



International Journal of Home Science

ISSN: 2395-7476

IJHS 2020; 6(2): 295-299

© 2020 IJHS

www.home-sciencejournal.com

Received: 08-03-2020

Accepted: 10-04-2020

Singh Nirupma

Research Scholar, Department of Food Nutrition and Public Health, SHUATS, Prayagraj, Uttar Pradesh, India

Dubey Ritu

Associate Professor, Department of Food Nutrition and Public Health, SHUATS, Prayagraj, Uttar Pradesh, India

Paul Virginia

Professor, Department of Food Nutrition and Public Health, SHUATS, Prayagraj, Uttar Pradesh, India

A systematic review on essentials of healthy eating

Singh Nirupma, Dubey Ritu and Paul Virginia

Abstract

Enough solid evidence now exists to offer women several fundamental strategies for healthy eating. They include emphasizing healthful unsaturated fats, whole grains, good protein “packages,” and fruits and vegetables; limiting consumption of trans and saturated fats, highly refined grains, and sugary beverages; and taking a multivitamin with folic acid and extra vitamin D as a nutritional safety net. A diet based on these principles is healthy through virtually all life stages, from young adulthood through planning for pregnancy, pregnancy, and on into old age. Consuming a healthy diet throughout the life-course helps to prevent malnutrition in all its forms as well as a range of non-communicable diseases (NCDs) and conditions. However, increased production of processed foods, rapid urbanization and changing lifestyles have led to a shift in dietary patterns. People are now consuming more foods high in energy, fats, free sugars and salt/sodium, and many people do not eat enough fruit, vegetables and other dietary fibre such as whole grains. The exact make-up of a diversified, balanced and healthy diet will vary depending on individual characteristics (e.g. age, gender, lifestyle and degree of physical activity), cultural context, locally available foods and dietary customs. However, the basic principles of what constitutes a healthy diet remain the same.

Keywords: Diet, health, cardiovascular disease, cancer, pregnancy, fertility

Introduction

Eating and food are important to people. Even when we are not actually consuming food, thinking about food and longing for food play a key role in our lives with people making more than 200 food decisions daily (Wansink & Sobal, 2007) ^[1] and food desires making up about one-third of our desires during the day (Hofmann, Baumeister, Förster, & Vohs, 2012) ^[2]. Evolutionarily, people have evolved to like eating because it is significant for survival (Pinel, Assanand, & Lehman, 2000) ^[3]. In addition to its biological function, eating is also a principal social and cultural activity that people tend to enjoy for aesthetic or communal reasons (Rozin, 1999) ^[4]. However, food is no longer a sole source of pleasure and enjoyment nowadays, but has increasingly become a cause of concern because of its potential consequences for ill health. The prime reason for such concern has been the growing epidemic of overweight resulting from our obesogenic environment with plenty of cheap and high caloric foods available at any place any time. A substantial proportion of the population worldwide, including children and adolescents, is now overweight, with far-reaching consequences in terms of increased risk of chronic illness (World Obesity Federation, 2014) ^[5, 25]. The overweight epidemic has spurred research into the health consequences of overeating and overweight, and information about this has found its way to the general public that now tends to associate eating with health, especially in the US (Rozin, Fischler, Imada, Sarubin, & Wrzesniewski, 1999) ^[6]. A healthy diet can be defined as a pattern of food intake that has beneficial effects on health or at least no harmful effects. Although it has proven difficult to specify the exact nutritional elements that contribute to health, as we will discuss in the next section, there is consensus about the essential features of nutritionally poor quality diets. These are characterised by higher intakes of processed foods, sugar-sweetened beverages, trans and saturated fats, and added salt and sugar, and lower intakes of fresh fruits, vegetables, nuts and whole grains. However, as it has proven difficult to establish a firm body of empirical evidence about the *specific* elements of a healthy diet, governmental expert panels who are responsible for communication of nutritional guidelines to the general public tend to derive recommendations from observational studies.

Corresponding Author:

Singh Nirupma

Research Scholar, Department of Food Nutrition and Public Health, SHUATS, Prayagraj, Uttar Pradesh, India

Impact of Healthy Diet on Our Daily Routine

Many people tend to associate eating with health these days and information about the health consequences of certain foods is ubiquitous both in lay blogs and professional guidelines. In view of this widespread information of the health consequences of food, the actual scientific evidence for protective or harmful effects of specific nutrients or foods is surprisingly weak or mixed, and in many cases subject of heavy debate amongst researchers.

