

Health Benefits of Dietary Fiber

Anderson JW, Baird P, Davis RH Jr, Ferreri S, Knudtson M, Koraym A, Waters V, Williams CL. Health benefits of dietary fiber. *Nutr Rev.* 2009 Apr;67(4):188-205. doi: 10.1111/j.1753-4887.2009.00189.x. PMID: 19335713.

Abstract: Dietary fiber intake provides many health benefits. However, average fiber intakes for US children and adults are less than half of the recommended levels. Individuals with high intakes of dietary fiber appear to be at significantly lower risk for developing coronary heart disease, stroke, hypertension, diabetes, obesity, and certain gastrointestinal diseases. Increasing fiber intake lowers blood pressure and serum cholesterol levels. Increased intake of soluble fiber improves glycemia and insulin sensitivity in non-diabetic and diabetic individuals. Fiber supplementation in obese individuals significantly enhances weight loss. Increased fiber intake benefits a number of gastrointestinal disorders including the following: gastroesophageal reflux disease, duodenal ulcer, diverticulitis, constipation, and hemorrhoids. Prebiotic fibers appear to enhance immune function. Dietary fiber intake provides similar benefits for children as for adults. The recommended dietary fiber intakes for children and adults are 14 g/1000 kcal. More effective communication and consumer education is required to enhance fiber consumption from foods or supplements.

Lack of Exercise is a Major Cause of Chronic Diseases

Booth FW, Roberts CK, Laye MJ. Lack of exercise is a major cause of chronic diseases. *Compr Physiol.* 2012 Apr;2(2):1143-211. doi: 10.1002/cphy.c110025. PMID: 23798298; PMCID: PMC4241367.

Abstract: Chronic diseases are major killers in the modern era. Physical inactivity is a primary cause of most chronic diseases. The initial third of the article considers: activity and prevention definitions; historical evidence showing physical inactivity is detrimental to health and normal organ functional capacities; cause versus treatment; physical activity and inactivity mechanisms differ; gene-environment interaction (including aerobic training adaptations, personalized medicine, and co-twin physical activity); and specificity of adaptations to type of training. Next, physical activity/exercise is examined as primary prevention against 35 chronic conditions [accelerated biological aging/premature death, low cardiorespiratory fitness (VO₂max), sarcopenia, metabolic syndrome, obesity, insulin resistance, prediabetes, type 2 diabetes, nonalcoholic fatty liver disease, coronary heart disease, peripheral artery disease, hypertension, stroke, congestive heart failure, endothelial dysfunction, arterial dyslipidemia, hemostasis, deep vein thrombosis, cognitive dysfunction, depression and anxiety, osteoporosis, osteoarthritis, balance, bone fracture/falls, rheumatoid arthritis, colon cancer, breast cancer, endometrial cancer, gestational diabetes, pre-eclampsia, polycystic ovary syndrome, erectile dysfunction, pain, diverticulitis, constipation, and gallbladder diseases]. The article ends with consideration of deterioration of risk factors in longer-term sedentary groups; clinical consequences of inactive childhood/adolescence; and public policy. In summary, the body rapidly maladapt to insufficient physical activity, and if continued, results in substantial decreases in both total and quality years of life. Taken together, conclusive evidence exists that physical inactivity is one important cause of most chronic diseases. In addition, physical activity primarily prevents, or

delays, chronic diseases, implying that chronic disease need not be an inevitable outcome during life.

Probiotics and Constipation: Mechanisms of Action, Evidence for Effectiveness and Utilization by Patients and Healthcare Professionals

Dimidi E, Mark Scott S, Whelan K. Probiotics and constipation: mechanisms of action, evidence for effectiveness and utilisation by patients and healthcare professionals. *Proc Nutr Soc.* 2020 Feb;79(1):147-157. doi: 10.1017/S0029665119000934. Epub 2019 Jul 2. Erratum in: *Proc Nutr Soc.* 2020 Feb;79(1):170. PMID: 31262376.

Abstract: The aim of this narrative review is to assess and present evidence on the mechanisms of action of probiotics in constipation, their effectiveness and their utilisation by patients and healthcare professionals. Chronic constipation is a common bothersome disorder that has a considerable impact on patients' quality of life. Probiotics have been increasingly investigated for their effectiveness in various disorders, including chronic constipation. Probiotics may affect gut motility and constipation through their impact on the gut microbiota and fermentation, the central and enteric nervous system and the immune system. However, evidence for the effectiveness of probiotics in the management of constipation remains varied, with some strains demonstrating improvements, while others show no effect. Despite the uncertainty in evidence and the fact that the majority of healthcare professionals do not recommend probiotics for constipation, an increased prevalence of probiotic use by people with constipation has been shown. Therefore, there is a need for public health strategies to inform the public about where strong evidence of probiotic effectiveness exist, and where evidence is still weak. Education of healthcare professionals on the increased utilisation of probiotics for constipation by the public and on current evidence for the effectiveness of specific strains is also required.

