

We are IntechOpen, the world's leading publisher of Open Access books Built by scientists, for scientists

6,900

Open access books available

185,000

International authors and editors

200M

Downloads

Our authors are among the

154

Countries delivered to

TOP 1%

most cited scientists

12.2%

Contributors from top 500 universities



WEB OF SCIENCE™

Selection of our books indexed in the Book Citation Index
in Web of Science™ Core Collection (BKCI)

Interested in publishing with us?
Contact book.department@intechopen.com

Numbers displayed above are based on latest data collected.
For more information visit www.intechopen.com



Philosophy of Nutrition: Past-Future Nutrition

Gulsen Meral

Additional information is available at the end of the chapter

<http://dx.doi.org/10.5772/intechopen.80726>

Abstract

“Back to the roots” is what we may call our experience in our researches concerning gut-brain axis. What Hippocrates, Plato, Ibn-Khaldun, Galen, and many other philosophers from antique ages suggested can be proven today with all our technological aids. The observation in the old of the link ages between nutrition and the well being of our souls, mind, and bodies was found to be true. In fact, what the ancient philosophers said about nutrition in connection with a healthy life is quite similar to what we hear in the recent years. This is a demonstration of how important it is to observe ourselves as humans. In the last researches, the connection between gut and brain and their formation of the personal mood showed the same results. Together with the mood, the spirit has also proven to be influenced by nutrition. Our industrial era put the focus right from the beginning more on feeding masses than on nurturing human kind. Leaving that aside, the doctors today concentrate more on diagnosis and their foreseen treatment than on observing and preventing diseases. A healthy and conscious nutrition is the start of a healthy worth living life. What philosophers and doctors found out hundreds of years ago should be applicable and excisable today.

Keywords: philosophy, nutrition

1. Past-future nutrition

Health is not only the absence of illness but also a complete state of physical, mental, and social well-being as defined by the World Health Organization [1]. We can see the importance of environmental factors as well as the genetic factors in terms of people’s view of health. To be a healthy individual, we should think physical health together with mental and spiritual health as a whole. We should not forget that the health of the location is connected with the environmental social circle [2].

When it comes to nutrition and philosophy, we can define that to search for wisdom. The philosopher is also the person who is trying to reach wisdom. Accordingly, philosophy has meant for the Greek “love of wisdom” or “quest for wisdom.” Philosophy is also known as art of thought [3].

When examining the nutritional philosophy, it is necessary to examine the effect of the body, and why and what we eat. The first thing we need to examine is the nutrition itself. Nutrition is an action that must be done consciously to get the nutritional items needed by the body in sufficient quantities and at the right time to maintain health and improve quality of life. This action must be provided at every stage of the life cycle. Over the past three centuries, significant changes have occurred in people’s habitats and eating habits. The modern agriculture and production practices that have developed from the Paleolithic period to the present day have laid the foundation of the intense energy-containing nutrition pattern of the century we are in and have caused human health to be adversely affected [4].

The ideas and interactions of human beings with regard to nutrition and their effects on humans have been conveyed throughout generations. Communication between healthy nutrition and mental health diseases has been described, and philosophers have expressed the influence of nutrition on people’s mood and body.

We investigated the meaning of the term “Our bowels are leading us.”

In the ancient ages, philosophers and doctors were mostly the same persons. They observed the influence of nutrition on human behavior and emphasized that a healthy diet is a prerequisite for a healthy life. They were convinced that the way to get rid of diseases is mainly healthy nutrition. But the advent of medicine has turned from nutrition-health-related acceptance to drug-health-related acceptance, and medicine has put more weight on drug-oriented treatments.

While being able to be healthy by simply eating natural food, increasing technology and industry have laid ground for poor quality nutrition and have created new diseases. Medicine, however, has increased its awareness in recent years and has begun to find ways of preserving food without chemical add-ons. Nutrition for a healthy well-being is the most important of these.

In fact, what the ancient philosophers said about nutrition in connection with a healthy life is quite similar to what we hear in recent years. This is a demonstration of how important it is to observe ourselves as humans. The last researches, the connection between gut and brain and their formation of the personal mood showed the same results that had been found in ancient eras. Together with the mood, the spirit has also proven to be influenced by nutrition.

Fundamental researches have shown that a healthy long life is found by the importance of not only eating healthy but also eating less. We can put it as simple as the philosopher Ibn Khaldun said: “Hunger does not kill, an overfilled stomach does.”

