

The Role of Nutrient Rich Diets in Preventing Chronic Diseases

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ABSTRACT: A proper diet is vital to preserving health and wellness and also has an essential function in holding off the beginning of chronic conditions. A well-balanced diet regimen with key nutrients can considerably lower the risk of acquiring a series of conditions. Keeping nutritional balance can be called eating a range of dishes from various food groups in the ideal percentages to meet the body's everyday nutrient demands. The human body needs a well-balanced and also varied diet regimen to function effectively and keep outstanding wellness. A diet plan doing not have the necessary nutrients can cause a variety of health and wellness concerns, consisting of malnutrition, chronic conditions, as well as an endangered immune system. On the other hand, eating undesirable meals or taking in a lot of calories may lead to weight problems and other health issues.

KEYWORDS-nutrient, diets, preventing, diseases, chronic, role

I. INTRODUCTION

A balanced diet is important for keeping optimal wellness and preventing chronic conditions. The body may obtain all the essential nutrients it requires to function appropriately by eating a variety of dishes from different food teams in the correct amounts. It is vital to maintain a well-balanced diet and also make sensible food choices to promote overall health and wellness and also health. [1,2,3]

The body requires dietary balance for the complying with reasons:

a) Keeps general health intact:

By providing all the vital nutrients needed for diverse procedures consisting of the development, advancement, as well as repair service of physical tissues, a well-balanced diet regimen help in keeping the body's basic health.

b) Protects Against Persistent Diseases:

The threat of persistent diseases consisting as heart problems, diabetes, as well as cancer cells can be decreased by eating a diet high in fruits, veggies, whole grains, as well as lean healthy protein sources.

c) Increases resistance:

A healthy and balanced immune system depends on consuming a well-balanced diet plan. The body makes use of nutrients like zinc and vitamins A, C, as well as E, to eliminate health problems and infections.

d) Promotes psychological health and wellness:

The mind calls for a constant supply of important nutrients for efficient operation. A well-balanced diet regimen helps enhance mood, memory, as well as cognitive performance.

e) Preserves a healthy and balanced weight:

A balanced diet regimen can aid in maintaining a healthy weight by offering the body the right amount of calories and also nutrients. [4,5,6]

f) Improves power degrees:

By making certain that you have access to a steady supply of power, a balanced diet regimen may assist you to stay concentrated and productive throughout the day.

g) Sustains bone health and wellness:

Getting appropriate calcium and also vitamin D can aid protect against conditions like osteoporosis. These nutrients are important for healthy and balanced bones.

Understanding Persistent Problems.

- Lasting clinical ailments that last for a very long time are referred to as persistent illnesses.
- They have a huge impact on an individual's quality of life and are essential international sources of disease and also mortality.

- Kind 2 diabetic issues, obesity, certain hatreds, cardio problems (consisting of cardiovascular disease and also stroke), and also hypertension are examples of typical persistent problems.

Relationship In Between Nutrition and Persistent Illness.

- The onset, progression, and also prevention of persistent diseases are significantly influenced by appropriate eating.
- Persistent ailments are made more likely by unhealthy eating patterns characterized by an abundance of processed foods, sugar, salt, as well as hydrogenated fats.
- On the other hand, cardiovascular disease might be avoided by eating a balanced diet that is high in fresh vegetables and fruits, entire grains, lean meats, as well as healthy fats.

Essential Nutrients For Protecting Against Chronic Disease:

a) Anti-oxidants.

- Anti-oxidants, which include the vitamins A, C, and E in addition to the minerals selenium as well as zinc, aid in preventing oxidative cell damage.
- Consuming foods solid in anti-oxidants consisting of fruits, veggies, nuts, and seeds can decrease your chance of getting chronic diseases like cancer, heart disease, and neurological issues.

b) Minerals.