Dietary Fat

Dietary fat is a terribly misunderstood and mistakenly maligned nutrient. Myths and messages that have persisted since the 1960s warn that “fat is bad.” That dangerous over simplification has helped launch dozens of largely ineffective diets and the development of thousands of fat-free but calorie-laden foods. It has also helped fuel the twin epidemics of obesity and type 2 diabetes. The message “fat is bad” is problematic because there are four main types of dietary fat with dramatically different effects on health. Trans fats from partially hydrogenated oils are undeniably bad for the cardiovascular system and the rest of the body. These largely man-made fats elevate harmful low-density lipoprotein (LDL) cholesterol, reduce protective high-density lipoprotein (HDL) cholesterol, stimulate inflammation, and cause a variety of other changes that damage arteries and impair cardiovascular health. Higher intake of trans fat has been associated with an increased risk for developing cardiovascular disease, type 2 diabetes, gall stones, dementia, and weightgain. Saturated fats from red meat and dairy products increase harmful LDL, but also increase HDL. A moderate intake of saturated fat (under 8% of daily calories) is compatible with a healthy diet, whereas consumption of greater amounts has been associated with cardiovascular disease. Monounsaturated and polyunsaturated fats from vegetable oils, seeds, nuts, whole grains, and fish—especially the polyunsaturated omega-3 fatty acids—are important components of a healthy diet and are also essential for cardiac health. Eating polyunsaturated fats in place of saturated and trans fats lowers harmful LDL, elevates protective HDL, improves sensitivity to insulin, and stabilizes heart rhythms.⁶ Dietary fat per se is not associated with risk of chronic disease. In fact, diets that include up to 40% of calories from fat can be quite healthy if they are low in trans and saturated fat and emphasize polyunsaturated and monounsaturated fat.⁷ Although definitive data are not available on the optimal proportions of dietary fats, a low intake of trans and saturated fat and a higher intake of unsaturated fats reduce the risk of cardiovascular disease and diabetes.

Carbohydrates

In the United States, the reduction in the intake of dietary fat from 45% of calories in 1965 to approximately 34% today was accompanied by an increase in the intake of carbohydrates.⁸ These extra carbohydrates were largely in the form of highly processed grains. Processing removes fibre, healthful fats, and an array of vitamins, minerals, and phytonutrients, making processed grains such as white flour or white rice nutritionally impoverished compared with whole-grain versions. Consumption of a diet rich in highly processed grains is associated with an increase in triglycerides and a reduction in protective HDL.⁹ These adverse responses may be aggravated in the context of insulin resistance, which often develops during pregnancy. The prevalence of insulin resistance and type 2 diabetes are both increasing in the

United States and around the world.

The Glycemic Index

The glycemic response refers to the measurable increase in blood sugar after consuming carbohydrates. The greater the postprandial spike in glucose a food generates, the greater that food’s glycemic index. Highly refined grains cause a more rapid and a greater overall increase in blood sugar than less-refined whole grains. Greater glycemic responses are accompanied by increased plasma insulin levels, which are thought to be at the root of metabolic syndrome and have also been implicated in ovulatory infertility. Diets with a high glycemic index or glycemic load (the product of dietary glycemic index and total carbohydrate intake) appear to increase the risks of type 2 diabetes and coronary artery disease, particularly among women who have some insulin resistance. The dramatic loss of fiber and micronutrients during the milling process may also contribute to these adverse effects of highly processed grains. In contrast, whole grains and foods made from whole grains, along with fruits, vegetables, and beans, provide slowly digested carbohydrates that are rich in fiber, vitamins, minerals, and phytonutrients. A substantial body of evidence indicates that eating whole grains or cereals high in fiber, rather than highly refined grains, reduces the risk of cardiovascular disease and type 2 diabetes.¹⁵ Although reductions in the risk of colon cancer by diets rich in whole-grain fiber have been difficult to document, such a dietary pattern has been clearly associated with reductions in constipation and diverticular disease.