Whole Fruits and Fruit Fiber Emerging Health Effects

Dreher ML. Whole Fruits and Fruit Fiber Emerging Health Effects. *Nutrients.* 2018 Nov 28;10(12):1833. doi: 10.3390/nu10121833. PMID: 30487459; PMCID: PMC6315720.

Abstract: Less than 10% of most Western populations consume adequate levels of whole fruits and dietary fiber with typical intake being about half of the recommended levels. Evidence of the beneficial health effects of consuming adequate levels of whole fruits has been steadily growing, especially regarding their bioactive fiber prebiotic effects and role in improved weight control, wellness and healthy aging. The primary aim of this narrative review article is to examine the increasing number of health benefits which are associated with the adequate intake of whole fruits, especially fruit fiber, throughout the human lifecycle. These potential health benefits include: protecting colonic gastrointestinal health (e.g., constipation, irritable bowel syndrome, inflammatory bowel diseases, and diverticular disease); promoting long-term weight management; reducing risk of cardiovascular disease, type 2 diabetes and metabolic syndrome; defending against colorectal and lung cancers; improving odds of successful aging; reducing the severity of asthma and chronic obstructive pulmonary disease; enhancing psychological well-being and lowering the risk of depression; contributing to higher bone mineral density in children and adults; reducing risk of seborrheic dermatitis; and helping to attenuate autism spectrum disorder severity. Low whole fruit intake represents a potentially

more serious global population health threat than previously recognized, especially in light of the emerging research on whole fruit and fruit fiber health benefits.

Effectiveness of Fiber Supplementation for Constipation, Weight Loss, and Supporting Gastrointestinal Function: A Narrative Review of Meta-Analyses

McRae MP. Effectiveness of Fiber Supplementation for Constipation, Weight Loss, and Supporting Gastrointestinal Function: A Narrative Review of Meta-Analyses. *J Chiropr Med.* 2020 Mar;19(1):58-64. doi: 10.1016/j.jcm.2019.10.008. Epub 2020 Aug 29. PMID: 33192192; PMCID: PMC7646157.

Abstract:

Objective: The purpose of this narrative review is to determine whether published meta-analyses support the use of fiber supplementation in the treatment of constipation, weight loss, and dietary support for gastrointestinal disorders such as irritable bowel syndrome (IBS) and inflammatory bowel disease.

Methods: A PubMed search from January 1, 1980, to July 31, 2019, was conducted with the following search strategy: (fiber OR fibre) AND (meta-analysis OR systematic review) AND (constipation OR body weight OR obesity OR irritable bowel syndrome OR inflammatory bowel disease). Meta-analyses that provided quantitative statistical analysis with a measured effect size were retrieved and accepted into this review. The following was extracted and entered into an Excel spreadsheet: number of publications included in the meta-analysis, number of total participants, fiber type and daily dose, pooled treatment effects for clinical endpoints, or summary relative risks.

Results: Eighteen meta-analyses support dietary fiber supplementation for patients with constipation, weight loss, and IBS, but the significant heterogeneity and publication bias undermine the support for using dietary fiber supplementation in these conditions.

Conclusion: This narrative review of meta-analyses finds some benefits for recommending fiber supplementation to patients with constipation, obesity, and IBS, but significant heterogeneity and publication bias undermine this support.

Chronic constipation: A review of literature

Forootan M, Bagheri N, Darvishi M. Chronic constipation: A review of literature. *Medicine (Baltimore).* 2018 May;97(20):e10631. doi: 10.1097/MD.0000000000010631. PMID: 29768326; PMCID: PMC5976340.

Abstract:

Background: Chronic constipation is described as a common complication determined by difficult and/or rare passage of stool or both. The difference in definition of constipation has led to a wide range of reported prevalence (i.e., between 1% and 80%). Various factors are involved in the pathogenesis of the disease, including type of diet, genetic predisposition, colonic motility, absorption, social economic status, daily behaviors, and biological and pharmaceutical factors. Diagnostic and therapeutic options play a key role in the treatment of chronic constipation. There are still debates about the timing of these diagnostic and therapeutic algorithms.

Methods: A systematic and comprehensive search will be performed using MEDLINE, PubMed, EMBASE, AMED, the Cochrane Library and Google Scholar. Better understanding of the

pathophysiology of chronic constipation and efficacy of pharmacological agent can help physicians for treating and managing symptoms. In this study, some of the old and new therapies in the treatment of chronic constipation have been studied based on the controlled studies and strong evidence. We are trying to address some of the controversial issues to manage the disease and to provide appropriate diagnostic options in an efficient and cost-effective way.

Results: The results of this systematic review will be published in a peer-reviewed journal.

Conclusion: To our knowledge, our study will provide an overall estimate of chronic constipation to assess controversial issues, available diagnostic and therapeutic strategies of chronic constipation.