

# The Impact of Yogurt Consumption on Life Expectancy

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**Yogurt, a widely consumed dairy product that undergoes fermentation, has garnered considerable interest due to its perceived capacity to promote health and well-being. The objective of this paper is to provide a thorough examination of the scholarly literature pertaining to the correlation between the consumption of yogurt and longevity. This study investigates the nutritional composition of yogurt, the significance of probiotics, potential mechanisms affecting lifespan, and the implications of yogurt consumption on chronic diseases and gastrointestinal well-being. Based on the existing body of evidence, it can be inferred that the consumption of yogurt potentially plays a role in extending the duration of one's life by virtue of its positive impact on overall health and well-being.**

**Keywords:** Yogurt; Health Status; Life Expectancy; Chronic Diseases; Nutrients

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**T**HE role of diet in successful aging is a topic of ongoing investigation in the field of nutrition and aging research. A growing body of evidence suggested that consuming a balanced and nutritious diet is crucial for maintaining health, particularly as individuals age (1). Yogurt, an age-old dairy product that undergoes fermentation, has been consumed by diverse cultures over the course of centuries and is widely recognized for its abundant nutritional content and potential positive impact on health (2). In recent years, there has been a growing emphasis in scientific research on investigating the effects of yogurt consumption on human health and longevity (3). The correlation between the consumption of yogurt and longevity has garnered attention due to individuals' pursuit of healthier lifestyles and the desire to increase their period of disease-free existence (4). The objective of this review is to examine the current body of literature regarding the potential correla-

tion between the consumption of yogurt and longevity through focusing on the nutritional composition of yogurt, including its probiotic content, as well as the potential mechanisms that may contribute to longevity. The outcomes of this review have the potential to enhance comprehension regarding the role of yogurt in facilitating holistic well-being and its potential ramifications for augmenting longevity.

## **Nutritional Composition of Yogurt**

The widespread appeal of yogurt can be attributed not solely to its palatable taste and texture, but also to its potential health-promoting properties and high nutritional value. We encompass an in-depth exploration of the macronutrients and micronutrients present in yogurt, as well as an examination of the bioactive compounds that may contribute to its potential health benefits. Gaining knowledge about the wide range of nutrients

found in yogurt is crucial for comprehending its effects on human health and overall well-being.

### **Macronutrients in Yogurt**

Yogurt is a nutrient-dense food that provides a significant number of macronutrients, including proteins, carbohydrates, and fats. The aforementioned essential nutrients play a vital role in facilitating diverse physiological processes within the human body (5, 6). The protein content found in yogurt is significant, rendering it a valuable dietary resource for individuals, particularly those aiming to fulfill their daily protein needs. The inclusion of proteins of superior quality in yogurt plays a significant role in the preservation, restoration, and overall enhancement of muscular tissue as well as the growth of the entire body. Furthermore, the carbohydrate composition of yogurt is primarily composed of lactose, a naturally occurring sugar found in milk. Lactose serves as a readily accessible energy source, concurrently facilitating the absorption of calcium (7). The fat content of yogurt exhibits variability depending on the techniques employed during its processing and preparation. Health-conscious individuals often show a preference for low-fat and non-fat yogurt options, whereas traditional full-fat yogurt may provide supplementary health advantages owing to the inclusion of beneficial fatty acids.

### **Micronutrients in Yogurt**

Yogurt is abundant in crucial micronutrients that serve pivotal functions in sustaining overall health, in addition to its macronutrient content. Yogurt is a rich source of calcium, a vital mineral that plays a crucial role in maintaining optimal bone health (8). Sufficient consumption of calcium is imperative in order to enhance bone density and mitigate the likelihood of developing osteoporosis (9). In addition, yogurt is a rich source of various vitamins such as vitamin B12, riboflavin (B2), and vitamin D, which play crucial roles in energy metabolism, tissue regeneration, and immune system functioning (10). The inclusion of these micronutrients within yogurt enhances its nutritional composition and confers a range of health advantages.

### **Probiotics and Prebiotics**

One notable characteristic of yogurt is its composition of live bacterial cultures, commonly known as probiotics. The advantageous microorganisms, predominantly belonging to the *Lactobacillus* and *Bifidobacterium* taxonomic groups, perform a vital function in upholding the overall well-being of the gastrointestinal microbial community (11, 12). Probiotics facilitate the process of digestion and absorption of nutrients, bolster immune system functionality, and provide defense against detrimental pathogens. Furthermore, it is worth noting that certain yogurt products may incorporate prebiotic fibers, which function as nourishment for the advantageous gut bacteria, thereby stimulating their proliferation and functionality (13, 14).

