rayssiguier Y, Mazur A. Morphological and immune response alterations in the intestinal mucosa of the mouse after short periods on a low-magnesium diet. Br J Nutr. 2002;88(5):515-522. doi:10.1079/BJN2002696
80		Ashique S, Kumar S, Hussain A, et al. A narrative review on the role of magnesium in immune regulation, inflammation, infectious diseases, and cancer. J Health Popul Nutr. 2023;42:74. doi:10.1186/s41043-023-00423-0
81	**This explains why magnesium supplementation**	Mazidi M, Rezaie P, Banach M. Effect of magnesium supplements on serum C-reactive protein: a systematic review and meta-analysis. Arch Med Sci. 2018;14(4):707-716. doi:10.5114/aoms.2018.75719
82	**Meanwhile with zinc, I think**	Janyajirawong R, Vilaichone RK, Sethasine S. Efficacy of Zinc Supplement in Minimal hepatic Encephalopathy: A prospective, Randomized Controlled Study (Zinc-MHE Trial). Asian Pac J Cancer Prev. 2021;22(9):2879-2887. doi:10.31557/APJCP.2021.22.9.2879
83	**It wasn't until ten years**	Nicoletti A, Ponziani FR, Biolato M, et al. Intestinal permeability in the pathogenesis of liver damage: From non-alcoholic fatty liver disease to liver transplantation. World J Gastroenterol. 2019;25(33):4814-4834. doi:10.3748/wjg.v25.i33.4814
84		Rai R, Saraswat VA, Dhiman RK. Gut Microbiota: Its Role in Hepatic Encephalopathy. J Clin Exp Hepatol. 2015;5(Suppl 1):S29-S36. doi:10.1016/j.jceh.2014.12.003

Ref No.	1st Five Words of Sentence	Reference
85	**Along these lines, there was**	Simkin PA. Oral zinc sulphate in rheumatoid arthritis. Lancet. 1976;2(7985):539-542. doi:10.1016/s0140-6736(76)91793-1
86		Sturniolo GC, Di Leo V, Ferronato A, D'Odorico A, D'Incà R. Zinc supplementation tightens "leaky gut" in Crohn's disease. Inflamm Bowel Dis. 2001;7(2):94-98. doi:10.1097/00054725-200105000-00003
87		Ananthakrishnan AN, Khalili H, Song M, Higuchi LM, Richter JM, Chan AT. Zinc intake and risk of Crohn's disease and ulcerative colitis: a prospective cohort study. Int J Epidemiol. 2015;44(6):1995-2005. doi:10.1093/ije/dyv301
88	**It's worth noting that zinc**	Lin PH, Sermersheim M, Li H, Lee PHU, Steinberg SM, Ma J. Zinc in Wound Healing Modulation. Nutrients. 2017;10(1):16. doi:10.3390/nu10010016
89		Tengrup I, Ahonen J, Zederfeldt B. Influence of zinc on synthesis and the accumulation of collagen in early granulation tissue. Surg Gynecol Obstet. 1981;152(3):323-326.
90	**The secret to turmeric's health**	Hewlings SJ, Kalman DS. Curcumin: a review of its' effects on human health. Foods. 2017;6(10):92. doi:10.3390/foods6100092.
91	**Curcumin works by targeting the**	Ravindran J, Prasad S, Aggarwal BB. Curcumin blocks prostaglandin E_2 biosynthesis by inhibiting COX-2 activity in human epithelial cells. Mol Cancer Ther. 2009;8(8):2348–2355. doi:10.1158/1535-7163.MCT-08-1033.
92	**Additionally, curcumin inhibits nuclear factor**	Dehzad MJ, Ghalandari H, Nouri M, Askarpour M. Antioxidant and anti-inflammatory effects of curcumin/turmeric supplementation in adults: A GRADE-assessed systematic review and dose-response meta-analysis of randomized controlled trials. Cytokine. 2023;164:156144. doi:10.1016/j.cyto.2023.156144
93	**Studies show that curcumin promotes**	Sunagawa Y, Yokoyama S, Fujita H, et al. Comprehensive analysis of gut microbiota and liver metabolome changes in healthy humans by longitudinal consumption of curcumin. J Nutr Biochem. 2018;54:82–90. doi:10.1016/j.jnutbio.2017.11.009.
94	**At the same time, curcumin**	Dai C, Shan B, Ogunwande I, et al. Curcumin selectively inhibits growth and reduces infection-associated inflammation of Clostridium difficile. Antimicrob Agents Chemother. 2019;63(7):e00415-19. doi:10.1128/AAC.00415-19.
95		Scazzocchio B, Minghetti L, D'Archivio M. Interaction between gut microbiota and curcumin: a new key of understanding for the health effects of curcumin. Nutrients. 2020;12(9):2499. doi:10.3390/nu12092499.
96	**This dual action—enhancing beneficial**	Lamichhane G, Olawale F, Liu J, et al. Curcumin mitigates gut dysbiosis and enhances gut barrier function to alleviate metabolic dysfunction in obese, aged mice. Biology (Basel). 2024;13(12):955. doi:10.3390/biology13120955.
97		Wang J, Ghosh SS, Ghosh S. Curcumin improves intestinal barrier function: modulation of intracellular signaling, and organization of tight junctions. Am J Physiol Cell Physiol. 2017;312(4):C438-C445. doi:10.1152/ajpcell.00235.2016.

Ref No.	1st Five Words of Sentence	Reference
98	Research has highlighted curcumin's ability	Lamichhane G, Olawale F, Liu J, et al. Curcumin mitigates gut dysbiosis and enhances gut barrier function to alleviate metabolic dysfunction in obese, aged mice. Biology (Basel). 2024;13(12):955. doi:10.3390/biology13120955.
99		Wang J, Ghosh SS, Ghosh S. Curcumin improves intestinal barrier function: modulation of intracellular signaling, and organization of tight junctions. Am J Physiol Cell Physiol. 2017;312(4):C438-C445. doi:10.1152/ajpcell.00235.2016.
100	In arthritis, curcumin has been	Kuptniratsaikul V, Thanakhumtorn S, Chinswangwatanakul P, et al. Efficacy and safety of Curcuma domestica extracts compared with ibuprofen in patients with knee osteoarthritis: a multicenter noninferiority randomized trial. Clin Interv Aging. 2014;9:451–458. doi:10.2147/CIA.S64674.
101	A smaller study found curcumin	Chandran B, Goel A. A randomized, pilot study to assess the efficacy and safety of curcumin in patients with active rheumatoid arthritis. Phytother Res. 2012;26(11):1719-1725. doi:10.1002/ptr.4639
102	For inflammatory bowel disease, curcumin	Goulart R de A, Barbalho SM, Lima VM, et al. Effects of the Use of Curcumin on Ulcerative Colitis and Crohn's Disease: A Systematic Review. J Med Food. 2021;24(7):675-685. doi:10.1089/jmf.2020.0129
103	Likewise, irritable bowel syndrome shows	Ng QX, Soh AYS, Loke W, Koh YQ, Lim DY, Yeo WS. A meta-analysis of the clinical use of curcumin for irritable bowel syndrome. J Evid Based Complementary Altern Med. 2018;23(4):671-676. doi:10.1177/2156587218792943.
104		Lopresti AL, Smith SJ, Rea A, Michel S. Efficacy of a curcumin extract (Curcugen™) on gastrointestinal symptoms and intestinal microbiota in adults with self-reported digestive complaints: a randomized, double-blind, placebo-controlled study. BMC Complement Med Ther. 2021;21(1):40. doi:10.1186/s12906-021-03220-6.
105		Giacosa A, Barrile GC, Perna S, Rondanelli M. Positive outcomes of supplementation with lecithin-based delivery formulation of Curcuma longa and Boswellia serrata in IBS subjects with small bowel dysbiosis. Life (Basel). 2024;14(11):1410. doi:10.3390/life14111410.
106	Metabolic syndrome, another inflammation-driven	Qiu L, Gao C, Wang H, et al. Effects of dietary polyphenol curcumin supplementation on metabolic, inflammatory, and oxidative stress indices in patients with metabolic syndrome: a systematic review and meta-analysis of randomized controlled trials. Front Endocrinol (Lausanne). 2023;14:1216708. doi:10.3389/fendo.2023.1216708.
107	Moreover, its systemic effects extend	Santos-Parker JR, Strahler TR, Bassett CJ, et al. Curcumin supplementation improves vascular endothelial function in healthy middle-aged and older adults by increasing nitric oxide bioavailability and reducing oxidative stress. Aging (Albany NY). 2017;9(1):187-208. doi:10.18632/aging.101149.
108	Mood disorders such as depression	Ramaholimihaso T, Bouazzaoui F, Kaladjian A. Curcumin in Depression: Potential Mechanisms of Action and Current Evidence—A Narrative Review. Front Psychiatry. 2020;11:572533. doi:10.3389/fpsyt.2020.572533