Protein

To the metabolic systems engaged in protein production and repair, it is immaterial whether amino acids come from animal or plant protein. However, protein is not consumed in isolation. Instead, it is packaged with a host of other nutrients. The quality and amount of fats, carbohydrates, sodium, and other nutrients in the “protein package” may influence long-term health. For example, results from the Nurses’ Health Study suggest that eating more protein from beans, nuts, seeds, and the like, while cutting back on easily digested carbohydrates reduces the risk of heart disease. In that study, eating more animal protein while cutting back on carbohydrates did not reduce heart disease risk, possibly because of the fats and other nutrients that come along (or don’t come along) with protein from animals.

Vegetables and Fruits

“Eat more fruits and vegetables” is timeless advice that has the backing of a large body of evidence. Vegetables and fruits provide fiber, slowly digested carbohydrates, vitamins and minerals, and numerous phytonutrients that have been associated with protection against cardiovascular disease, aging-related vision loss due to cataract and macular degeneration, and maintenance of bowel function. The connection between vegetables and fruits and cancer is less well established. Although they do not have a blanket anticancer effect, fruits and vegetables may work against specific cancers, including esophageal, stomach, lung, and colorectal cancer.¹⁸ Fruits and vegetables should be consumed in abundance, which means a minimum of five servings a day and more is better. As few as 1 in 4 persons in the United States meet this guideline.

Vitamins and Minerals

An optimal diet generally provides all the vitamins, minerals,

and other micro nutrients needed for good health. However, many women in the U.S., and a very large percentage of poor women, do not follow optimal diets. Thus, for most women a daily multivitamin-multi mineral supplement provides good insurance against nutritional deficiencies. Such supplements usually include extra iron, which is needed by the 9% to 11% of premenopausal women with iron deficiency. The most firmly established benefit of vitamin supplements is that additional folic acid can reduce the risk of neural tube defects by approximately 70%. Current guidelines call for all women of childbearing age to take a daily supplement containing 400 to 800 micrograms (μg) of folic acid, or 4 milligrams (mg) for women with a child with a neural tube defect. Calcium is important for the maintenance of bone strength. World Health Organization guidelines recommend an intake of 400 mg/day. In the United Kingdom, 700 mg/day is considered adequate for women aged 19 years and older. In the United States, dietary guidelines recommend that adult women receive 1,500 mg of calcium daily,²⁸ in large part by consuming 3 servings of low-fat or fat-free dairy products a day.²⁹ A lower-calorie, no-fat option is to get calcium from supplements. For maintaining bone strength, other factors—including physical activity and vitamin D—are as important, or more important, than calcium. There is mounting evidence that current recommendations for vitamin D (200–600 IU/day, depending on age) are too low, and that 1,000 IU/day provides better protection against fractures and possibly heart disease and some cancers³⁰ (see Focus on Vitamin D). Excess intake of preformed vitamin A (retinol) has been associated with an increased risk of hip fracture, possibly by competing with vitamin D.³¹ However, elevated risk is seen at intakes slightly higher than the current Dietary Reference Intake of 700 μg per day. Given this concern, a multivitamin that delivers much of its vitamin A as beta-carotene is preferred.

Problems with Assessing Health Effects of Nutrition

There are certain factors which should alert the primary health care team to the fact that nutritional intake may be reduced and that risk of malnutrition is increased. These include disease condition, functional disabilities, inadequate or inappropriate food intake, poor dentition or difficulty swallowing, poly pharmacy, alcoholism, depression, poor social circumstances or recent discharge from hospital. Patients suffering from these factors need to be identified so that screening becomes a routine part of their medical treatment. At-risk groups include the elderly, the chronically ill, those with cancer and neurological disorders, post-surgical patients and children with developmental disabilities. In the community, practice and community nurses see the majority of at-risk patients and should carry out screening. A number of screening tools have been developed for community use. Most are aimed at the elderly population, but there are others designed to assess nutritional risk in children with developmental disabilities and the general population. These are reviewed and problems of content and validity identified.