2. Philosophy of nutrition

2.1. Nutrition and philosophy in history

Physicians nowadays seem to have a good level of knowledge about the disease, but their approach to a healthy life is lacking. The development of technology of course accelerates

the diagnosis of diseases. And the rapid diagnosis with the foreseen treatment of diseases causes the physicians to concentrate only on the diagnosis. As the diseases progressed in antique ages, some physicians have begun not only to heal but also to find ways to prevent illness. These first studies of the ancient world show amazing similarities to the recent studies, despite all the technological improvements we enjoy nowadays.

When we look at nutrition and health throughout history, we can find some common points of the most famous philosophers. It seems like a healthy life was more prevalent in antiquity. They were absolutely aware of the importance of nutrition in order to be healthy and get rid of diseases. Hippocrates [fifth century BC], the oldest Greek doctor, emphasized the importance of a diet after he observed the positive output on numerous patients. At that time, he actually linked many diseases to unhealthy eating habits and emphasized the importance of healthy food as a permanent therapy instead of an empirical drug treatment. In addition, he also stated the importance of physical exercising on a regular basis [5].

Claudius Galenus, who is usually known as Galen, considered himself a student of the Hippocratic school. He extended his researches as a whole and explains the positive influence of a healthy diet in his book of six volumes, which contains the six “non-naturalia.” The sense of the Greek term “d’iaita” was much broader than what nowadays has remained to be called “diet,” so nutrition is only one of them. The other five aspects of a healthy life identified by Galen were environment; rest, including sleep; motion or exercise; evacuations including sexuality; and the state of mind or inner harmony [6, 7].

We can define nutrition philosophy as a part of the health philosophy. To look at the historical philosophy of nutrition and health, it is necessary to look from the antiquity to the twenty-first century.

With the development of the industrial and material era, the issue of a healthy nutrition has increased. What supposed to be the basis of a healthy life depreciated its value over the last century. We can find the roots of healthy nutrition again in the ancient civilization, especially the Greek era. The Greeks were the first who established physiocratic schools that teach that health is not separate from our social environment and our human behavior [5].

Regarding the connection of nutrition and health, we can refer to the social, physical, and environmental characteristics of the individual health of animals and plants. Nutritional knowledge, which is divergent in our narrow sense, is not only about eating and drinking and their biological aspects but also about the social and environmental concerns of animals and plants [6].

The new concepts are similar with what the ancient philosophers said. A new Meikirch model for individual care and public health was developed and published in 2014 [8]. According to this model, people’s demands are based simply on physiological, psychosocial, and environmental matters. These physiological demands are oxygen, food, and water, and there are necessities such as birth, childbirth, and so on. Second, psychosocial demands are developing in the relations among people. Third, environmental factors are affecting the health, like clean water, air pollution, a safe working environment, etc. As of the healthy lifestyle described in the Meikirch model, environmental factors are important, as well as being aware of one’s own health [8].

Unexpected guests once visited Heraclitus, found him in the kitchen, and were embarrassed to encounter this unbalanced situation for this distinguished man. However, it is reported that Heraclitus said: “Come in, there are Gods even here!” If nutrition is actually a human health issue, he was the first to identify the unity of nature [6].

Plato is one of the most important philosophers of Greece, with regard to health and speech. He was born in Athens, 428–348 BC. Plato also emphasizes the importance of proper nutrition and exercise to be healthy just like other philosophers, but according to Plato, olive oil is “useful”; however, it should not take an important place in the diet. He stated that olive oil is good for the outer parts of the human body but, at the same time, not too good to eat and digest. Fruits and dairy seem to have an important place in his diet; however, Plato’s favorite foods were wheat and barley flour [9].

It is interesting that in ancient times olive oil cultivation plays an important role, but Plato does not recommend high amounts of olive oil. It is an important food value that encourages grain consumption.

The Pisagor School is clearly seen in the absence of the meat; vegetables and fruits are preferred, and consumption of meat was claimed to be related to obesity and disease. Plato’s belief in the reincarnation of the souls might explain it. Plato said that the excess of nutrition causes excess diseases [9].

It is striking that philosophy associates obesity with disease and, at the same time, a short life expectancy. Dietary excess is considered to be an important contributor to human diseases. As a result, the diet should be kept in the hands of doctors or gymnastics instructors. In fact, the meaning of this concept is that dietetics should be seen as a separate field of medicine, not just an art.