Ref No.	1st Five Words of Sentence	Reference
109		Sorrenti V, Contarini G, Sut S, et al. Curcumin Prevents Acute Neuroinflammation and Long-Term Memory Impairment Induced by Systemic Lipopolysaccharide in Mice. Front Pharmacol. 2018;9:183. doi:10.3389/fphar.2018.00183
110		Kanchanatawan B, Tangwongchai S, Sughondhabhirom A, et al. Add-on Treatment with Curcumin Has Antidepressive Effects in Thai Patients with Major Depression: Results of a Randomized Double-Blind Placebo-Controlled Study. Neurotox Res. 2018;33(3):621-633. doi:10.1007/s12640-017-9860-4
111	**Combining curcumin with black pepper**	Atal CK, Dubey RK, Singh J. Biochemical basis of enhanced drug bioavailability by piperine: evidence that piperine is a potent inhibitor of drug metabolism. J Pharmacol Exp Ther. 1985;232(1):258-262. doi:10.1124/jpet.232.1.258.
112	**Consuming curcumin with healthy fats**	Antony B, Merina B, Iyer VS, Judy N, Lennertz K, Tony T. Comparative absorption of curcumin formulations: A randomized crossover study in healthy volunteers. Nutrition J. 2014;13(1):11. doi:10.1186/1475-2891-13-11.
113	**Additionally, combining curcumin with minerals**	Izzo AA, Cinque B, Pinto A. Metal–curcumin complexes in therapeutics: an approach to new drug discovery. Molecules. 2022;27(9):2954. doi:10.3390/molecules27092954.

CHAPTER 8:

Body and Mind Healing

Nourishing the Soul through Connection

179 REFERENCES

Ref No.	1st Five Words of Sentence	Reference
1	**You also have an enteric**	Fleming MA, Ehsan L, Moore SR, Levin DE. The Enteric Nervous System and Its Emerging Role as a Therapeutic Target. Gastroenterol Res Pract. 2020;2020:8024171. doi:10.1155/2020/8024171
2	**Five hundred million! That's five**	Raskov H, Burcharth J, Pommergaard HC, Rosenberg J. Irritable bowel syndrome, the microbiota and the gut-brain axis. Gut Microbes. 2016;7(5):365-383. doi:10.1080/19490976.2016.1218585
3	**If we zoomed in with**	Sharkey KA, Mawe GM. The enteric nervous system. Physiol Rev. 2023;103(2):1487-1564. doi:10.1152/physrev.00018.2022
4	**We see this in irritable**	Wouters MM, Vicario M, Santos J. The role of mast cells in functional GI disorders. Gut. 2016;65(1):155-168. doi:10.1136/gutjnl-2015-309151
5	**Over millions of years our**	Furness JB, Stebbing MJ. The first brain: Species comparisons and evolutionary implications for the enteric and central nervous systems. Neurogastroenterol Motil. 2018;30(2). doi:10.1111/nmo.13234
6	**We may call it the**	Furness JB, Stebbing MJ. The first brain: Species comparisons and evolutionary implications for the enteric and central nervous systems. Neurogastroenterol Motil. 2018;30(2). doi:10.1111/nmo.13234
7	**The 500 five hundred million nerves**	Carabotti M, Scirocco A, Maselli MA, Severi C. The gut-brain axis: interactions between enteric microbiota, central and enteric nervous systems. Ann Gastroenterol. 2015;28(2):203-209.
8	**In your gut there are**	Sender R, Weiss Y, Navon Y, et al. The total mass, number, and distribution of immune cells in the human body. Proc Natl Acad Sci U S A. 120(44):e2308511120. doi:10.1073/pnas.2308511120
9	**The vagus has been termed**	Breit S, Kupferberg A, Rogler G, Hasler G. Vagus Nerve as Modulator of the Brain–Gut Axis in Psychiatric and Inflammatory Disorders. Front Psychiatry. 2018;9:44. doi:10.3389/fpsyt.2018.00044
10	**Most of the vagus nerve**	Breit S, Kupferberg A, Rogler G, Hasler G. Vagus Nerve as Modulator of the Brain–Gut Axis in Psychiatric and Inflammatory Disorders. Front Psychiatry. 2018;9:44. doi:10.3389/fpsyt.2018.00044
11	**Your microbes produce short-chain**	Terry N, Margolis KG. Serotonergic Mechanisms Regulating the GI Tract: Experimental Evidence and Therapeutic Relevance. Handb Exp Pharmacol. 2017;239:319-342. doi:10.1007/164_2016_103
12	**There are over thirty neurotransmitters**	Terry N, Margolis KG. Serotonergic Mechanisms Regulating the GI Tract: Experimental Evidence and Therapeutic Relevance. Handb Exp Pharmacol. 2017;239:319-342. doi:10.1007/164_2016_103

Ref No.	1st Five Words of Sentence	Reference
13	**While most of these neurotransmitters**	Kniesel U, Wolburg H. Tight junctions of the blood-brain barrier. Cell Mol Neurobiol. 2000;20(1):57-76. doi:10.1023/a:1006995910836
14	**First, precursor molecules that do**	Terry N, Margolis KG. Serotonergic Mechanisms Regulating the GI Tract: Experimental Evidence and Therapeutic Relevance. Handb Exp Pharmacol. 2017;239:319-342. doi:10.1007/164_2016_103
15	**Second, gut neurotransmitters can stimulate**	Chen WG, Schloesser D, Arensdorf AM, et al. The Emerging Science of Interoception: Sensing, Integrating, Interpreting, and Regulating Signals within the Self. Trends Neurosci. 2021;44(1):3-16. doi:10.1016/j.tins.2020.10.007
16	**Much like short-chain fatty**	Hoyles L, Snelling T, Umlai UK, et al. Microbiome-host systems interactions: protective effects of propionate upon the blood-brain barrier. Microbiome. 2018;6(1):55. doi:10.1186/s40168-018-0439-y
17		Fock E, Parnova R. Mechanisms of Blood-Brain Barrier Protection by Microbiota-Derived Short-Chain Fatty Acids. Cells. 2023;12(4):657. doi:10.3390/cells12040657
18	**It continues inside the brain**	The short-chain fatty acid acetate reduces appetite via a central homeostatic mechanism - PMC. Accessed October 8, 2024. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4015327/
19		Alpino G de CÁ, Pereira-Sol GA, Dias M de ME, Aguiar AS de, Peluzio M do CG. Beneficial effects of butyrate on brain functions: A view of epigenetic. Crit Rev Food Sci Nutr. 2024;64(12):3961-3970. doi:10.1080/10408398.2022.2137776
20		Bourassa MW, Alim I, Bultman SJ, Ratan RR. Butyrate, Neuroepigenetics and the Gut Microbiome: Can a High Fiber Diet Improve Brain Health? Neurosci Lett. 2016;625:56-63. doi:10.1016/j.neulet.2016.02.009
21		Microbiota-derived acetate enables the metabolic fitness of the brain innate immune system during health and disease - PubMed. Accessed October 8, 2024. https://pubmed.ncbi.nlm.nih.gov/34731656/
22		Grüter T, Mohamad N, Rilke N, et al. Propionate exerts neuroprotective and neuroregenerative effects in the peripheral nervous system. Proc Natl Acad Sci U S A. 120(4):e2216941120. doi:10.1073/pnas.2216941120
23	**While this is an area**	Stilling RM, van de Wouw M, Clarke G, Stanton C, Dinan TG, Cryan JF. The neuropharmacology of butyrate: the bread and butter of the microbiota-gut-brain axis? Neurochem Int. 2016;99:110–132. doi:10.1016/j.neuint.2016.10.011.
24		Zhang LS, Davies SS. Microbial metabolism of dietary components to bioactive metabolites, including SCFAs, with neuroactive effects. J Neurosci Res. 2016;94(11):1295–1312. doi:10.1002/jnr.23726.
25		Braniste V, Al-Asmakh M, Kowal C, et al. The influence of gut microbiota on blood-brain barrier permeability in mice: SCFAs play a key role. Science Transl Med. 2014;6(263):263ra158. doi:10.1126/scitranslmed.3009759.