### **Bioactive Compounds in Yogurt**

In addition to its composition of macronutrients and micronutrients, yogurt encompasses a diverse array of bioactive compounds that play a role in its potential positive effects on human health. The bioactive compounds mentioned, including peptides,

bioactive lipids, and antioxidants, exhibit properties that are anti-inflammatory and antioxidant in nature (15). These substances have the potential to mitigate oxidative stress and inflammation, both of which have been associated with the development of chronic diseases and the aging process.

## **Mechanisms Underlying Longevity**

### **Probiotics and Gut Health**

Yogurt contains a substantial amount of live bacterial cultures, commonly referred to as probiotics that have been recognized for their advantageous effects on gastrointestinal well-being. Probiotics are essential for the maintenance of a harmonious composition of gut microbiota, as they facilitate the proliferation of advantageous bacteria while inhibiting the growth of detrimental pathogens (16, 17). Equilibrium in the gut microbiome has been linked to enhanced digestive processes, improved absorption of nutrients, and bolstered immune system functionality (18, 19). In addition, it has been observed that probiotics have the capacity to generate short-chain fatty acids, which have been associated with a range of advantageous effects on health, such as mitigating inflammation and enhancing metabolic well-being (20, 21). These effects have the potential to contribute to the overall state of well-being and potentially influence the duration of an individual's lifespan.

### **Anti-Inflammatory and Antioxidant Properties**

Yogurt has garnered acknowledgement not solely for its nutritional abundance, but also for its prospective health advantages, encompassing anti-inflammatory and antioxidant attributes. Extensive research has been conducted on the impact of bioactive compounds, including peptides and bioactive lipids, found in yogurt, with a particular focus on their effects on inflammatory processes and oxidative stress. The bioactive compounds exhibit the capacity to regulate inflammatory pathways, leading to a decrease in the synthesis of pro-inflammatory cytokines and chemokines (22, 23). The potential of yogurt's anti-inflammatory properties lies in its ability to suppress the activity of inflammatory mediators (24). This may offer a means to alleviate chronic inflammation, a contributing factor in several age-related ailments such as cardiovascular diseases, diabetes, and neurodegenerative disorders.

In addition, the bioactive compounds present in yogurt demonstrate significant antioxidant properties, thereby safeguarding cells against oxidative harm induced by reactive oxygen species (ROS) (25, 26). The phenomenon of oxidative stress arises from a state of disequilibrium between the production of ROS and the body's capacity to counteract them with antioxidant defenses (27, 28). This condition plays a significant role in the occurrence of cellular damage and the process of aging. The antioxidants found in yogurt have the ability to eliminate free radicals, thereby counteracting their detrimental impacts and supporting the overall well-being of cells (29). The antioxidant properties of these substances have the potential to mitigate oxidative damage to lipids, proteins, and DNA, which in turn may contribute to the extension of cellular lifespan and the enhancement of overall health.

Moreover, the inclusion of diverse vitamins and minerals

in yogurt, including vitamin C, vitamin E, and selenium, serves to enhance its antioxidant potential (30, 31). These nutrients exhibit a synergistic effect with the bioactive compounds in order to counteract oxidative stress and bolster the body's antioxidant defenses (32).

In brief, the anti-inflammatory and antioxidant properties of yogurt can be attributed to its bioactive compounds, as well as the presence of various vitamins and minerals. The consumption of yogurt has the potential to contribute to the prevention of chronic diseases and promote overall health and longevity through the modulation of inflammatory pathways and the mitigation of oxidative stress.

### Impact on Chronic Diseases

Yogurt has garnered significant attention due to its potential influence on chronic diseases. A multitude of epidemiological studies have investigated the correlation between the consumption of yogurt and the likelihood of developing chronic ailments, including cardiovascular diseases, type 2 diabetes, and specific forms of cancer. The available evidence indicates that the consumption of yogurt on a regular basis may have a positive impact on lowering the likelihood of developing chronic diseases (33).

Cardiovascular diseases, such as heart disease and stroke, are significant contributors to global mortality rates. Numerous scholarly investigations have been conducted to explore the correlation between the consumption of yogurt and cardiovascular well-being. According to a meta-analysis, there exists a notable correlation between the consumption of yogurt and a considerable decrease in the likelihood of developing coronary heart disease (34). The potential mechanism behind the observed effects of yogurt on cholesterol levels, blood pressure, and endothelial function is thought to be attributed to the presence of probiotics and bioactive compounds (35).

Type 2 diabetes is a commonly occurring metabolic disorder that is distinguished by insulin resistance and elevated levels of blood sugar. Multiple studies have indicated a potential correlation between the consumption of yogurt and a decreased likelihood of developing type 2 diabetes (36-38). According to a systematic review and meta-analysis, it was found that an increased consumption of yogurt was linked to a decreased likelihood of developing type 2 diabetes (39). The potential benefits of yogurt, such as its probiotics and peptides, include the ability to enhance insulin sensitivity and improve glucose metabolism, which may have implications for the prevention of diabetes (40, 41).