Mediterranean Diet

In recent years, research on nutrition and health has shifted towards a greater emphasis on dietary patterns instead of single nutrients or foods, acknowledging that individuals eat foods in a variety of combinations that may have interactive and potentially cumulative effects on health status. In particular, beneficial effects of the Mediterranean diet have been reported (Estruch *et al.*, 2013; De Lorgeril *et al.*, 1999)^[22, 10, 21]. The Mediterranean diet refers to a collection of

eating habits traditionally followed by people in the countries bordering the Mediterranean Sea and typically consists of high consumption of fruits and vegetables, legumes and complex carbohydrates (whole grains), a moderate consumption of fish and low consumption of red meat, olive oil as the main source of fat, low-to-moderate consumption of red wine, and low-to-moderate consumption of milk and dairy products. A recent meta-analysis including >2 million people has suggested a significant protection against chronic illness for people who report a greater degree of adherence to this diet with 6–13% reduction of death and/or incidence of neurodegenerative disease, cardiovascular illness and cancer. These findings were replicated in a Cochrane review, albeit the conclusions were somewhat more modest and call for replication with studies that address the heterogeneity of participants and the number of Mediterranean components included (Rees *et al.*, 2013)^[23].

Health Risks of Overweight

In contrast with the mixed and inconclusive findings on the effect of specific dietary elements on health (with the exception of the Mediterranean diet), the health effects of overweight and obesity – and thus of eating too much rather than eating a specific diet – are relatively straightforward and robust. This corresponds with the results from a systematic review of the association between healthy dietary patterns and weight status, suggesting that quantity of intake plays an important role in weight gain (Nutrition Evidence Library of the US Department of Agriculture, 2014)^[24]. Overweight results from eating too much in combination with low levels of physical activity: when energy intake exceeds energy expenditure, the excess energy is stored in the body as fat mass and when fat accumulation is excessive a person has overweight or obesity, as measured by Body Mass Index (BMI: weight in kilograms divided by height in metres squared), waist circumference, or body fat. In almost all European countries the prevalence of overweight and obesity has increased in the past decades, just like in the US, Canada and Australia (Seidell, 2002; World Obesity Federation, 2014)^[5, 25]. According to global estimates of the World Health Organization (WHO, 2016)^[26], almost two billion adults are overweight (40% of the population), of whom over 600 million are obese, and an estimated 41 million children under the age of five years are overweight or obese. In Europe, the percentage of adults being overweight (excluding obesity) ranges from 36% in the Netherlands and Belgium up to 40% in Spain, and for obesity the percentages range from 10% in the Netherlands and Belgium up to 25% in Italy (World Obesity Federation, 2016)^[27]. While malnutrition has been the leading cause of global mortality for centuries, nowadays more people die from eating too much rather than too little (Ng *et al.*, 2014)^[28]. Obesity harms virtually every aspect of health, from shortening life and contributing to chronic conditions such as diabetes and cardiovascular disease to interfering with breathing and mood. It does this through a variety of pathways, some as straightforward as the mechanical stress of carrying extra pounds and some involving complex changes in hormones and metabolism. The condition most strongly influenced by body weight is type 2 diabetes. A meta-analysis of 89 studies on weight-related diseases revealed that diabetes was at the top of the risk list. Compared with people in the normal weight range (BMI < 25), men with BMIs >30 had a 7-fold higher risk of developing type 2 diabetes, and women with BMIs >30 had a 12-fold higher risk. (Guh *et al.*, 2009)^[31, 29]. Body weight is

also directly associated with various cardiovascular risk factors. As BMI increases, so do blood pressure, low-density lipoprotein (LDL or 'bad') cholesterol, triglycerides, blood sugar and inflammation, increasing the risk for coronary heart disease (Bogers *et al.*, 2007) [30]. The association between obesity and cancer is not as clear as that for diabetes and cardiovascular disease and depends on the type of cancer. A meta-analysis suggests direct associations between obesity and cancers of the breast, colon and rectum, endometrium, oesophagus, kidney, ovary and pancreas (Guh *et al.*, 2009) [31, 29]. Excess weight has also been linked with asthma and obstructive sleep apnea and osteoarthritis of the knee and hip, as are back pain and disability due to musculoskeletal conditions. Finally, overweight and obesity are also related to mental health. A meta-analysis of 15 studies that followed 58,000 participants up to 28 years found that people who were obese at the start of the study had a 55 per cent higher risk of developing depression, while depressed people had a 58 per cent higher risk of becoming obese (Luppino *et al.*, 2010) [32].