Ref No.	1st Five Words of Sentence	Reference
26		Segarra AM, Geenen B, Luijendijk MC. SCFAs stimulate GLP-1 and PYY release via FFAR2/3 receptors—signaling satiety hormones to the brain. J Physiol Biochem. 2015;71(2):289–299. doi:10.1007/s13105-014-0391-1.
27		Kimura I, Inoue D, Maeda T, et al. Short-chain fatty acids and ketones directly regulate sympathetic nervous system via GPR41. Proc Natl Acad Sci U S A. 2011;108(30):8030–8035. doi:10.1073/pnas.1106943108.
28		Rea K, Dinan TG, Cryan JF. The role of the gut microbiota in the bi-directional communication between gut and brain—implications of SCFA on emotional behaviors. Brain Behav Immun. 2016;57:5–8. doi:10.1016/j.bbi.2015.12.004.
29		Zhang Q, Wu Y, Fei X, et al. Butyrate augments hippocampal neuroplasticity and memory performance in mice. Neuropharmacology. 2019;149:425–438. doi:10.1016/j.neuropharm.2018.11.013.
30	**Research has found that SCFAs**	Tang CF, Wang CY, Wang JH, et al. Short-chain fatty acids ameliorate depressive-like behaviors of high fructose-fed mice by rescuing hippocampal neurogenesis decline and blood–brain barrier damage. Nutrients. 2022;14(9):1882. doi:10.3390/nu14091882.
31		Xiao W, Su J, Gao X, et al. Dietary fructose-induced gut dysbiosis promotes mouse hippocampal neuroinflammation: a benefit of SCFAs. Microbiome. 2019;7:98. doi:10.1186/s40168-019-0713-7.
32		Braniste V, Al-Asmakh M, Kowal C, et al. The influence of gut microbiota on blood–brain barrier permeability in mice: SCFAs play a key role. Sci Transl Med. 2014;6(263):263ra158. doi:10.1126/scitranslmed.3009759.
33		Song L, Sun Q, Zheng H, et al. Roseburia hominis alleviates neuroinflammation via SCFAs through histone deacetylase inhibition. Mol Nutr Food Res. 2022;66(18):e2200164. doi:10.1002/mnfr.202200164.
34		Dantzer R, O'Connor JC, Freund GG, Johnson RW, Kelley KW. From inflammation to sickness and depression: when the immune system subjugates the brain. Nat Rev Neurosci. 2008;9(1):46–56. doi:10.1038/nrn2297.
35		Heneka MT, Carson MJ, El Khoury J, et al. Neuroinflammation in Alzheimer's disease. Lancet Neurol. 2015;14(4):388–405. doi:10.1016/S1474-4422(15)70016-5.
36		Tansey MG, Goldberg MS. Neuroinflammation in Parkinson's disease: its role in neuronal death and implications for therapeutic intervention. Neurobiol Dis. 2010;37(3):510–518. doi:10.1016/j.nbd.2009.10.004.
37		Trapp BD, Nave KA. Multiple sclerosis: an immune or neurodegenerative disorder? Annu Rev Neurosci. 2008;31:247–269. doi:10.1146/annurev.neuro.30.051606.094313.
38	**LPS can compromise the brain's**	Peng X, Luo Z, He S, Zhang L, Li Y. Blood-Brain Barrier Disruption by Lipopolysaccharide and Sepsis-Associated Encephalopathy. Front Cell Infect Microbiol. 2021;11:768108. doi:10.3389/fcimb.2021.768108
39		Vargas-Caraveo A, Sayd A, Maus SR, et al. Lipopolysaccharide enters the rat brain by a lipoprotein-mediated transport mechanism in physiological conditions. Sci Rep. 2017;7:13113. doi:10.1038/s41598-017-13302-6

Ref No.	1st Five Words of Sentence	Reference
40	This breach brings the inflammatory	Skrzypczak-Wiercioch A, Sałat K. Lipopolysaccharide-Induced Model of Neuroinflammation: Mechanisms of Action, Research Application and Future Directions for Its Use. Molecules. 2022;27(17):5481. doi:10.3390/molecules27175481
41		Lipopolysaccharide-induced neuroinflammation induces presynaptic disruption through a direct action on brain tissue involving microglia-derived interleukin 1 beta - PubMed. Accessed October 8, 2024. https://pubmed.ncbi.nlm.nih.gov/31103036/
42	In mice, a single shot	Yang L, Zhou R, Tong Y, et al. Neuroprotection by dihydrotestosterone in LPS-induced neuroinflammation. Neurobiol Dis. 2020;140:104814. doi:10.1016/j.nbd.2020.104814
43		Bossù P, Cutuli D, Palladino I, et al. A single intraperitoneal injection of endotoxin in rats induces long-lasting modifications in behavior and brain protein levels of TNF-α and IL-18. J Neuroinflammation. 2012;9:101. doi:10.1186/1742-2094-9-101
44	LPS and neuroinflammation help explain	Skrzypczak-Wiercioch A, Sałat K. Lipopolysaccharide-Induced Model of Neuroinflammation: Mechanisms of Action, Research Application and Future Directions for Its Use. Molecules. 2022;27(17):5481. doi:10.3390/molecules27175481
45		Troubat R, Barone P, Leman S, et al. Neuroinflammation and depression: A review. Eur J Neurosci. 2021;53(1):151-171. doi:10.1111/ejn.14720
46		Jiang X, Chen Z, Yu X, et al. Lipopolysaccharide-induced depression is associated with estrogen receptor-α/SIRT1/NF-κB signaling pathway in old female mice. Neurochem Int. 2021;148:105097. doi:10.1016/j.neuint.2021.105097
47		Lipopolysaccharide Associates with Amyloid Plaques, Neurons and Oligodendrocytes in Alzheimer's Disease Brain: A Review - PubMed. Accessed October 8, 2024. https://pubmed.ncbi.nlm.nih.gov/29520228/
48		Zhao Y, Walker DI, Lill CM, et al. Lipopolysaccharide-binding protein and future Parkinson's disease risk: a European prospective cohort. J Neuroinflammation. 2023;20(1):170. doi:10.1186/s12974-023-02846-2
49		Kalyan M, Tousif AH, Sonali S, et al. Role of Endogenous Lipopolysaccharides in Neurological Disorders. Cells. 2022;11(24):4038. doi:10.3390/cells11244038
50	Through the vagus nerve, the	Breit S, Kupferberg A, Rogler G, Hasler G. Vagus Nerve as Modulator of the Brain–Gut Axis in Psychiatric and Inflammatory Disorders. Front Psychiatry. 2018;9:44. doi:10.3389/fpsyt.2018.00044
51		Han Y, Wang B, Gao H, et al. Vagus Nerve and Underlying Impact on the Gut Microbiota-Brain Axis in Behavior and Neurodegenerative Diseases. J Inflamm Res. 2022;15:6213-6230. doi:10.2147/JIR.S384949
52	Additionally, the brain releases a	Bonaz B. Anti-inflammatory effects of vagal nerve stimulation with a special attention to intestinal barrier dysfunction. Neurogastroenterol Motil. 2022;34(10):e14456. doi:10.1111/nmo.14456
53	This explains why stress increases	Yu Y, Liu ZQ, Liu XY, et al. Stress-Derived Corticotropin Releasing Factor Breaches Epithelial Endotoxin Tolerance. PLoS One. 2013;8(6):e65760. doi:10.1371/journal.pone.0065760

