DOI: 10.55522/ijti.V1I3.0015 **November - December 2023, Vol. 1 - Issue 3** *ISSN NO: 3048 - 4626*

IJTI | INTERNATIONAL JOURNAL OF THERAPEUTIC INNOVATION

Review article

Probiotics and human health

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Received - 05-12-2023**, Revised** - 10-12-2023, **Accepted** - 20-12-2023 **(DD-MM-YYYY)**

Refer this article

Agrani Khajuria, Vidisha Satyawali, Vijay Kumar, Amit Gupta. Probiotics and human health. International journal of therapeutic innovation, Nov-Dec 2023, V 1 - I 3, Pages - 0049 – 0052. Doi: https://doi.org/10.55522/ijti.V1I3.0015.

ABSTRACT

There are two types of bacteria in and on the human body that make up the micro biome: beneficial bacteria and harmful bacteria. Probiotics are helpful bacteria that promote health and fight off bad bacteria. A reduced level of disease-causing microorganisms in the body is one of probiotics' effects. The healthy colony of bacteria that takes place in the gut is the most frequent home for helpful microbes. Probiotic microbes may also be found in our lungs, skin, urinary system, mouth, and vagina. The balance between healthy and harmful microorganisms in our body must be maintained by probiotics. Probiotics have a wide range of positive effects, such as the prevention of cancer, the lowering of blood cholesterol, the absorption from the intestine, the boosting of the immune system, the prevention and treatment of diarrhoea, the reduction of gastrointestinal inflammation, and the relief of colitis and IBS (irritable bowel syndrome) symptoms. Probiotics help in digestion, nutrition absorption, the formation of biofilms, and the production of vitamins, particularly those in groups B and K. They also cure fungal and viral illnesses like athlete's foot. Probiotics can occasionally have negative effects on youngsters and immune compromised people.

Keywords: Probiotics, Bacteria, gut, Microbiom, Metabolism.

INTRODUCTION

The phrase "probiotics" comes from the Greek "pro bios," which means "for life." Both people and animals may support a healthy immune system by taking probiotics. Probiotics are often derived from bacteria, most frequently from the Lactobacillus and Bifidobacterium families. Among the bacteria and yeasts that can be utilized as probiotics are Lactobacillus, Bifidobacterium, and Saccharomyces boulardii. Probiotics are thought to be helpful in preventing a number of diseases. A beneficial bacterium is mostly ingested in yoghurt and as a food supplement. Probiotics provide the following benefits i.e. improved digestion; a stronger immune system; improved energy from vitamin B12 production; fresher breath from probiotics; healthier skin; fewer colds and flu; recovery from leaky gut and inflammatory bowel illness; and weight loss [1, 2].

Probiotics are defined as bacteria that positively affect the host's gut microbial balance. Alcohol use, high levels of stress, and antibiotic usage can alter the gut flora and promote the development of antibiotic-resistant strains, which impairs the body's capacity to absorb nutrients and results in digestive problems. Probiotics are beneficial microbes that exist naturally in our bodies, especially in the digestive system. Sometimes referred to as "live cultures" or "good" bacteria, they support the balance of bacteria in our intestines. To defend against other microbes that might make people ill or uncomfortable is one strategy. When

there are too many "bad" bacteria, probiotics can help eliminate them and restore intestinal balance [3, 4].

Bifidobacteria are y-shaped bacteria that are extremely advantageous to human health and are found in the intestines. Nearly 50 distinct types of these helpful bacteria have been discovered by researchers, each with distinct roles and health advantages. One of the most common bacteria and a popular probiotic is Bifidobacterium. Foodsincluding cured meats, certain wines, sauerkraut, sourdough bread, and yoghurt with added cultures, fermented milk beverages, buttermilk, and some kinds of cheese all contain Bifidobacterium. These helpful bacteria digest food, support the body's defence mechanisms against disease, and produce vitamins and other vital substances [5, 6].

Supplements containing Bifidobacteria may be used to treat various disorders' symptoms as low levels of these bacteria have been linked to a number of diseases. Eczema, diarrhoea, andconstipation are all made easier by Bifidobacterium, which also helps prevent and treat gastrointestinal infections. Bifidobacteria-rich probiotics may even lessen the symptoms andindications of some illnesses, such inflammatory bowel disease. Eating a range offibre-rich fruits, vegetables,wholegrains, nuts, seeds, and fermented foods is the greatest method to boost the quantity of these good bacteria in the gut. Microbes in the lower intestine help in digestion, immunity regulation, and defines against harmful microorganisms. However, occasionally there is a microbial imbalance that can lead to diarrhoea and other health problems [1-6].

When the gut's equilibrium has been upset by dangerous concentrations of certain bacteria, probiotics can help restore it. They have been shown to unleash defensive mechanisms, which may boost the immune system and prevent viruses from colonizing the body and spreading illnesses that are crippling. Nevertheless, there is still much to understand about probiotics' potential health advantages. Some studies suggest that consuming a probiotic together with antibiotics may lessen the likelihood of antibiotic-induced diarrhoea. Probiotics may also reduce the amount of colds you catch each year [7, 8].

