

ROLE OF DIET AND LIFESTYLE FACTORS ON GUT MICROBIOTA AND ITS IMPACT ON HUMAN HEALTH

Abstract

According to trophology, diet indicates as the meal which routinely taken through a person. During the therapy of particular diseases, and management of these diseases proper diet and lifestyle is important and diet may be restricted i.e. one that meets the physical requirements of the persons. Diet promote the healthy life .In modern scenario, fast food, fried foods, and most bakery foods, street food are consumed is trends, but this foods are unhealthy and it kills the good bacteria of the intestine and create a barrier in absorption of nutrients .Gut microflora are the very important for the overall health .Healthy lifestyle habits are also important for the digestive health, cardiovascular diseases, and gut health and also improved the quality of life. Dietary fiber is improved the intestinal health and encourage the development of beneficial microorganism of the intestine .Fermented foods good for intestinal health. plants based diet are the good source of dietary fiber ,minerals rich in vitamins, etc, which is important for the good microbiota health. Polyphenols rich foods ,and probiotic foods are the good for the digestive tract and intestinal health. Overall eating a colorful fruits and vegetables are the promote the good health.

Modern era treating the intestinal diseases and gastrointestinal diseases and digestive diseases etc use of medicine as well as diet and lifestyle is most important part. If accepting a healthy diet and lifestyle, in future almost many diseases are in controlled and come in the fast recovering stage

Keyword: Diet, Lifestyle, Gut Microbiota, polyphenols and probiotic foods, health

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I. INTRODUCTION

Beneficial micro-organism is hidden gems and scrutinize as digestive organ of the body¹. Gut microbiome or gut flora are the microorganism that lives in the digestive tracts of human body. Complex microbial communities are the integral part of the ecosystem and our bodies in health and diseases¹. Proper nutrition and active lifestyle with restricted calorie is promote the growth of healthy microbiota and its act against the various type of diseases. Microbiota is defined as “Collection of Microorganism living in defined environment”². Gut bacteria plays a beneficial role in good health like absorption of nutrients, integration of vitamin K, help the support of the digestion of cellulose and promoting vascularization and abdominal nerves function³. The beneficial bacteria of the intestine construct the nutritional constituents like volatile fatty acids, vitamin B, vitamin K⁴. Many researches have suggested that gut microbiota beneficial in regulating and various persistent diseases, such as ulcerative colitis, chrohn diseases IBD, weight gain, insulin resistance diabetes, heart diseases CVD, cancer⁵. Diet and lifestyle both are important factors if both are bad or not good than they give birth to other diseases^{3,4,5}. Improper or unhealthy diet is involve in increasing the metabolic diseases, such as overweight, diabetes mellitus and high blood pressure, GB stone etc.⁵. The contribution of dietary factors is fermented by the human gut microbiome. In this review evidence regarding the dietary fiber intake gut microbiota regulation, and modification in human health.

Dietary fiber is a CHO in plant food and legumes, which have been prominent in human diet for several of years⁶. The all dietary habits involve in good or bad condition of the health such as inflammatory conditions, IBD inflammatory bowel diseases, abnormalities in tissue sclerosis and bone decay.

A modern diet has been linked to the health and it's capable in promoting the diseases like pro inflammation, and the other hand the conventional dietary pattern that are linked as being contrary to inflammation⁷. It is show the strong relationship or direct effect of the nutrients on human immunity and body function.

Dietary factors also affect the function of good gut intestinal micro flora, it accordingly affect the immunity. Intestinal beneficial bacteria importance in overall health disruption to the gut microorganism; have been a many health problem⁷. In present scenario faulty lifestyle habits like poor sleep, excessive alcohol consumption restrictive poor diet and inactiveness are harms the gut health.

II. SYMPTOMS OF IMPROPER FUNCTIONING OF INTESTINE

Most of the western culture and unhealthy lifestyle can affect the health inclusion

- Hypertension,
- sleep,
- eating processed ,junk food
- drugs
- It affects the health such as
- immunity
- Hormones

- other diseases
- Weight⁸

1. Stomach Discomfort: It can be signs of an unhealthy gut included

- bloating ,
- indigestion ,
- dyspepsia
- irritating bowel

A healthy gut will be have the less difficulty to digestion of food and eliminating the waste material.