Ref No.	1st Five Words of Sentence	Reference
54	**When the heart is affected**	DARWIN C. The expression of the emotions in man and animals (1872). The portable Darwin. Published online 1993:364-393.
55	**And research would suggest that**	Dhaliwal G. Going with Your Gut. J Gen Intern Med. 2011;26(2):107-109. doi:10.1007/s11606-010-1578-4
56	**What we do know is**	Chen WG, Schloesser D, Arensdorf AM, et al. The Emerging Science of Interoception: Sensing, Integrating, Interpreting, and Regulating Signals within the Self. Trends Neurosci. 2021;44(1):3-16. doi:10.1016/j.tins.2020.10.007
57	**There's an implanted medical device**	Breit S, Kupferberg A, Rogler G, Hasler G. Vagus Nerve as Modulator of the Brain–Gut Axis in Psychiatric and Inflammatory Disorders. Front Psychiatry. 2018;9:44. doi:10.3389/fpsyt.2018.00044
58	**Although you may be just hearing**	Mandalaneni K, Rayi A. Vagus Nerve Stimulator. In: StatPearls. StatPearls Publishing; 2024. Accessed October 12, 2024. http://www.ncbi.nlm.nih.gov/books/NBK562175/
59	**There's evidence to suggest that**	Slater C, Wang Q. Alzheimer's disease: An evolving understanding of noradrenergic involvement and the promising future of electroceutical therapies. Clin Transl Med. 2021;11(4):e397. doi:10.1002/ctm2.397
60		Sigurdsson HP, Raw R, Hunter H, et al. Noninvasive vagus nerve stimulation in Parkinson's disease: current status and future prospects. Expert Rev Med Devices. 2021;18(10):971-984. doi:10.1080/17434440.2021.1969913
61		Neuromodulation of autism spectrum disorders using vagal nerve stimulation - PubMed. Accessed October 12, 2024. https://pubmed.ncbi.nlm.nih.gov/30732986/
62	**One of the ways it**	Bonaz B. Anti-inflammatory effects of vagal nerve stimulation with a special attention to intestinal barrier dysfunction. Neurogastroenterol Motil. 2022;34(10):e14456. doi:10.1111/nmo.14456
63	**It also helps the immune**	Borovikova LV, Ivanova S, Zhang M, et al. Vagus nerve stimulation attenuates the systemic inflammatory response to endotoxin. Nature. 2000;405(6785):458-462. doi:10.1038/35013070
64	**The result is lower cytokine**	Schiweck C, Sausmekat S, Zhao T, Jacobsen L, Reif A, Edwin Thanarajah S. No consistent evidence for the anti-inflammatory effect of vagus nerve stimulation in humans: A systematic review and meta-analysis. Brain Behav Immun. 2024;116:237-258. doi:10.1016/j.bbi.2023.12.008
65	**With this in mind, there**	Fornaro R, Actis GC, Caviglia GP, Pitoni D, Ribaldone DG. Inflammatory Bowel Disease: Role of Vagus Nerve Stimulation. J Clin Med. 2022;11(19):5690. doi:10.3390/jcm11195690
66		Non-invasive vagus nerve stimulation for rheumatoid arthritis: a proof-of-concept study - PubMed. Accessed October 12, 2024. https://pubmed.ncbi.nlm.nih.gov/38279410/
67		Vagus nerve stimulation inhibits cytokine production and attenuates disease severity in rheumatoid arthritis - PubMed. Accessed October 12, 2024. https://pubmed.ncbi.nlm.nih.gov/27382171/

Ref No.	1st Five Words of Sentence	Reference
68		Bellocchi C, Carandina A, Della Torre A, et al. Transcutaneous auricular branch vagal nerve stimulation as a non-invasive add-on therapeutic approach for pain in systemic sclerosis. RMD Open. 2023;9(3):e003265. doi:10.1136/rmdopen-2023-003265
69		Aranow C, Atish-Fregoso Y, Lesser M, et al. Transcutaneous auricular vagus nerve stimulation reduces pain and fatigue in patients with systemic lupus erythematosus: a randomised, double-blind, sham-controlled pilot trial. Ann Rheum Dis. 2021;80(2):203-208. doi:10.1136/annrheumdis-2020-217872
70	**Interestingly, a high HRV has**	Tsubokawa M, Nishimura M, Mikami T, Ishida M, Hisada T, Tamada Y. Association of Gut Microbial Genera with Heart Rate Variability in the General Japanese Population: The Iwaki Cross-Sectional Research Study. Metabolites. 2022;12(8):730. doi:10.3390/metabo12080730
71	**Conversely, a low HRV suggests**	Williams DP, Koenig J, Carnevali L, et al. Heart rate variability and inflammation: A meta-analysis of human studies. Brain Behav Immun. 2019;80:219-226. doi:10.1016/j.bbi.2019.03.009
72	**There are multiple studies where**	Mróz M, Czub M, Brytek-Matera A. Heart Rate Variability—An Index of the Efficacy of Complementary Therapies in Irritable Bowel Syndrome: A Systematic Review. Nutrients. 2022;14(16):3447. doi:10.3390/nu14163447
TABLE: Techniques to Stimulate the Vagus Nerve		
73	**Deep breathing exercises**	Magnon V, Dutheil F, Vallet GT. Benefits from one session of deep and slow breathing on vagal tone and anxiety in young and older adults. Sci Rep. 2021;11(1):19267. doi:10.1038/s41598-021-98736-9
74		Jungmann M, Vencatachellum S, Van Ryckeghem D, Vögele C. Effects of Cold Stimulation on Cardiac-Vagal Activation in Healthy Participants: Randomized Controlled Trial. JMIR Form Res. 2018;2(2):e10257. doi:10.2196/10257
75	**Cold exposure**	Richer R, Zenkner J, Küderle A, Rohleder N, Eskofier BM. Vagus activation by Cold Face Test reduces acute psychosocial stress responses. Sci Rep. 2022;12:19270. doi:10.1038/s41598-022-23222-9
76		Mäkinen TM, Mäntysaari M, Pääkkönen T, et al. Autonomic nervous function during whole-body cold exposure before and after cold acclimation. Aviat Space Environ Med. 2008;79(9):875-882. doi:10.3357/asem.2235.2008
77	**Sauna**	Laukkanen TA, Lipponen JA, Kunutsor SK, et al. Recovery from sauna bathing favorably modulates cardiac autonomic nervous system. Complement Ther Med. 2019;45:190–197. doi:10.1016/j.ctim.2019.06.011.
78	**Warm Bath**	Ihsan KA, Bahammam AS, Ahmed NZ, et al. Warm water immersion reduces sympathetic activity and enhances parasympathetic tone: effects on heart rate variability in healthy adults. J Appl Physiol. 2021;130(1):123-131. doi:10.1152/japplphysiol.00684.2021.
79	**Meditation and Mindfulness**	Kirk U, Axelsen JL. Heart rate variability is enhanced during mindfulness practice: A randomized controlled trial involving a 10-day online-based mindfulness intervention. PLoS One. 2020;15(12):e0243488. doi:10.1371/journal.pone.0243488