The diet model depicted in Plato’s works has distinct similarities with the Mediterranean diet. Over the last few decades, this diet has gained considerable popularity due to its beneficial effects on health. Many studies have shown that the Mediterranean diet is associated with lower incidence of stroke, coronary heart disease, and some types of cancer (although at the time, the basic elements of this diet model are based on ancient civilizations evolving around the Mediterranean). In fact, in the “Mediterranean diet,” the main components are olive and olive oil, wheat, grape, and usually vegetables in all forms of salads [9, 10].

Avicenna is seen as the foundation stone of medicine. Avicenna’s nutritional and health-related expressions suggest that eating habits have a health effect. While the habit was to eat twice a day full meals, he recommended to eat little by little and only small amounts. It has been argued that people interact with the environment; hereditary changes are based on diseases of the digestive system. To his relatives, he suggested eating mixed food from plants and animals to get rid of stomach and intestinal complaints [11].

Erzurumi İbrahim Hakkı, who lived in the eighteenth century and was a Turkish and Islamic thinker, has examined six titles in his “Marifet,” “little food, little sleep, little talk.”

He emphasized that eating more food gives you the weight you do not need. He said that hunger can be a medicine and that the body's health would only be provided with few meals, not to say starvation. He stated that it gives you a good feeling to feel hungry and to have a better taste when you eat again. According to him, food is actually consumed by one's life, and a full stomach reduces the life span [12].

İbrahim Hakkı said that there are three things that cause problems in your life: too much food, too much sleep, and too much talk. If your stomach is full, your soul dies. If you eat less, your body turns into your soul.

You can provide the health of your body by eating less, and you can provide the health of your soul by sleeping less. If your stomach is completely full, it is like you are losing your spirit, and as long as you feel that full stomach, your true spirit will not come back. To stay a little hungry helps you to sleep less [12].

In Ibn Khaldun's first book, *Mukaddime*, the relationship between food stress and food abundance and physical condition, the mental and moral structures of man have been examined. Ibn Khaldun's view of health and ethics, which will be taken into consideration from the point of view of nutrition and health, is very thought-provoking. It has been observed that geographical regions have different soil fertility compared to climate changes and that the people living there influence the body structure and spirit of the feeding style [13, 14].

Ibn Khaldun observes that the bodies and morals of the nomadic people of the desert, lacking all kinds of negativity and deprivation, are more beautiful and esthetically pleasing than the bodies and morals of the people in fertile regions within abundance. In Ibn Khaldun's observation, the skin colors of people with little food are pure, clean, and beautiful, and people are pure in morality; he states that even the looks and clothes are perfect, and the characters are far from extremes. However, their minds quickly acquire knowledge and truth, and their understanding is excellent [13, 14].

According to Ibn Khaldun's observations, consuming too much food causes some bad nausea and stinking yellow bile, black bile, and sputum in proportion to the irregularity of the moisture of these foods. Therefore, the colors become distorted, and the shapes become ugly by taking excessive weight. Not being confined to the image, he finds the excessive consumption of nutrients as an idea of blinded minds. Ibn Khaldun's observations are that hunger makes the shapes and forms of desert animals beautiful. He maintains this determination for people. Therefore, people who experience a certain time of hunger also get beautiful shapes and minds. The people of the fertile crops, where the animals are rich and the fruits are abundant, are often characterized by weak minds and ideas. There is a difference in the mental states of people who live in the desert eating mainly dates, North African people who eat barley, olive-fed Andalusians. and people who live in the richest of varieties. In the years of famine, deaths from people in before-mentioned regions are rare. Those who live in abundance and prosperity often wrinkle their bowels when they are forced to eat less, contrary to their habits, because they are often accustomed to additives

and fat. The intestine, a weak organ, is ill-founded. Such a disease will kill quickly. In relation to nutrition and health, Ibn Khaldun has interesting findings. According to him, hunger does not kill those killed during hunger; it actually kills the satiety they are used to [13, 14].

If you are accustomed to this nutrition with limited additive and low fat, the alteration of the food will not dry up the bowels. While those living in abundance and eating all kinds of food and additives were seen dead at times of hunger. Ibn Khaldun says that hunger should be gradually brought into customary in people's lives. He says that many of the full eaters will be susceptible to diseases and it will be those people who suddenly go hungry [14].