- 2. Refined Sugary Diet:** A diet rich in processed food and refined sugars can decrease the amount good bacteria. It may increased the inflammation in the body^{8,9} .
- 3. Weight Management:** Incidentally weight changes may be a sign and symptoms of an unhealthy gut. In Asymmetry of gut health can impair the body's ability to absorbed a nutrients, regulate blood sugar level, and stored the fat^{8,9}. Changing in weight may be caused by the malabsorption because of intestinal bacterial overgrowth (SIBO). On the other hand, weight gain may be the caused by impaired insulin sensitivity
- 4. Fatigue and Interruption of Sleep:** An inequality of gut bacteria may be linked to interruption of sleep .Less sleep duration is also causes the fatigue⁸.
- 5. Skin Allergy or Diseases:** Skin diseases such as psoriasis' may be related to the bacteria which present in gut¹⁰. Small concentration of good bacteria may affect the body immunity
- 6. Organ Specific Condition:** Many researches show the relation between the gut health and immunity, harmful gut bacteria may increased the swelling and alter the immunity¹¹. This can lead to the organ specific diseases, where the body attacks itself
- 7. Food sensitivity- Food sensitivity is the result of difficulty in digestion of specific food^{11,12}:**
- Food intolerances are the result of difficulty digesting certain foods^{11,12}. This is different from a food allergy, immune system is react the certain or specific type of food like lactose intolerance, it caused by a poor quality of bacteria present in the gut¹². Digestive systems are interrupted such as –
 - bloating ,
 - cramp in abdomen,
 - diarrhea

III. IMPROVE THE GUT HEALTH WITH HEALTHY DIET AND LIFESTYLE¹³

Many type of factors, including healthy diet and lifestyle is affect the gut health. That is

1. **Eat Healthy Varieties of Food:** Eating variety of food is promote a good health and decreased the risk of diseases. Keeping the diet interesting with different flavor and texture¹⁴. Food and vegetables are the best sources of the nutrients which promote the healthy microbiome
2. **High Fibrous Food Which is Good for Gut Microbiota¹⁵ -**
 - Raspberries
 - Artichokes
 - Green pea
 - Broccoli
 - Lentils
 - Beans
 - Whole grains
 - Apples
 - Figs
3. **Consume Fermented Food:** Fermented food are the rich sources of lactobacilli bacteria that can promote the good health¹⁵. Fermented soybean milk is also promote the growth of beneficial bacteria like Bifidobacteria and Lactobacilli^{15,16}. It decreases the other quantity of harmful bacteria .
4. **Includes Plant Based Diet:** Alternative diet developed increasingly around the world, it used for human wholesome environment benefits¹⁷. Many researches are identifies the relationship between the alternative diet and diminish of CVD, heart diseases, overweight, Metabolic diseases, other health condition.
5. **Includes Food Rich In Polyphenols:** Diet rich in phytochemical represent the immense range of compounds including in fruits vegetable, wine, tea, vergin olive oil cocoa products varieties of chochalates, which is mostly derivatives of flavones catechins and phenolic compounds have various properties such as antioxidants, anti-apoptosis, anti aging, anti-carcinogen, anti inflammation, antiatherosclerosis improvement the endothelial functionas well as inhibition of cell proliferation activity¹⁸.
6. **Probiotics Rich Diet:** Due to WHO defines probiotics “live microorganisms which administered in adequate amounts afford a human health benefits on host¹⁹. Probiotics are the microorganisms (like lactobacillus and Bifid bacterium) that when consumed (as nutrition supplement) maintains or restores the healthy bacteria to the digestive tract. Few benefits of probiotics²⁰
 - Healthy Weight loss
 - Improved digestion
 - Boost immunity
 - To healthy skin
 - To overcome cardiovascular diseases, metabolic diseases etc