Ref No.	1st Five Words of Sentence	Reference
80		Léonard A, Clément S, Kuo CD, Manto M. Changes in Heart Rate Variability During Heartfulness Meditation: A Power Spectral Analysis Including the Residual Spectrum. Front Cardiovasc Med. 2019;6:62. doi:10.3389/fcvm.2019.00062
81	**Yoga and Tai Chi**	Tyagi A, Cohen M. Yoga and heart rate variability: A comprehensive review of the literature. Int J Yoga. 2016;9(2):97-113. doi:10.4103/0973-6131.183712
82	**Singing, humming, and chanting**	Trivedi G, Sharma K, Saboo B, et al. Humming (Simple Bhramari Pranayama) as a Stress Buster: A Holter-Based Study to Analyze Heart Rate Variability (HRV) Parameters During Bhramari, Physical Activity, Emotional Stress, and Sleep. Cureus. 15(4):e37527. doi:10.7759/cureus.37527
83		Inbaraj G, Rao RM, Ram A, et al. Immediate Effects of OM Chanting on Heart Rate Variability Measures Compared Between Experienced and Inexperienced Yoga Practitioners. Int J Yoga. 2022;15(1):52-58. doi:10.4103/ijoy.ijoy_141_21
84		Vickhoff B, Malmgren H, Åström R, et al. Music structure determines heart rate variability of singers. Front Psychol. 2013;4:334. doi:10.3389/fpsyg.2013.00334
85	**Laughter**	Fujiwara Y, Okamura H. Hearing laughter improves the recovery process of the autonomic nervous system after a stress-loading task: a randomized controlled trial. Biopsychosoc Med. 2018;12:22. doi:10.1186/s13030-018-0141-0
86		Effect of laughter yoga on mood and heart rate variability in patients awaiting organ transplantation: a pilot study - PubMed. Accessed October 13, 2024. https://pubmed.ncbi.nlm.nih.gov/22894892/
87	**Massage**	Buttagat V, Eungpinichpong W, Chatchawan U, Kharmwan S. The immediate effects of traditional Thai massage on heart rate variability and stress-related parameters in patients with back pain associated with myofascial trigger points. J Bodyw Mov Ther. 2011;15(1):15-23. doi:10.1016/j.jbmt.2009.06.005
88	**Acupuncture**	Li Z, Wang C, Mak AFT, Chow DHK. Effects of acupuncture on heart rate variability in normal subjects under fatigue and non-fatigue state. Eur J Appl Physiol. 2005;94(5-6):633-640. doi:10.1007/s00421-005-1362-z
89	**Regular physical exercise**	Routledge FS, Campbell TS, McFetridge-Durdle JA, Bacon SL. Improvements in heart rate variability with exercise therapy. Can J Cardiol. 2010;26(6):303-312. doi:10.1016/s0828-282x(10)70395-0
90		Souza HCD, Philbois SV, Veiga AC, Aguilar BA. Heart Rate Variability and Cardiovascular Fitness: What We Know so Far. Vasc Health Risk Manag. 2021;17:701-711. doi:10.2147/VHRM.S279322
91		Effects of a single bout of exercise on resting heart rate variability - PubMed. Accessed October 13, 2024. https://pubmed.ncbi.nlm.nih.gov/15235317/
92	**Social connection**	Goodyke MP, Hershberger PE, Bronas UG, Dunn SL. Perceived Social Support and Heart Rate Variability: An Integrative Review. West J Nurs Res. 2022;44(11):1057-1067. doi:10.1177/01939459211028908
93	**Falling in love**	Mercado E, Hibel LC. I love you from the bottom of my hypothalamus: The role of stress physiology in romantic pair bond formation and maintenance. Soc Personal Psychol Compass. 2017;11(2):e12298. doi:10.1111/spc3.12298.

Ref No.	1st Five Words of Sentence	Reference
94	**Sleep quality**	Sajjadieh A, Shahsavari A, Safaei A, et al. The Association of Sleep Duration and Quality with Heart Rate Variability and Blood Pressure. Tanaffos. 2020;19(2):135-143.
95	**Deep pressure and weighted blankets**	Chen HY, Yang H, Meng LF, Chan PYS, Yang CY, Chen HM. Effect of deep pressure input on parasympathetic system in patients with wisdom tooth surgery. J Formos Med Assoc. 2016;115(10):853-859. doi:10.1016/j.jfma.2016.07.008
96	**Hugs and romantic kisses**	Light KC, Grewen KM, Amico JA. More frequent partner hugs and higher oxytocin levels are linked to lower blood pressure and heart rate in premenopausal women. Biol Psychol. 2005;69(1):5-21. doi:10.1016/j.biopsycho.2004.11.002
97		Infants Show Physiological Responses Specific to Parental Hugs - PubMed. Accessed October 14, 2024. https://pubmed.ncbi.nlm.nih.gov/32259479/
98	**Holding hands and human touch**	Sakuma H, Hasuo H, Fukunaga M. Effect of handholding on heart rate variability in both patients with cancer and their family caregivers: a randomized crossover study. Biopsychosoc Med. 2021;15:14. doi:10.1186/s13030-021-00217-y
99	**Sexual intimacy**	Costa RM, Brody S. Greater resting heart rate variability is associated with orgasms through penile-vaginal intercourse, but not with orgasms from other sources. J Sex Med. 2012;9(1):188-197. doi:10.1111/j.1743-6109.2011.02541.x
100		Vaginal intercourse frequency and heart rate variability - PubMed. Accessed October 14, 2024. https://pubmed.ncbi.nlm.nih.gov/14504008/
101		Tolunay H, Yıldırım E, Gökoğlan Y, et al. The Relationship Between Sexual Activity and Heart Rate Variability in Menopausal Women. Anatol J Cardiol. 2022;26(7):543-551. doi:10.5152/AnatolJCardiol.2022.1180
102	**Prayer and spiritual practices**	Bernardi L, Sleight P, Bandinelli G, et al. Effect of rosary prayer and yoga mantras on autonomic cardiovascular rhythms: comparative study. BMJ. 2001;323(7327):1446-1449.
103		Doufesh H, Ibrahim F, Ismail NA, Wan Ahmad WA. Effect of Muslim Prayer (Salat) on α Electroencephalography and Its Relationship with Autonomic Nervous System Activity. J Altern Complement Med. 2014;20(7):558-562. doi:10.1089/acm.2013.0426
104	**Positive affirmations and gratitude**	Molins F, Pérez-Calleja T, Abad-Tortosa D, Alacreu-Crespo A, Serrano-Rosa MÁ. Positive emotion induction improves cardiovascular coping with a cognitive task. PeerJ. 2021;9:e10904. doi:10.7717/peerj.10904
105	**Spiritual music**	Adlakha K, Mathur MK, Datta A, Kalsi R, Bhandari B. Short-Term Effect of Spiritual Music on Heart Rate Variability in Medical Students: A Single-Group Experimental Study. Cureus. 15(2):e34833. doi:10.7759/cureus.34833
106	**Relaxing hobbies**	Omidi L, Masoumi S, Naderi N, Nasiri E. The effects of an indoor garden on heart rate variability among healthcare staff: a randomized crossover study. Int J Environ Res Public Health. 2021;18(3):1024. doi:10.3390/ijerph18031024.
107		Shao Y, Elsadek M, Liu B. Horticultural activity: its contribution to stress recovery and wellbeing in children. Int J Environ Res Public Health. 2020;17(4):1229.

Ref No.	1st Five Words of Sentence	Reference
108		Raglio A, Maestri R, Robbi E, et al. Effect of algorithmic music listening on cardiac autonomic nervous system activity: an exploratory, randomized crossover study. J Clin Med. 2022;11(19):5738.
109	**Spending time in nature**	Scott EE, LoTemplio SB, McDonnell AS, et al. The autonomic nervous system in its natural environment: immersion in nature is associated with changes in heart rate and heart rate variability. Psychophysiology. 2021;58(4):e13698. doi:10.1111/psyp.13698.
END TABLE		
110	**Trauma can cause the amygdala**	Stevens JS, Kim YJ, Galatzer-Levy IR, et al. Amygdala Reactivity and Anterior Cingulate Habituation Predict Posttraumatic Stress Disorder Symptom Maintenance After Acute Civilian Trauma. Biol Psychiatry. 2017;81(12):1023-1029. doi:10.1016/j.biopsych.2016.11.015
111	**This activates the body's stress**	Toth M, Flandreau EI, Deslauriers J, et al. Overexpression of Forebrain CRH During Early Life Increases Trauma Susceptibility in Adulthood. Neuropsychopharmacology. 2016;41(6):1681-1690. doi:10.1038/npp.2015.338
112	**The result is an unbalanced**	Thayer JF, Sternberg E. Beyond heart rate variability: vagal regulation of allostatic systems. Ann N Y Acad Sci. 2006;1088:361-372. doi:10.1196/annals.1366.014
113	**There are CRH receptors in(muscle cells)**	Maillot C, Million M, Wei JY, Gauthier A, Taché Y. Peripheral corticotropin-releasing factor and stress-stimulated colonic motor activity involve type 1 receptor in rats. Gastroenterology. 2000;119(6):1569-1579. doi:10.1053/gast.2000.20251
114	**There are CRH receptors in(gut barrier cells)**	Kelly JR, Kennedy PJ, Cryan JF, Dinan TG, Clarke G, Hyland NP. Breaking down the barriers: the gut microbiome, intestinal permeability and stress-related psychiatric disorders. Front Cell Neurosci. 2015;9:392. doi:10.3389/fncel.2015.00392
115	**And there are CRH receptors**	Fukudo S. Role of corticotropin-releasing hormone in irritable bowel syndrome and intestinal inflammation. J Gastroenterol. 2007;42 Suppl 17:48-51. doi:10.1007/s00535-006-1942-7
116		Agelaki S, Tsatsanis C, Gravanis A, Margioris AN. Corticotropin-Releasing Hormone Augments Proinflammatory Cytokine Production from Macrophages In Vitro and in Lipopolysaccharide-Induced Endotoxin Shock in Mice. Infect Immun. 2002;70(11):6068-6074. doi:10.1128/IAI.70.11.6068-6074.2002
117	**They may not have CRH**	Zhu C, Li S. Role of CRH in colitis and colitis-associated cancer: a combinative result of central and peripheral effects? Front Endocrinol (Lausanne). 2024;15:1363748. doi:10.3389/fendo.2024.1363748
118	**Does it surprise you that**	van de Wouw M, Boehme M, Lyte JM, et al. Short-chain fatty acids: microbial metabolites that alleviate stress-induced brain–gut axis alterations. J Physiol. 2018;596(20):4923-4944. doi:10.1113/JP276431
119		Warren A, Nyavor Y, Beguelin A, Frame LA. Dangers of the chronic stress response in the context of the microbiota-gut-immune-brain axis and mental health: a narrative review. Front Immunol. 2024;15:1365871. doi:10.3389/fimmu.2024.1365871
120	**What this illustrates is that**	Bailey MT, Dowd SE, Galley JD, Hufnagle AR, Allen RG, Lyte M. Exposure to a social stressor alters the structure of the intestinal microbiota: implications for stressor-induced immunomodulation. Brain Behav Immun. 2011;25(3):397–407. doi:10.1016/j.bbi.2010.11.026.