- Both the preservation of a healthy digestive tract as well as the prevention of persistent illnesses is enabled by nutritional fiber.
- Entire grains, fruits, veggies, vegetables, as well as nuts, are examples of high-fiber foods that can assist with weight administration, manage blood glucose degrees, lower cholesterol, and also reduce the danger of illness consisting of diabetes mellitus, excessive weight, and also colon cancer cells.[7,8,9]

c) Omega-3 Fatty Acids:

- Eicosatetraenoic acid (EPA) as well as docosahexaenoic acid (DHA), specifically, have anti-inflammatory impacts as well as improve cardiovascular wellness.
- Omega-3 fatty acids, which might be gotten with foods like walnuts, flaxseed, and chia seeds, as well as fatty fish (like salmon and mackerel), assist to lower inflammation, stopping heart disease, and boosting cognitive efficiency.

d) Calcium as well as Vitamin D:

- For the upkeep of healthy and balanced bones as well as the prevention of the weakening of bones, a diet high in calcium and vitamin D is required.
- Leafed greens, milk items, fortified plant-based milk, sunlight, and leafy greens are all resources of these nutrients, which advertise bone health and reduced the incidence of fractures and persistent bone illnesses.

e) Phytochemicals.

- Phytochemicals, which are bioactive particles located in plants, may benefit human health and wellness.
- diet regimens abundant in phytochemicals, such as carotenoids as well as flavonoids, which might be discovered in foods like tomatoes, berries, as well as citrus fruits in addition to in foods like carrots as well as tomatoes.
- You might prevent persistent conditions like cancer and cardiovascular diseases by taking in every one of these.

What Is A Nutritionally Well-Balanced Diet?

A diet plan that is abundant in nutrients and also provides the body with all the crucial components required for permanent health and wellness and also well-being is claimed to be nutritionally loaded.

Fruits, veggies, whole grains, lean healthy proteins, and also healthy and balanced fats are simply a couple of examples of the numerous items from various food categories that need to be included in a versatile and also nutrient-rich diet.

A few of the essential elements of a diet regimen rich in nutrients are listed here:

a) Fruits and vegetables:

- These foods are nutrient-dense and consist of considerable amounts of fiber, antioxidants, vitamins, as well as minerals.

- They add to lowering the threat of persistent conditions like diabetes, cancer cells, and also cardiovascular disease.[10,11,12]
- b) Whole grains:
- These provide the body with the nutrients it needs while also offering a great deal of fiber.
 - They help reduce the risk of diabetes, heart problem, and also stroke too.
- c) Lean proteins:
- Among them are fish, lean meats, beans, and nuts.
 - Because of their high focus on these vital amino acids, they give the body the required amino acids required for tissue development and also fixing.
- d) Healthy fats:
- Monounsaturated as well as polyunsaturated fats from nuts, seeds, fatty fish, as well as vegetable oils are examples of these.
 - They aid in decreasing the danger of kind 2 diabetes mellitus, heart disease, and stroke.
- e) Water:
- For the body to function at its best, particularly for digestion, vitamin absorption, and transport, water is critical.
 - It also helps in maintaining fluid balance and also regulating body temperature.
- f) Minerals and also vitamins.
- These are crucial nutrients that the body needs in moderate total up to sustain a selection of tasks.
 - Various foods, such as fruits, vegetables, whole grains, and also lean meats, contain them.
 - A diet rich in nutrients needs to likewise restrict the consumption of refined as well as high-fat meals, sweetened drinks, as well as foods high in salt.
 - These meals can make you most likely to create chronic health problems and make you put on weight.

Nutritional Effects of Lifestyle Factors:

Other lifestyle variables are equally as essential for preventing chronic illnesses as diet is:

- a) Physical exercise.
- Regular exercise lowers your chances of developing chronic diseases and maintains you generally healthy.
 - Maintaining a healthy weight, enhancing cardiovascular health, raising insulin sensitivity, and strengthening bones are just a few benefits of engaging in physical activities including aerobic exercise, strength training, and flexibility training.
- b) Stress management:
- Prolonged stress can harm one's health and encourage the development of chronic diseases.
 - Participating in hobbies and practicing stress-reduction techniques like yoga, meditation, and mindfulness can improve overall well-being and reduce the risk of stress-related disorders.
- c) Maintaining a Healthy Weight:
- The likelihood of having chronic illnesses like diabetes, heart disease, and several forms of cancer increases considerably when a person is overweight.
 - Achieving and maintaining a healthy weight while engaging in regular physical exercise is crucial since it can prevent the onset of chronic diseases.
 - Nutrition is very important in preventing chronic disorders. A well-balanced diet full of vital nutrients can significantly reduce a person's risk of developing diseases such as cardiovascular disease, type 2 diabetes, obesity, and numerous cancers.
 - By adding regular exercise, stress reduction techniques, and maintaining a healthy weight, preventative measures become even more effective. Prioritizing healthy eating habits and promoting a holistic approach to overall well-being is essential for the greatest sickness prevention and long-term health.[13]