Probiotics can help maintain a healthy balance of healthy bacteria in your body. Healthy bacteria support your immunity and help to control inflammation. Adding foods rich in the probiotics to support overall health-

IV. DIET AND LIFESTYLE AFFECT ON HEALTH AND ITS FUTURISTIC TRENDS IN MEDICAL SCIENCES

The consumption of fermented foods and probiotics to emerging applications of gut microbiota transplantation, the health benefits of manipulating the human gut microbiota has been exploited for millennia²¹. Even though this history, present advanced technology are cracking the capacity for targeted the microbial manipulation as an innovative therapeutics. Gut microbiota is the very important part of the human body. Healthy diet with lots of vegetables and fruits, and such type of polyphenols, and probiotic rich foods are important for the gut health and overall health²².

V. PLANT-BASED DIETS VERSUS CONVENTIONAL DIET

Ordinary or Conventional foods are generally the low in fat and most of them have the some macronutrient composition: 30% fat, 50% CHO and 20% of protein²³.

1. **Vegetarian:** It is also known as the ovo-lactovegetarian, this diet included the all plant-based foods, allowing eggs and dairy products also²⁴.
2. **Vegan:** This diet that consists of plant-based foods only excluded the meat, dairy, eggs, and honey²⁵. Follows this lifestyle do so for ethical or environmental reasons, and other lifestyle modifications are typically included in addition to the dietary changes.
3. **Pescatarian:** This is a largely vegetarian diet including sea foods also²⁶.
4. **Whole-foods, plant-based (WFPB):** Extremely it is similar to a vegan diet; this diet eschews the ethical baggage and focuses on the human health aspect²⁷. High in fruits, vegetables and whole grains which low in fat.
5. **Flexitarian:** This is a broad term used in vegetarian or plant-based diet, but allow for some meat, dairy, and seafood on occasion²⁸.

VI. CONVENTIONAL DIET

Conventional diets are made using the pesticides, chemical herbicides²⁹. At the same time conventional foods seems to carry the chemical residues from the insecticide, rodenticide and other chemical used in the cultivation of the plants, it is still considered be a safe for the people. Fruits such as the apple, bananas, and citrus fruits cultivate using chemical based farming mathodes³⁰.

VII. MATERIAL AND METHODS

In this study, all data have been carefully collected from Pubmed, Google scholar. We have been reviewed many research papers on gut microbiota, probiotic diet polyphenols diet. Which is help to improve digestive health and increased healthy gut microbiota. We were Reviewed paper on diet, futuristic trend in medical sciences, healthy lifestyle approach of healthy gut microbiota, to overcome the various types of diseases, and healthy lifestyle. Total 34 articles were reviewed here.

VIII. DISCUSSION

Consumed photochemical -rich fruits and vegetables, and liquors derived from plants, such as cocoa, red wine and, tea performs the diet beneficial to human health³¹. Some dietary flavanoids, polyphenols rich foods acquire antioxidative and anti-swelled properties,. These phenol substitutes have the ability to invalidate various biochemical processes activate or caused by the cyst promoters^{30,31}. Some dietary phenol substances also causes narcosis in precancerous or cancerous cells, and suppressed the growth and proliferation of another types of tumor cells via induction of cancerous cell of a specific phase of the cell cycle³⁰. In other words, “gut health” may be a new way of marketing such as weight loss tips, which go hand-in-hand with crazy fad diets³². Rather than counting a calories and drinking green juices to reduce belly fat. The gut micro biome acts a very important role in your gut health by helping the control assimilation of food and beneficial the immune system and many aspects of the health³³. Gut is also a body gets rid of metabolic waste and toxins. However, harmful guts, the body will struggle to clear itself of those toxins. If this happens the body produces a various toxins and affects the adverse effect and result is fatigue long term illness swelling throughout the body. Other facts is 70% of resistant cells can found in guts .GUT ASSOCIATED LYMPHOID TISSUE (GALT) and microbiota makes a group ,fight against foreign pathogens which make ill or sick³⁴.

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