Ref No.	1st Five Words of Sentence	Reference
121		Yang PC, Yeh YT, Yu HS, et al. Chronic restraint stress disturbs the intestinal barrier and accelerates graft-versus-host disease-associated intestinal inflammation. J Clin Invest. 2017;127(4):1560–1570. doi:10.1172/JCI88887.
122	**Via the gut-brain axis**	Leclercq S, Forsythe P, Bienenstock J. Posttraumatic Stress Disorder: Does the Gut Microbiome Hold the Key? Can J Psychiatry. 2016;61(4):204-213. doi:10.1177/0706743716635535
123		Sachs-Ericsson N, Kendall-Tackett K, Hernandez A. Childhood abuse, chronic pain, and depression in the National Comorbidity Survey. Child Abuse Negl. 2007;31(5):531-547. doi:10.1016/j.chiabu.2006.12.007
124		Cougle JR, Timpano KR, Sachs-Ericsson N, Keough ME, Riccardi CJ. Examining the unique relationships between anxiety disorders and childhood physical and sexual abuse in the National Comorbidity Survey-Replication. Psychiatry Res. 2010;177(1-2):150-155. doi:10.1016/j.psychres.2009.03.008
125	**Via the gut-immune axis**	Baumeister D, Akhtar R, Ciufolini S, Pariante CM, Mondelli V. Childhood trauma and adulthood inflammation: a meta-analysis of peripheral C-reactive protein, interleukin-6 and tumour necrosis factor-α. Mol Psychiatry. 2016;21(5):642-649. doi:10.1038/mp.2015.67
126		Taft TH, Quinton S, Jedel S, Simons M, Mutlu EA, Hanauer SB. Posttraumatic Stress in Patients With Inflammatory Bowel Disease: Prevalence and Relationships to Patient-Reported Outcomes. Inflamm Bowel Dis. 2022;28(5):710-719. doi:10.1093/ibd/izab152
127		Lee YC, Agnew-Blais J, Malspeis S, et al. Posttraumatic Stress Disorder and Risk for Incident Rheumatoid Arthritis. Arthritis Care Res (Hoboken). 2016;68(3):292-298. doi:10.1002/acr.22683
128		Hsu TW, Bai YM, Tsai SJ, Chen TJ, Chen MH, Liang CS. Risk of autoimmune diseases after post-traumatic stress disorder: a nationwide cohort study. Eur Arch Psychiatry Clin Neurosci. 2024;274(3):487-495. doi:10.1007/s00406-023-01639-1
129	**Via the gut-metabolism axis**	McFARLANE AC. The long-term costs of traumatic stress: intertwined physical and psychological consequences. World Psychiatry. 2010;9(1):3-10.
130	**Now here's the thing: they**	Callaghan BL, Fields A, Gee DG, et al. Mind and gut: Associations between mood and gastrointestinal distress in children exposed to adversity. Development and Psychopathology. 2020;32(1):309-328. doi:10.1017/S0954579419000087
131	**Some of the treatment methods**	Watkins LE, Sprang KR, Rothbaum BO. Treating PTSD: A Review of Evidence-Based Psychotherapy Interventions. Front Behav Neurosci. 2018;12:258. doi:10.3389/fnbeh.2018.00258
132		Schrader C, Ross A. A Review of PTSD and Current Treatment Strategies. Mo Med. 2021;118(6):546-551.
133		Mansour M, Joseph GR, Joy GK, et al. Post-traumatic Stress Disorder: A Narrative Review of Pharmacological and Psychotherapeutic Interventions. Cureus. 15(9):e44905. doi:10.7759/cureus.44905

Ref No.	1st Five Words of Sentence	Reference
134	This creates unhealthy patterns of	Gross JJ, Uusberg H, Uusberg A. Mental illness and well-being: an affect regulation perspective. World Psychiatry. 2019;18(2):130-139. doi:10.1002/wps.20618
135		Sisto A, Vicinanza F, Campanozzi LL, Ricci G, Tartaglini D, Tambone V. Towards a Transversal Definition of Psychological Resilience: A Literature Review. Medicina (Kaunas). 2019;55(11):745. doi:10.3390/medicina55110745
136		Claes SJ. Corticotropin-releasing hormone (CRH) in psychiatry: from stress to psychopathology. Ann Med. 2004;36(1):50-61. doi:10.1080/07853890310017044
137	It makes us more resilient	Sisto A, Vicinanza F, Campanozzi LL, Ricci G, Tartaglini D, Tambone V. Towards a Transversal Definition of Psychological Resilience: A Literature Review. Medicina (Kaunas). 2019;55(11):745. doi:10.3390/medicina55110745
138		Babić R, Babić M, Rastović P, et al. Resilience in Health and Illness. Psychiatr Danub. 2020;32(Suppl 2):226-232.
139		Joyce S, Shand F, Tighe J, Laurent SJ, Bryant RA, Harvey SB. Road to resilience: a systematic review and meta-analysis of resilience training programmes and interventions. BMJ Open. 2018;8(6):e017858. doi:10.1136/bmjopen-2017-017858
140	Diaphragmatic breathing, often called belly	Liu J, Lv Q, Wang C, Huang Y, Wang X, Yu B. Slow, deep breathing intervention improved symptoms and altered rectal sensitivity in patients with constipation-predominant irritable bowel syndrome. Front Neurosci. 2022;16:1034547. doi:10.3389/fnins.2022.1034547.
141	Research shows that social isolation	Matthews T, Rasmussen LJH, Ambler A, et al. Social isolation, loneliness, and inflammation: A multi-cohort investigation in early and mid-adulthood. Brain Behav Immun. 2024;115:727-736. doi:10.1016/j.bbi.2023.11.022
142		Naito R, McKee M, Leong D, et al. Social isolation as a risk factor for all-cause mortality: Systematic review and meta-analysis of cohort studies. PLoS One. 2023;18(1):e0280308. doi:10.1371/journal.pone.0280308
143		Czaja SJ, Moxley JH, Rogers WA. Social Support, Isolation, Loneliness, and Health Among Older Adults in the PRISM Randomized Controlled Trial. Front Psychol. 2021;12:728658. doi:10.3389/fpsyg.2021.728658
144		Wilkialis L, Rodrigues NB, Cha DS, et al. Social Isolation, Loneliness and Generalized Anxiety: Implications and Associations during the COVID-19 Quarantine. Brain Sci. 2021;11(12):1620. doi:10.3390/brainsci11121620
145	In fact, the risk of	Holt-Lunstad J. Why Social Relationships Are Important for Physical Health: A Systems Approach to Understanding and Modifying Risk and Protection. Annu Rev Psychol. 2018;69:437-458. doi:10.1146/annurev-psych-122216-011902
146	In fact, a recent study	Dill-McFarland KA, Tang ZZ, Kemis JH, et al. Close social relationships correlate with human gut microbiota composition. Scientific Reports. 2019;9(1):703. doi:10.1038/s41598-018-37298-9
147	Independent of marital status, other	Nguyen TT, Zhang X, Wu TC, et al. Association of Loneliness and Wisdom With Gut Microbial Diversity and Composition: An Exploratory Study. Front Psychiatry. 2021;12:648475. doi:10.3389/fpsyt.2021.648475