2.2. History of nutrition philosophy

There is a point where philosophers of antiquity, daily philosophers, and those whom we considered to be the cornerstone of medicine are concerned about nutrition and human mood, illnesses, and the whole of life. The importance of nutrition for a healthy living is emphasized, and the importance of environmental factors is pointed out as well. The outcome of these observations was influenced by body and soul foods.

They were the first to hold nutrition for mental and physical health responsibly, with the same consensus that excess nutrients would cause obesity and illness. In the old era, the desire to find the secrets of staying healthy was the primary focus, while during the last years, the focus was put on medical treatments.

In recent years, it has been understood that studies on protection from diseases are important for the Mediterranean diet—barley, olive oil, and olive nutrition.

In recent years, gut-brain axis has been discovered. Observing the philosophers, the effect of food on the mood of people is scientifically proven today.

In the next steps, what food should we eat to protect ourselves from chronic diseases? These are observations of philosophers and medical men coming to this day from the antic ages that must be looked at:

People are influenced by their environment, and the food they eat will affect the resulting mood balance. It is not possible that one cannot think of a person as unimpressed by the nutrients and environmental conditions. In the last years, with the increasing technology, it is impossible to ignore the harm that technological devices give to people. Besides the loss of naturalism every year and besides the development of technological developments, the Internet and social media are inevitable.

The development of technology in the twenty-first century affects the mental and physical health of our children, especially in the school age, due to the rapid and convenient use of Internet/computer. We can think about media dependency, television, mobile phone, computer, and Internet dependencies. Among them, technology dependency is increasing day by day in terms of public health. Technology addiction is causing problems in the physical, psychological, social, and cognitive developments of children and youth [15–17]. As a result

of the studies carried out in our country, interlinked Internet addiction and obesity are facing a serious public health problem [18].

In the last years, it has become more difficult to be healthy. New health problems are added to the old ones that we cannot move away from our life, like technology to the deterioration of the nature of nutrition and the environmental factors that negatively affect human health. In order to remain healthy, all we can do is pay attention to the negativity of the twentieth and twenty-first centuries and to act accordingly.

2.3. Brain and gut reliability

Hippocrates said “All diseases start in the intestine,” paying attention to the Hippocrates gut. The same question that has begun with Avicenna, Ibn Khaldun, and Hippocrates has been pushing us for centuries: do our guts rule us?

The role of intestinal microbiota in health and disease is increasingly recognized. The microbiota-intestinal-brain axis is a two-way path between the brain and the gastrointestinal tract. It is well known that intestinal microbiota affects the physiological, behavioral, and cognitive functions of the brain. Gut microbiota may include brain axis, intestinal microbiota and metabolic products thereof, enteric nervous system, sympathetic and parasympathetic branches within the autonomic nervous system, neural-immune system, neuroendocrine system, and central nervous system. In addition, there may be communication pathways between the intestinal microbiota and the brain, including the neural network of the intestine and brain, neuroendocrine-hypothalamic-pituitary-adrenal axis, intestinal immune system, some neurotransmitters synthesized by intestinal bacteria, and barrier pathways including neural regulators and intestines. Mucosal barrier and blood brain barrier. Irregularities in intestinal microbiota compositions have been described in a variety of neuropsychiatric disorders such as autism, schizophrenia, and depression. Furthermore, preclinical studies suggest that this may be the driving force behind behavioral abnormalities observed in these conditions. Understanding how the bacterial compartment plays a role in regulating brain functions may lead to new strategies for the development of microbiota-based therapies for these neurological diseases [19–22]. The bacterial colonists in our intestines communicate with the CNS and regulate brain neurochemistry and behavior in a number of different ways that are slowly resolving. These mechanisms include the production of bacterial metabolites, such as cytokines, and immunologic agents and signal directly to the brain via the vagus nerve.

2.4. Gut-brain axis mechanisms

2.4.1. Immune responses

The signals sent to the brain via immunoreactive cytokines are the vagus nerve or blood-brain barrier through the brain. Gram-bacteria stimulate the production of proinflammatory cytokines, IL-6 and IL-1 beta. These receptors appear on the monocyte macrophage microglia as a result of binding of the lipopolysaccharides of the cell wall of the gram-bacteria to the toll-like receptors (irritable bowel and intestinal gut permeability impairment). Stimulation in the

systemic circulation is the answer to the inflammatory response. This inflammation response is mediated via the brainstem vagus [23, 24].