Characteristics

Probiotics are live bacteria that may cross the digestive tract and improve health when taken in appropriate amounts. They are able to attach to the intestinal epithelia and colonize, which can provide health benefits to the host; they are able to maintain good viability in the harsh conditions of the gut; and they can produce bioactive substances that regulate immune function. Other crucial traits include their capacity to improve immune performance, enhance digestion, and re-establish gut bacterial balance. Particularly non-pathogenic bacteria can contribute to the gut micro biome and offer a variety of advantages, including immunological ones as well [9-12].

Advantages

When the gut's equilibrium has been upset by dangerous concentrations of certain bacteria, probiotics can help restore it. They have been shown to unleash defence mechanisms that might stimulate the immune system, prevent the colonization of germs, and prevent the development of life-threatening illnesses. Nevertheless, there is still much to understand about probiotics' potential health advantages [8-12].

- ✓ Probiotic usage has been shown to be beneficial for a variety of digestive disorders. They are widely used to treat both adults and children in medical settings to decrease diarrhoea brought on by taking antibiotics.
  - ✓ In addition to easing IBS symptoms, a number of probiotics have been demonstrated to inhibit the growth of Helicobacter pylori, a stomach colonizing bacteria associated with ulcers and stomach cancer.
  - ✓ Because yoghurt contains probiotics, lactose intolerant persons can take it often with little side effects. These bacteria assist in the small intestine's digestion of lactose before it enters the colon.
  - ✓ Consumption of probiotics significantly reduced the incidence of upper respiratory infections and flu-like symptoms.
  - ✓ Everyone requires a robust immune system, and probiotics may improve the functionality of this system.
  - ✓ Changes in the gut flora have been linked to type 2 diabetes and obesity, according to study. Probiotics have the potential to be used in weight control and disease prevention, but further study is required to

identify whether or not these changes have an influence on weight or sickness risk.

- ✓ The influence of probiotic diet on mental health is one of the more recent subfields of probiotic research. It is believed that the "gut-brain axis," or link between the gut and the brain, affects both physical and mental health.
- ✓ According to a study, probiotics may be able to both treat and prevent Listeria infection. If successful, probiotics would be less likely to disrupt the normal balance of the micro biome than the standard antibiotic treatment for this illness.
- ✓ Probiotics can shield against vaginal yeast infections, urogenital infections, and bacterial vaginosis by preserving the balance of the vaginal microbiota. Additionally, studies have shown that consuming strains of Lactobacillus rhamnosus and Lactobacillus fermentum on a regular basis might benefit vaginal flora.
- ✓ Fasig. points out that while attempting to conceive might be difficult, probiotics can make the process easier since research indicates that having a good balance of particular probiotic strains can improve your chances.
- ✓ Researchers have found that probiotics are especially helpful for the gut, which communicates with the brain and many other organ systems. They contend that preserving a balanced diet and gut flora is crucial for preventing a variety of diseases, not just gastrointestinal (GI) issues.

Disadvantages

The stomach is home to billions of bacteria and other microbes. The term "gut microbiota" refers to the group of organisms that live in the gut. According to studies, this microflora is crucial for the immune system, digestion, and gut health [7, 11].

- ✓ While some bacteria are useful to their human hosts, others are harmful. Infections, digestive problems, and other problems might arise if the normal bacterial balance in the stomach is disturbed.
- ✓ Initially using probiotics might cause gas, bloating, or diarrhoea in some people. Bloating can happen when the microbiota changes, which causes the gut bacteria to release more gas than usual.
- ✓ People with a gluten, soy, egg, dairy, or lactose allergy or intolerance may need to take caution while choosing probiotics.
- ✓ Probiotics are generally safe to use, however studies show that both children and adults with serious diseases or compromised immune systems should avoid using probiotics.
- ✓ If you have a pre-existing medical condition or a weakened immune system, you should speak to a doctor before taking any probiotic supplements.
- ✓ Probiotic bacteria occasionally have mutations that render them resistant to antibiotics. Even the harmful bacterial strains that cause diseases are susceptible to receiving these genes.
- ✓ Always get probiotics from dependable, well-known producers to lower the chance of ingesting germs resistant to antibiotics.
- ✓ Probiotics used in high dosages may produce digestive issues including gas and bloating, but symptoms are frequently temporary.
- ✓ Controlling lactobacillus septicemia, a potentially deadly illness brought on by ingesting probiotics.

Role of curd in curing or preventing any disease

We are all aware that curd is an excellent source of the lactic acid-producing bacteria that aids in the treatment or prevention of infections in their early stages by supplying energy and vigor, which enhances our immunity. In particular, lactobacillus acidophillus, one of the useful strains of lactobacillus, is included in many probiotic products to balance the body's microbiota. It also includes helpful bacteria such as bifidobacterium and lactobacillus. Many stomach illnesses and yeast infections are treated with it. Numerous studies have demonstrated that those who consume curd regularly are better able to fight off illnesses than those who do not consume any probiotics. Take the extremely severe infection typhoid, which is brought on by the pathogenic bacterium Salmonella typhimurium. This virus spreads through faeces and directly targets the intestinal tract; its frequent cause is spoiled, contaminated food and drink. Simply altering our eating habits and include natural sources of probiotics like curd in our diet can prevent or limit an infection like this [13, 14].

CONCLUSION

Since probiotics are accessible as supplements, the majority of individuals may safely take them. Foods like yoghurt, buttermilk, soft cheese, kimchi, juice, cereals, and soy products all contain natural probiotics. Probiotics of all kinds are sold and used often to support healthy living and improve gut health.

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