Summary and Conclusions

There is poor evidence for health protective effects of single foods or nutrients. Moreover, direct health effects of specific nutrients and foods may be negligible when compared with the pervasive health effects of overweight which is the result of overeating on all kinds of (primarily high caloric) foods. It should also be noted that many results found in observational studies on nutrition and health have not been replicated in randomised controlled trials with more rigorous designs.

References

1. Wansink B, Sobal J. Mindless eating: The 200 daily food decisions we overlook. *Environment and Behavior*. 2007; 39:106-123. [10.1177/0013916506295573](https://doi.org/10.1177/0013916506295573)
2. Hofmann W, Baumeister RF, Förster G, Vohs KD. Everyday. Temptations An experience sampling study of desire, conflict, and self-control. *Journal of Personality and Social Psychology*. 2012; 102:1318-1335. [10.1037/a0026545](https://doi.org/10.1037/a0026545).
3. Pinel JP, Assanand S, Lehman DR. Hunger, eating, and ill health. *American Psychologist*. 2000; 55:1105-1116. [10.1037/0003-066X.55.10.1105](https://doi.org/10.1037/0003-066X.55.10.1105).
4. Rozin P. Food is fundamental, fun, frightening, and far-reaching. *Social Research*. 1999; 66:9-30.
5. World Obesity Federation. Changes in percentage adult obesity prevalence over time in selected countries around the globe, 2014.
6. Rozin P, Fischler C, Imada S, Sarubin A, Wrzesniewski A. Attitudes to food and the role of food in life in the USA, Japan, Flemish Belgium and France: Possible implications for the diet-health debate. *Appetite*. 1999; 33:163-180. [10.1006/appe.1999.0244](https://doi.org/10.1006/appe.1999.0244).
7. Verhoeven A, Adriaanse MA, De Vet E, Fennis BM, De Ridder DTD. It's my party and i eat if i want to: Reasons for unhealthy snacking. *Appetite*. 2015; 84:20-27. [10.1016/j.appet.2014.09.013](https://doi.org/10.1016/j.appet.2014.09.013)
8. Mann T, De Ridder DTD, Fujita, K. Self-regulation of health behavior: Social-psychological approaches to goal setting and goal striving. *Health Psychology*. 2013; 32:487-498. [10.1037/a0028533](https://doi.org/10.1037/a0028533)
9. Mozaffarian D, Katan MB, Ascherio A, Stampfer MJ, Willett WC. Trans fatty acids and cardiovascular disease. *N Engl J Med*. 2006; 354(15):1601-13. [PubMed: 16611951]
10. De Lorgeril M, Salen P, Martin JL, Monjaud I, Delaye J,