II.DISCUSSION

The global prevalence of chronic diseases is rapidly increasing with a growing and aging population. According to the Centers for Disease Control and Prevention (CDC), this includes a variety of diseases which are defined as long-term health conditions that progress slowly, persist over an extended period, and require constant medical attention. Obesity, cardiovascular disease (CVD), chronic kidney disease (CKD), chronic respiratory diseases, and neurodegenerative diseases such as Huntington's disease (HD) are all included in chronic

degenerative diseases. It is well-established that nutrition and its various facets play an important role in one's development and growth; therefore, poor nutrition is one of the major risk factors for chronic diseases¹.

Nutritional transition during the last decade, where the world shifted from consumption of foods based on cereals, fruits, and vegetables into foods rich in saturated fats, simple sugar associated with diets characterized by high energy intake is believed to be the main contributor to the onset of chronic diseases². To prevent chronic diseases, the Mediterranean Diet (MD) proved to be beneficial as it encourages a diet that includes fruits, vegetables, nuts, whole grains, and healthy fats and is rich in minerals and vitamins. Therefore, intake of MD along with specific nutrients such as triheptanoin, L-acetyl-carnitine, and creatine could prevent HD, a rare neurodegenerative disorder associated with low MD adherence³. Extra virgin olive oil, often considered a component of MD, is used in the treatment of CKD due to its antioxidant and anti-inflammatory effects⁴. Moreover, increasing the consumption of citrus fruits, grapefruits, bitter oranges, and olive leaves can reduce CVD risk by improving flow-mediated vasodilation, blood pressure, lipid profile, thrombotic status, oxidative stress, inflammation, and quality of life⁵.

Fruits and vegetables are very crucial to health as they offer a wide range of important benefits. Research was conducted to assess the effect of a high intake of fruits and vegetables on chronic respiratory diseases, and it was found that consumption of high fruits and vegetables, specifically apples⁶ and oranges⁶, is associated with reduced risk of developing asthma and wheezing in children and adults⁷. Another research stated that a diet consisting of high-alkaline foods (fruits, vegetables, legumes, and potatoes) and low acidogenic foods (meat, fish, cheese, and rice) contributed to lowering the risk for cardiometabolic disorders⁸.

To prevent chronic diseases and maintain metabolic health, we should focus on the constituents of the diet and the times at which the diet is consumed. Chrono-nutrition is a concept introduced by Dr Alain Delabos in 1989, which is based on the understanding that our bodies have internal biological clocks that are responsible for regulating various physiological processes in our body, including metabolism, digestion, and energy expenditure. Since late-night eating and irregular eating are much more common nowadays, individuals are at risk of developing cardiometabolic disorders and increased adiposity, which may lead to obesity⁹. Therefore, an individual should focus on dietary strategies that help in timing the intake of nutrients in a way that is in line with our internal biological clocks. Among several strategies, chrono-nutritive therapy is based on chronobiology, which is characterized by eating most calories and carbohydrates at lunchtime or during the early afternoon, avoiding late evening dinner. This could effectively promote weight loss and prevent obesity and other related chronic conditions¹⁰.

As the world progresses and new ideas are being discovered, a growing number of scientists are developing integrative approaches to study the effect of nutrition on the genetic composition of an individual. One such concept is nutrigenomics, which is defined as the study of the interaction between dietary components and the genome. Nutrigenomics would allow us to highlight common dietary chemicals that may, directly or indirectly, alter gene expression. According to this information, dietary intervention based on knowledge of nutritional requirements, nutrition status, and genotype can be used to prevent or cure chronic diseases¹¹.

III.RESULTS

Chronic diseases, such as heart disease, stroke, cancer, and diabetes, are a significant global public health concern. According to the World Health Organisation, chronic diseases account for more than 70% of deaths globally with their prevalence rising rapidly in low-and middle-income countries. In India, chronic diseases are becoming increasingly common and are responsible for 60% of deaths. Research has shown that adequate nutrition can play an important role in preventing chronic diseases.

