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Popular Article**Nutraceuticals: An overview****Sheikh Uzma Farooq¹, Aditya Sharma^{2*} and Durgesh Kumar Mishra¹**

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Abstract

Nutraceuticals are food or dietary supplements with medicinal and therapeutic properties that promote better health and prevent disease. The term "nutraceutical" is a combination of "nutrient" and "pharmaceutical". They are available in various forms, including dietary supplements, functional foods, and medical foods. The use of nutraceuticals has become increasingly popular in recent years, as society focuses more on maintaining a healthy lifestyle and preventing chronic diseases. In addition, nutraceuticals have shown promise in managing and treating certain conditions, such as diabetes, hypertension, hyperlipidaemia, and cancer.

Keywords: Nutraceuticals, Adjuvant therapy, Healthy lifestyle

Introduction

Nutraceuticals represent the merging of nutrition and pharmaceuticals. They are derived from foods or parts of foods that provide health benefits beyond basic nutrition. Nutraceuticals are gaining popularity as an alternative to prescription drugs for the prevention and treatment of various chronic diseases. They include vitamins, minerals, amino acids, herbs, and other natural supplements that can benefit overall health. Despite the perceived benefits of nutraceuticals, some experts caution that they cannot replace a healthy diet and lifestyle. Nutraceuticals should not be considered a substitute for a balanced diet, but rather a supplement to support overall health. Additionally, not all nutraceuticals are created equal, and studies have shown that the efficacy and safety of some supplements may not always meet the claims made by manufacturers. It is important to speak to a healthcare professional before adding any nutraceutical to one's daily routine.

History and Evolution of Nutraceuticals:

The concept of nutraceuticals dates back to ancient civilizations such as the Egyptians, Greeks, and Romans, who used herbs and other plant-based remedies to treat various ailments. In India, Ayurveda, a traditional system of medicine, has been using herbal preparations for thousands of years. During the 20th century, research on vitamins and minerals led to the discovery of the importance of these nutrients in preventing chronic diseases such as cancer, heart disease, and osteoporosis. In the last few decades, the concept of nutraceuticals has gained prominence as more people are turning to natural and plant-based remedies for their health needs.

Types of Nutraceuticals:

Nutraceuticals are available in various forms, including dietary supplements, functional foods, and medical foods. Dietary supplements, such as vitamins, minerals, and herbal supplements, are taken orally and offer a targeted dose of a particular nutrient. Functional foods, such as fortified cereals or beverages, contain added nutrients that offer health benefits beyond basic nutrition. Medical foods, on the other hand, are designed to meet the nutritional needs of individuals with specific medical conditions, such as diabetes or heart disease.

Some of the most commonly used Nutraceuticals include:

- a) Probiotics: living organisms that promote good gut health by aiding digestion, improving immune function, and reducing inflammation. Probiotics can be found in fermented foods like yogurt, kefir, kimchi, and sauerkraut, as well as in supplement form.

- b) Prebiotics: non-digestible fibres that feed the good bacteria in the gut, helping to improve gut health and immune function. Prebiotics occur naturally in many foods, including garlic, onions, leeks, chicory root, asparagus, and oats.
- c) Omega-3 fatty acids: essential fatty acids that have been linked to reduced risk of cardiovascular disease, Alzheimer's disease, and certain cancers. Omega-3s are found predominantly in cold-water fish like salmon, trout, and sardines, as well as in fish oil supplements.
- d) Antioxidants: compounds that protect the body's cells from damage caused by free radicals, which are formed during normal metabolic processes and can contribute to aging and disease. Antioxidants are found in fruits and vegetables, including berries, citrus fruits, and leafy greens.
- e) Phytochemicals: plant compounds that provide protection against disease, including cancer, cardiovascular disease, and neurodegenerative diseases. Examples of phytochemicals include curcumin (found in turmeric), lycopene (found in tomatoes), and resveratrol (found in grapes and red wine).



Benefits of Nutraceuticals:

Nutraceuticals offer a range of health benefits, including improved digestion, immune system support, cognitive function enhancement, and reducing risk factors for chronic diseases such as obesity, diabetes, and heart disease. They are also known to promote healthy skin, hair, and nails, and help with arthritis, joint pain, and inflammation. Nutraceuticals can help reduce the side effects of prescription drugs and improve overall well-being.

- One of the main benefits of nutraceuticals is their ability to promote better gut health, which is linked to overall health and wellbeing. Probiotics and prebiotics, for example, can help improve digestion, regulate the immune system, and reduce inflammation. By providing the gut with good bacteria, these products can help maintain a healthy balance in the digestive system.
- Another benefit of nutraceuticals is their role in disease prevention and management. Omega-3 fatty acids, for instance, have been linked to a reduced risk of cardiovascular disease, Alzheimer's disease, and some types of cancer. Antioxidants, on the other hand, protect the body's cells from damage caused by free radicals and are thought to play a role in reducing the risk of chronic diseases such as cancer, diabetes, and heart disease.
- Phytochemicals provide protection against a wide range of diseases, including cancer, cardiovascular disease, and neurodegenerative diseases.

Regulation of Nutraceuticals:

The regulation of nutraceuticals varies by country. In the United States, the Food and Drug Administration (FDA) oversees the regulation of dietary supplements but does not regulate functional foods and medical foods. The FDA does not require dietary supplements to be approved for safety or efficacy before they are marketed. However, manufacturers must ensure that their products are safe and accurately labelled. In contrast, in the European Union, the European Food Safety Authority (EFSA) regulates both dietary supplements and functional foods. EFSA requires manufacturers to provide scientific evidence showing the safety and efficacy of their products before they can be marketed.

Challenges with Nutraceuticals:

Despite their potential benefits, nutraceuticals face several challenges. Due to their lack of regulation, the safety and efficacy of some products are questionable. Consumers must be cautious when navigating the vast number of supplements available on the market. There is also the potential for interactions with other medications, and some nutraceuticals may interfere with medical treatments. Additionally, many nutraceuticals are not covered by insurance, making them less accessible to those who cannot afford them.

Nutraceuticals and the future of medicine:

As the healthcare industry shifts towards more personalized and preventative care, nutraceuticals have the potential to play a significant role in the future of medicine. Personalized nutrition, which involves tailoring diets to an individual's specific genetic makeup, lifestyle, and health needs, is gaining popularity. Genetic testing can help identify individuals' unique nutritional needs, allowing for personalized supplements and dietary recommendations. Additionally, as the demand for natural and plant-based remedies increases, the use of nutraceuticals is likely to grow.

Conclusion:

Nutraceuticals offer a range of health benefits and have gained popularity as an alternative to prescription drugs. They are available in various forms, including dietary supplements, functional foods, and medical foods. They provide a variety of health benefits, including improved gut health, better immune function, and protection against chronic diseases. However, the lack of regulation and potential for interactions with other medications can pose challenges. As the healthcare industry moves towards more personalized and preventative care, the use of nutraceuticals is likely to increase. Consumers must be cautious when selecting supplements and should speak with their healthcare provider before incorporating them into their diet. It is important to maintain a healthy diet and lifestyle with regular exercise to complement the use of nutraceuticals to ensure optimal health and wellbeing.

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