Dietary factors have been found to exert an influence on the development of specific types of cancer, such as colorectal cancer. Numerous observational studies have been conducted to investigate the potential correlation between the consumption of yogurt and the incidence of different types of cancer (42). A prospective cohort study demonstrated that establish a negative correlation between the consumption of yogurt and the likelihood of developing colorectal cancer (43). The potential anti-carcinogenic effects of yogurt are believed to be attributed to the presence of probiotics and bioactive compounds (44). These components are thought to exert their influence by modulating the composition of the gut microbiota, enhancing immune func-

tion, and mitigating inflammation (45).

Therefore, the consumption of yogurt has the potential to exert a positive influence on chronic ailments, specifically cardiovascular diseases, type 2 diabetes, and select forms of cancer. The potential health benefits of yogurt are attributed to the presence of probiotics and bioactive compounds. Nevertheless, it is imperative to acknowledge that these studies frequently rely on observational data, which introduces the possibility of confounding variables related to lifestyle that may influence the observed associations. Additional investigation, encompassing randomized controlled trials, is needed in order to establish a conclusive cause-and-effect association between the consumption of yogurt and the prevention of chronic diseases, and its contribution to the likelihood of enlarging the life span.

### Yogurt and Gut-Brain Axis and Mental Health

In recent years, there has been a growing focus on the gut-brain axis, which is a sophisticated two-way communication network connecting the gut and the central nervous system. Recent studies have indicated that the gut microbiota, encompassing the advantageous bacteria present in yogurt, potentially exerts an impact on cognitive processes and psychological well-being (46, 47). Yogurt has been recognized for its ability to exert a beneficial influence on the composition of gut microbiota, thereby promoting the overall health of the gastrointestinal tract (48). The presence of probiotics in yogurt is essential for the maintenance of a harmonious gut microbiome. These probiotics facilitate the growth of advantageous bacteria while impeding the proliferation of detrimental pathogens (49). The modulation of gut microbiota has the potential to impact the synthesis of neurotransmitters, including serotonin and gamma-aminobutyric acid (GABA), which play crucial roles in the regulation of mood and cognitive function (50, 51).

Studies have been conducted to examine the potential impact of probiotics found in yogurt on mental well-being and cognitive abilities. The potential impact of probiotics on the mitigation of symptoms associated with anxiety, depression, and stress has been the subject of scientific inquiry. According to a systematic review and meta-analysis of randomized controlled trials, the administration of probiotic supplements was found to be correlated with a decrease in depressive symptoms (52). Furthermore, the consumption of probiotics found in yogurt was found to enhance cognitive abilities and alleviate anxiety symptoms among individuals diagnosed with chronic fatigue syndrome (53, 54).

Meanwhile, it is plausible that the gut-brain axis plays a role in exerting influence over various facets of brain health, such as neurodevelopment and neurodegenerative disorders. Research conducted on animals has demonstrated that the administration of probiotics can have an influence on the development of the brain and behavior. These findings indicate that there may be significant implications for the promotion of brain health in humans (55). Furthermore, it is widely acknowledged that the gut microbiota is implicated in the pathogenesis of neurodegenerative disorders, including Alzheimer's disease and Parkinson's disease (56). Although the precise mechanisms remain incompletely elucidated, the consumption of yogurt has the potential to modulate gut microbiota, thereby offering potential

benefits in terms of brain health and potentially attenuating the advancement of neurodegenerative disorders (57).

Hence, the investigation of yogurt's influence on the gut-brain axis is an intriguing field of study. The presence of probiotics in yogurt has a beneficial impact on the composition of gut microbiota, potentially leading to effects on brain function and mental well-being. The available evidence indicates that the consumption of yogurt may potentially yield positive effects on mood, cognitive function, and potentially even neurodevelopment and neurodegenerative diseases. Nevertheless, further investigation, specifically in the form of human clinical trials, is required in order to clarify the precise mechanisms involved and establish a conclusive cause-and-effect relationship between the consumption of yogurt, the gut-brain axis, and the maintenance

of brain health.

## Conclusion

The available scientific evidence indicates that the consumption of yogurt may potentially exert a beneficial influence on the duration of an individual's life, owing to its nutritional composition, probiotic content, and potential effects on overall health. Yogurt exhibits considerable potential as a dietary source for fostering longevity due to its rich content of vital nutrients, probiotics, and bioactive compounds. Nevertheless, further comprehensive, and well-regulated investigations are required in order to establish a conclusive and causative association between the consumption of yogurt and an enhanced life expectancy. ■

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