A healthy diet rich in fruits, vegetables, whole grains, lean protein, and healthy fats can reduce the risk of chronic diseases, while a diet high in processed and fried foods, sugar, and saturated fats can amplify the risk. Despite the evidence, a significant number of individuals in India and globally do not follow a healthy dietary pattern, hence making themselves vulnerable to chronic diseases.[12,13,14]

The Centers for Disease Control and Prevention (CDC) defines chronic diseases as, "conditions that last one year or more and require ongoing medical attention or limit activities of daily living or both." These include heart disease, cancer and diabetes, which are the leading causes of death and disability in the United States.

People often believe that if they have family members with these chronic conditions, they are destined to also have these health problems. However, genetics is only about 20% of what determines our health. Lifestyle behaviors determine the other 80%. Tobacco use, physical inactivity, excessive alcohol and poor nutrition are leading risk behaviors of chronic diseases. Poor nutrition can be summarized as diets low in fruits and vegetables, high in sodium and high in saturated fats.

Eating for health

Good nutrition is key to staying healthy at any age. People with healthy eating patterns live longer and have less risk of chronic diseases. But what about those who already have one or more diagnosed chronic conditions? Healthy eating can help to manage these conditions and prevent further complications. With improved eating can sometimes come a reduction in medication use!

Including more plant foods can benefit us in many ways to fight against chronic diseases. For example, research shows that there is a lower risk for cardiovascular disease (CVD), type 2 diabetes, and cancer for vegetarians than for omnivores (meat eaters). Planning meals based around vegetables, fruits, whole grains, beans, legumes, nuts and seeds can be a great start to improving your health. This change emphasizes nutrient-dense, fibrous foods that many of us lack in a typical American diet.

By creating a more plant-forward plate, you are getting more of these beneficial nutrients:

- Antioxidants – Protect our bodies cells against damaging free-radicals. These can help to protect against some types of cancer.
- Fiber – Can help to reduce cholesterol that can lead to clogged arteries, heart attack, and stroke. Can help to regulate blood sugar levels and with weight management, making us feel fuller longer.
- Potassium – Helps to regulate blood pressure, making our organs jobs easier.
- Less sodium – When eating at home more often and eating minimally processed foods; helps to regulate blood pressure.
- Less saturated fat – Can help prevent buildup of plaque in arteries that cause constriction or blockages in vessels that lead to heart attack or stroke.
- Less added sugar – Leaves more space for nutrient- and fiber-dense carbohydrate sources that help to promote better blood sugar control and insulin sensitivity.

Consider how many cups of fruits and vegetables you eat each day. Can you increase one or both of those numbers by an additional cup each day? Incorporate them into a family favorite or build a snack around a produce item.

How many times per week do you forgo meat in a meal? Start a new routine by introducing “Meatless Mondays.” Try batch prepping your veggies ahead of time so they are easy to include with meals. Buy fruits and veggies you enjoy eating raw so that they require minimal time to include in a packed lunch or snack. Try a new recipe with a plant-based protein. Use fresh herbs and spices while they are in-season to flavor your food.

Eating more whole, plant-based foods does not happen overnight for most, but every step toward including more plants helps your body stay healthy, strong and resilient to anything life or genetics throw your way.

IV.CONCLUSION

Hunger and malnutrition are the most devastating problems facing the world’s poorest nations and affect nearly 30% of humanity.

Health consequences of malnutrition include disability and stunted mental and physical growth. They affect hundreds of millions of people, especially in the developing world, where approximately 60% of deaths among children under the age of five years are associated with malnutrition.

Preventable causes of nutrition-related diseases include:

- Iodine deficiency, a cause of brain damage and mental retardation,
- Iron deficiency, a cause of anemia,
- Vitamin A deficiency, a cause of childhood blindness.

Slowed growth in the womb, which leads to low birth weight, affects nearly a quarter of all newborn babies. It can profoundly influence childhood growth, survival, and physical and mental capacity, as well as increase the risk of developing diet-related chronic diseases later in life.

Many developing countries now face persisting food insecurity and undernutrition as well as emerging epidemics of chronic diseases, such as obesity, heart disease, hypertension, stroke, and diabetes. This is not surprising, given the rapidity with which traditional diets and lifestyles are changing across the world.

This double burden of disease can be most effectively addressed by integrating policies and programmes designed to prevent chronic diseases such as obesity, as well as nutritional deficiencies and food-related infectious diseases. Indeed, sufficient, safe and varied food supplies prevent malnutrition while reducing the risk of chronic diseases. Such an integrated approach is recommended for both developing and developed countries.[14]

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