Ref No.	1st Five Words of Sentence	Reference
148	Isolation is stressful and is	Scatà C, Carandina A, Della Torre A, et al. Social Isolation: A Narrative Review on the Dangerous Liaison between the Autonomic Nervous System and Inflammation. Life. 2023;13(6):1229. doi:10.3390/life13061229
149		Vitale EM, Smith AS. Neurobiology of Loneliness, Isolation, and Loss: Integrating Human and Animal Perspectives. Front Behav Neurosci. 2022;16:846315. doi:10.3389/fnbeh.2022.846315
150	These interpersonal expressions of human	Light KC, Grewen KM, Amico JA. More frequent partner hugs and higher oxytocin levels are linked to lower blood pressure and heart rate in premenopausal women. Biol Psychol. 2005;69(1):5-21. doi:10.1016/j.biopsycho.2004.11.002
151		Infants Show Physiological Responses Specific to Parental Hugs - PubMed. Accessed October 14, 2024. https://pubmed.ncbi.nlm.nih.gov/32259479/
152		Sakuma H, Hasuo H, Fukunaga M. Effect of handholding on heart rate variability in both patients with cancer and their family caregivers: a randomized crossover study. Biopsychosoc Med. 2021;15:14. doi:10.1186/s13030-021-00217-y
153	In fact, scientists now believe	Mercado E, Hibel LC. I love you from the bottom of my hypothalamus: The role of stress physiology in romantic pair bond formation and maintenance. Soc Personal Psychol Compass. 2017;11(2):e12298. doi:10.1111/spc3.12298
154	And let's not forget that	Kort R, Caspers M, van de Graaf A, van Egmond W, Keijser B, Roeselers G. Shaping the oral microbiota through intimate kissing. Microbiome. 2014;2:41. doi:10.1186/2049-2618-2-41
155	Simultaneously, we are addicted to	Ritchie H, Mathieu E, Roser M, Ortiz-Ospina E. Internet. Our World in Data. Published online June 4, 2024. Accessed December 29, 2024. https://ourworldindata.org/internet
156	But instead, we are on	Duke É, Montag C. Smartphone addiction, daily interruptions and self-reported productivity. Addict Behav Rep. 2017;6:90-95. doi:10.1016/j.abrep.2017.07.002
157		(PDF) Smartphones distract parents from cultivating feelings of connection when spending time with their children. Accessed December 29, 2024. https://www.researchgate.net/publication/324448097_Smartphones_distract_parents_from_cultivating_feelings_of_connection_when_spending_time_with_their_children
158		Li C, Liu D, Dong Y. Self-Esteem and Problematic Smartphone Use Among Adolescents: A Moderated Mediation Model of Depression and Interpersonal Trust. Front Psychol. 2019;10:2872. doi:10.3389/fpsyg.2019.02872
159	It is also associated with	Li C, Liu D, Dong Y. Self-Esteem and Problematic Smartphone Use Among Adolescents: A Moderated Mediation Model of Depression and Interpersonal Trust. Front Psychol. 2019;10:2872. doi:10.3389/fpsyg.2019.02872
160	For example, parents who use	(PDF) Smartphones distract parents from cultivating feelings of connection when spending time with their children. Accessed December 29, 2024. https://www.researchgate.net/publication/324448097_Smartphones_distract_parents_from_cultivating_feelings_of_connection_when_spending_time_with_their_children
161	That includes "less curiosity, lower	Twenge JM, Campbell WK. Associations between screen time and lower psychological well-being among children and adolescents: Evidence from a population-based study. Prev Med Rep. 2018;12:271-283. doi:10.1016/j.pmedr.2018.10.003

Ref No.	1st Five Words of Sentence	Reference
162	**It's sobering to consider that**	Nagata JM, Cortez CA, Cattle CJ, et al. Screen Time Use Among US Adolescents During the COVID-19 Pandemic. JAMA Pediatr. 2022;176(1):94-96. doi:10.1001/jamapediatrics.2021.4334
163	**And it's no coincidence that**	Twenge JM, Cooper AB, Joiner TE, Duffy ME, Binau SG. Age, period, and cohort trends in mood disorder indicators and suicide-related outcomes in a nationally representative dataset, 2005-2017. J Abnorm Psychol. 2019;128(3):185-199. doi:10.1037/abn0000410
164	**The rates of depression and**	Twenge JM, Cooper AB, Joiner TE, Duffy ME, Binau SG. Age, period, and cohort trends in mood disorder indicators and suicide-related outcomes in a nationally representative dataset, 2005-2017. J Abnorm Psychol. 2019;128(3):185-199. doi:10.1037/abn0000410
165	**In 2023, the U.S. Surgeon**	Office of the Surgeon General (OSG). Our Epidemic of Loneliness and Isolation: The U.S. Surgeon General's Advisory on the Healing Effects of Social Connection and Community. US Department of Health and Human Services; 2023. Accessed December 29, 2024. http://www.ncbi.nlm.nih.gov/books/NBK595227/
166	**Science says that spiritual health**	Mueller PS, Plevak DJ, Rummans TA. Religious Involvement, Spirituality, and Medicine: Implications for Clinical Practice. Mayo Clinic Proceedings. 2001;76(12):1225-1235. doi:10.4065/76.12.1225
167		Koenig HG. Religion, Spirituality, and Health: The Research and Clinical Implications. ISRN Psychiatry. 2012;2012:278730. doi:10.5402/2012/278730
168	**On average, people who are**	Koenig HG. Religion, Spirituality, and Health: The Research and Clinical Implications. ISRN Psychiatry. 2012;2012:278730. doi:10.5402/2012/278730
169	**Religious practice and spirituality are**	Britt KC, Boateng ACO, Sebu J, et al. The association between religious beliefs and values with inflammation among Middle-age and older adults. Aging Ment Health. 2024;28(10):1343-1350. doi:10.1080/13607863.2024.2335390
170		Ironson G, Lucette A, Hylton E, Pargament KI, Krause N. The Relationship Between Religious and Psychospiritual Measures and an Inflammation Marker (CRP) in Older Adults Experiencing Life Event Stress. J Relig Health. 2018;57(4):1554-1566. doi:10.1007/s10943-018-0600-8
171	**There are many aspects of**	Trivedi G, Sharma K, Saboo B, et al. Humming (Simple Bhramari Pranayama) as a Stress Buster: A Holter-Based Study to Analyze Heart Rate Variability (HRV) Parameters During Bhramari, Physical Activity, Emotional Stress, and Sleep. Cureus. 15(4):e37527. doi:10.7759/cureus.37527
172		Inbaraj G, Rao RM, Ram A, et al. Immediate Effects of OM Chanting on Heart Rate Variability Measures Compared Between Experienced and Inexperienced Yoga Practitioners. Int J Yoga. 2022;15(1):52-58. doi:10.4103/ijoy.ijoy_141_21
173		Vickhoff B, Malmgren H, Åström R, et al. Music structure determines heart rate variability of singers. Front Psychol. 2013;4:334. doi:10.3389/fpsyg.2013.00334
174		Bernardi L, Sleight P, Bandinelli G, et al. Effect of rosary prayer and yoga mantras on autonomic cardiovascular rhythms: comparative study. BMJ. 2001;323(7327):1446-1449.
175		Doufesh H, Ibrahim F, Ismail NA, Wan Ahmad WA. Effect of Muslim Prayer (Salat) on α Electroencephalography and Its Relationship with Autonomic Nervous System Activity. J Altern Complement Med. 2014;20(7):558-562. doi:10.1089/acm.2013.0426