- Mamelle N *et al.* Mediterranean diet, traditional risk factors, and the rate of cardiovascular complications after myocardial infarction: final report of the Lyon Diet Heart Study. *Circulation*. 1999; 99(6):779-85. [PubMed: 9989963]
11. USDA Center for Nutrition Policy and Promotion. Nutrition Insights: Is total fat consumption really decreasing?. Beltsville, MD: USDA Center for Nutrition Policy and Promotion, 1998. Available from: <http://www.cnpp.usda.gov/Publications/NutritionInsights/insight5.pdf>
12. Mensink RP, Katan MB. Effect of dietary fatty acids on serum lipids and lipoproteins: a meta-analysis of 27 trials. *Arteriosclerosis and Thrombosis*. 1992; 12:911-9. [PubMed: 1386252]
13. Ludwig DS. Clinical update: the low-glycaemic-index diet. *Lancet*. 2007; 369(9565):890-2. [PubMed: 17368136]
14. Lann D, LeRoith D. Insulin resistance as the underlying cause for the metabolic syndrome. *MedClin North Am*. 2007; 91(6):1063-77. viii. [PubMed: 17964909]
15. Schulze MB, Liu S, Rimm EB, Manson JE, Willett WC, Hu FB *et al.* Glycemic index, glycemic load, and dietary fiber intake and incidence of type 2 diabetes in younger and middle-aged women. *AmJ Clin Nutr*. 2004; 80(2):348-56. [PubMed: 15277155]
16. Halton TL, Willett WC, Liu S, Manson JE, Albert CM, Rexrode K *et al.* Low-carbohydrate-diets score and the risk of coronary heart disease in women. *N Engl J Med*. 2006; 355(19):1991-2002. [PubMed: 17093250]
17. National Research Council (U.S.). Committee on Diet and Health. Diet and health: implications for reducing chronic disease risk. Washington, D.C: National Academy Press, 1989. Available from: http://www.nap.edu/catalog.php?record_id=1222#toc.
18. Stampfer MJ, Hu FB, Manson JE, Rimm EB, Willett WC. Primary prevention of coronary heart disease in women through diet and lifestyle. *N Engl J Med*. 2000; 343(1):16-22. [PubMed: 10882764]
19. Looker AC, Dallman PR, Carroll MD, Gunter EW, Johnson CL. Prevalence of iron deficiency in the United States. *JAMA*. 1997; 277(12):973-6. [PubMed: 9091669]
20. MRC Vitamin Study Research Group. Prevention of neural tube defects: results of the Medical Research Council Vitamin Study. *Lancet*. 1991; 338(8760):131-7. [PubMed: 1677062]
21. De Lorgeril M, Salen P, Martin JL, Monjaud I, Delaye J, Mamelle N *et al.* Mediterranean diets, traditional risk factors, and the rate of cardiovascular complications after myocardial infarction: Final report of the Lyon diet heart study. *Circulation*. 1999; 99:779-785. [10.1161/01.CIR.99.6.779](https://doi.org/10.1161/01.CIR.99.6.779) [Crossref], [PubMed], [Web of Science @],
22. Estruch R, Ros E, Salas-Salvadó J, Covas MI, Corella D, Arós F *et al.* Primary prevention of cardiovascular disease with a mediterranean diet. *New England Journal of Medicine*. 2013; 368:1279-1290. [10.1056/NEJMoa1200303](https://doi.org/10.1056/NEJMoa1200303)
23. Rees K, Hartley L, Flowers N, Clarke A, Hooper L, Thorogood M *et al.* Mediterranean dietary pattern for the primary prevention of cardiovascular disease. *Cochrane Database of Systematic Reviews*, 8. Art. No, 2013. CD009825.
24. Nutrition Evidence Library of the US Department of Agriculture. A series of systematic reviews on the

- relationship between dietary patterns and health outcomes. Alexandria, VA, 2014.
25. World Obesity Federation. Changes in percentage adult obesity prevalence over time in selected countries around the globe, 2014.
 26. World Health Organization, 2016. Retrieved from: <http://www.who.int/mediacentre/factsheets/fs311/en/>.
 27. World Obesity Federation, 2016. Retrieved from <http://www.worldobesity.org/resources/>
 28. Ng M, Fleming T, Robinson M, Thomson B, Graetz N *et al*. Global, regional, and national prevalence of overweight and obesity in children and adolescents during 1980-2013: A systematic analysis for the Global Burden of Disease Study 2013. *The Lancet*. 2014; 384:766-781.10.1016/S0140-6736(14)60460-8 [Crossref], [PubMed], [Web of Science ®], [Google Scholar]
 29. Guh DP, Zhang W, Bansback N, Amarsi Z, Birmingham CL, Anis AH *et al*. The incidence of co-morbidities related to obesity and overweight: A systematic review and meta-analysis. *BMC Public Health*, 2009; 9:1197. 10.1186/1471-2458-9-88.
 30. Bogers RP, Bemelmans WJ, Hoogenveen RT, Boshuizen HC, Woodward M, Knekt P *et al*. Association of overweight with increased risk of coronary heart disease partly independent of blood pressure and cholesterol levels: A meta-analysis of 21 cohort studies including more than 300,000 persons. *Archives of Internal Medicine*. 2007; 167:17208.
 31. Guh DP, Zhang W, Bansback N, Amarsi Z, Birmingham CL, Anis AH *et al*. The incidence of co-morbidities related to obesity and overweight: A systematic review and meta-analysis. *BMC Public Health*. 2009; 9:1197. 10.1186/1471-2458-9-88.
 32. Luppino FS, DeWit LM, Bouvy PF, Stijnen T, Cuijpers P, Penninx BW, Zitman FG *et al*. Overweight, obesity, and depression: A systematic review and meta-analysis of longitudinal studies. *Archives of General Psychiatry*. 2010; 67:2209.