Ref No.	1st Five Words of Sentence	Reference
176		Molins F, Pérez-Calleja T, Abad-Tortosa D, Alacreu-Crespo A, Serrano-Rosa MÁ. Positive emotion induction improves cardiovascular coping with a cognitive task. PeerJ. 2021;9:e10904. doi:10.7717/peerj.10904
177		Adlakha K, Mathur MK, Datta A, Kalsi R, Bhandari B. Short-Term Effect of Spiritual Music on Heart Rate Variability in Medical Students: A Single-Group Experimental Study. Cureus. 15(2):e34833. doi:10.7759/cureus.34833
178	**This is called having a**	Takano R, Nomura M. A closer look at the time course of bodily responses to awe experiences. Sci Rep. 2023;13:22506. doi:10.1038/s41598-023-49681-2
179	**In an eight- week study**	Sturm VE, Datta S, Roy ARK, et al. Big Smile, Small Self: Awe Walks Promote Prosocial Positive Emotions in Older Adults. Emotion. 2022;22(5):1044-1058. doi:10.1037/emo0000876

CHAPTER 9:

The Plant Powered Plus Protocol

11 REFERENCES

Ref No.	1st Five Words of Sentence	Reference
1	**Negative energy doesn't serve you**	Steptoe A, Hamer M, Chida Y. The effects of acute psychological stress on circulating inflammatory factors in humans: a review and meta-analysis. Brain Behav Immun. 2007;21(7):901–912. doi:10.1016/j.bbi.2007.03.009.
2	**Research has decisively shown that**	McDonald D, Hyde E, Debelius JW, et al. American Gut: an Open Platform for Citizen Science Microbiome Research. mSystems. 2018;3(3). doi:10.1128/mSystems.00031-18
3		Fackelmann G, Manghi P, Carlino N, et al. Gut microbiome signatures of vegan, vegetarian and omnivore diets and associated health outcomes across 21,561 individuals. Nat Microbiol. 2025;10(1):41-52. doi:10.1038/s41564-024-01870-z
4	**Reducing FODMAP intake, which we**	Bodini G, Zanella C, Crespi M, et al. A randomized, 6-wk trial of a low FODMAP diet in patients with inflammatory bowel disease. Nutrition. 2019;67-68:110542. doi:10.1016/j.nut.2019.06.023
5		Pedersen N, Ankersen DV, Felding M, et al. Low-FODMAP diet reduces irritable bowel symptoms in patients with inflammatory bowel disease. World J Gastroenterol. 2017;23(18):3356-3366. doi:10.3748/wjg.v23.i18.3356
6		Silva AR, Bernardo A, de Mesquita MF, et al. An anti-inflammatory and low fermentable oligo, di, and monosaccharides and polyols diet improved patient reported outcomes in fibromyalgia: A randomized controlled trial. Front Nutr. 2022;9:856216. doi:10.3389/fnut.2022.856216
7	**We know from the American**	McDonald D, Hyde E, Debelius JW, et al. American Gut: an Open Platform for Citizen Science Microbiome Research. mSystems. 2018;3(3). doi:10.1128/mSystems.00031-18
8	**This was clearly shown in**	Lasselin J, Karshikoff B, Axelsson J, et al. Fatigue and sleepiness responses to experimental inflammation and exploratory analysis of the effect of baseline inflammation in healthy humans. Brain Behav Immun. 2020;83:309-314. doi:10.1016/j.bbi.2019.10.020
9	**Growing evidence suggests that neuroinflammatio n**	DANTZER R, HEIJNEN C, KAVELAARS A, LAYE S, CAPURON L. The Neuroimmune Basis of Fatigue. Trends Neurosci. 2014;37(1):39-46. doi:10.1016/j.tins.2013.10.003
10	**It's no coincidence that chronic**	Kmiecik C. Fatigue Survey Results Released. Autoimmune Association. March 23, 2015. Accessed January 14, 2025. https://autoimmune.org/fatigue-survey-results-released/
11	**But even in a healthy**	Junghaenel DU, Christodoulou C, Lai JS, Stone AA. Demographic Correlates of Fatigue in the US General Population: Results from the Patient-Reported Outcomes Measurement Information System (PROMIS) Initiative. J Psychosom Res. 2011;71(3):117-123. doi:10.1016/j.jpsychores.2011.04.007

Additional Relevant Research

This reference companion provides the scientific sources that support the claims, mechanisms, and clinical insights presented in *Plant Powered Plus.* It is intended for readers who wish to explore the underlying research, including clinicians, researchers, and scientifically curious readers.

Because *Plant Powered Plus* does not include numerical citations within the text, this document serves as a transparent, organized index of the peer-reviewed literature, clinical trials, systematic reviews, and authoritative reports that informed the book. My approach to supporting my work is defined further in **The Ultimate Companion Guide to Plant Powered Plus.**

Study Design and Rationale

The research was conducted in 2025 by ProDigest (Belgium) using the validated M-SHIME® (Mucosal Simulator of the Human Intestinal Microbial Ecosystem), an advanced laboratory model that closely replicates conditions of the human colon, including both luminal (gut contents) and mucosal (gut lining) environments.

The model was inoculated with gut microbiota from five healthy adult donors to reflect real-world interindividual variability. DMN was administered over a 15-day period at two dosing levels:

Standard dose: 5.6 g/day (once daily)

High dose: 11.2 g/day (twice daily)

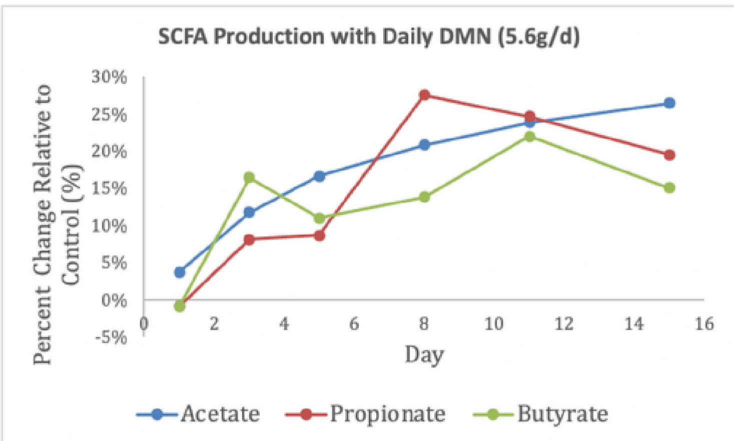
Key outcomes measured included short-chain fatty acid (SCFA) production, microbial composition (via shotgun metagenomics), toxic fermentation byproducts (ammonium), and immune signaling markers.

Key Findings

1. Rapid and Sustained Increases in Beneficial SCFAs

DMN produced a coordinated rise in all three major SCFAs:

- Acetate increased within 3 days
- Propionate rose significantly by Day 8
- Butyrate, critical for gut barrier integrity and immune tolerance, increased by over 20% at standard dose and by 130% at the higher dose



Importantly, SCFA production continued to rise despite a constant daily dose, indicating microbiome adaptation—the microbes became more efficient at fermenting substrates over time.

2. Reduction in Harmful Fermentation Byproducts

DMN shifted microbial metabolism away from proteolytic fermentation, resulting in a 23–24% reduction in ammonium, a toxic byproduct associated with dysbiosis, mucosal irritation, and inflammation.

3. Favorable Microbiome Remodeling

Supplementation led to consistent enrichment of health-associated taxa:

⇧ Bifidobacterium: foundational fiber-fermenting organisms.

⇧ Akkermansia muciniphila: a keystone species linked to gut barrier integrity, metabolic health, and immune regulation.

⇩ Bilophila wadsworthia: an inflammation-associated bacterium linked to high-fat, low-fiber diets, was significantly suppressed.

4. Anti-Inflammatory Immune Signaling

Microbial changes were accompanied by meaningful shifts in immune markers:

- TNF-α decreased by 17%. TNF-α is a key pro-inflammatory immune signal that drives tissue damage when overactive.
- IL-10 increased by 15%. IL-10 is a key anti-inflammatory immune signal that promotes immune calm and healing.

At the higher dose, reductions in TNF-α were amplified and MCP-1, a chemokine involved in chronic inflammation, was also significantly reduced—supporting a clear dose-response effect.

Why This Matters

Together, these findings demonstrate that DMN addresses multiple hallmarks of modern microbiome dysfunction: inadequate SCFA production, toxic fermentation byproducts, loss of beneficial microbes, and low-grade inflammation. The results mechanistically support the book's central premise that feeding the microbiome—consistently and comprehensively—is foundational to gut, immune, and whole-body health.

This research complements human clinical trials on DMN's core ingredients (including Solnul resistant potato starch and Actazin green kiwifruit powder), which have independently shown improvements in microbial composition, bowel function, and digestive health in human studies.

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