2.4.2. *The vagus nerve*

It plays a vital role in facilitating two-way communication between the intestine and the brain. Microbiota activates this. Cutting the vagus nerve facilitates anxiolytic behaviors in mice. Probiotics show antidepressant and anxiolytic effect via vagus [25, 26].

2.4.3. *Short-chain fatty acids*

Glycoside hydrolases and polysaccharide lyase enzymes in the probiotic bacterium convert the fibers into short-chain fatty acids. It is well known that intestinal bacteria are the main source of short-chain fatty acids (SCFA) such as butyric acid, propionic acid, and acetic acid. These molecules, while not belonging to classical neuroactive substances, can act more finely on neuronal function. The best of them are probably butyrate. These SCFAs are histone deacetylase inhibitors. It is linked to free fatty acid receptors in the cell. SCFA can directly affect brain physiology and behavior [22, 27, 28].

Evidence shows that butyric acid and propionic acid can regulate neurotransmission. SCFA can directly affect brain physiology and behavior. Metabolic benefits of soluble fiber on body weight and glucose control is not fully understood. Studies have shown that intestinal gluconeogenesis (IGN) has beneficial effects on glucose and energy homeostases. Propionate and butyrate activated the intestinal microbiota to activate IGN through complementary mechanisms of soluble fiber fermentation. While butyrate activates IGN gene expression through a cAMP-dependent mechanism, propionate itself is an IGN substrate that activates IGN gene expression via an intestinal-brain neural cycle involving the fatty acid receptor FFAR3 [29, 30].

Short-chain fatty acids (SCFA), such as propionic (PPA) and butyric acid (BA), which are bacterial fermentation products, have an increased prevalence in host health but may also be neurodevelopmental environmental contributors [31]. Changes in the microbial composition of the intestine have a role in health and disease, including brain function and behavior.

2.4.4. *Enteroendocrine cells*

Enteroendocrine cells (EECs) are special cells that can produce intestines, peptides/signaling molecules (i.e. 5-HT, cholecystokinin [CCK], glucagon-like peptide [GLP]-1, and peptide YY [PYY] affecting their own cognate receptors on the vagus nerve to prevent gastric emptying, to induce satiety, and to reduce the size of the food [32].

SCFAs have been shown to affect the secretion of saturated peptides from EECs. Microbial metabolites increase CCK, PYY, and GLP-1 secretions by binding to FFAR1 and FFAR3 receptors of the same origin, also expressed on EECs [33].

2.4.5. *Tryptofan*

The gut-brain axis is a two-way communication system between the central nervous system and the gastrointestinal tract. Serotonin, also serves as a key neurotransmitter at both

terminals of the network. Accumulated evidence suggests that the gut microbiota regulates the normal functioning of this axis. In particular, the metabolism of tryptophan in this arrangement is open and can play an important role in microbial effect on the serotonergic system. Behavior affected by the conflict between the intestinal microbiota is an important behavior based on serotonergic neurotransmission. Developing serotonergic systems may be vulnerable to different microbial colonization models determined prior to the occurrence of adult-like intestinal microbiota. On the other side of life, intestinal microbiota may determine the diversity and stability of decreased serotonin-related health problems in the elderly. These underlying mechanisms require more details but may be related to the ability to control the metabolism of tryptophan host along the pathway of the intestinal microbiota, thus reducing the fraction available for the synthesis of serotonin and increase the production of neuroactive metabolites. These pathways, enzymes, and immune stress-responsive systems will enhance the brain-gut axis. Additionally, in the gastrointestinal tract that may be affected by local changes in serotonin concentration, the signal processes are neural signals through the gut following scaffold to affect the CNS neurotransmission. Therapeutic targeting of intestinal microbiota could be a therapeutic strategy that can be applied to serotonin-related disorders of the gastrointestinal tract [34].

3. Gut-brain axis and philosophy

In the twenty-first century, the nutritional philosophy agenda is under the title of “intestines and probiotics” and focuses on the effects of probiotics on the immune response, enteroendocrine system, efferent pathways of the vagal nerves, tight intestinal connections, tryptophan, catecholamines, and short-chain fatty acids. When talking about probiotics as fuel, prebiotics are emerging. Glycoside hydrolases and polysaccharide lyases found in probiotics degrade barley fibers and convert them into acetic acid, propionic acid, butyric acid, and short-chain fatty acids. By inhibiting 1-histone deacetylase, these products inhibit tumor growth and metastasis. It also affects a number of physiological functions by binding to intracellular receptors. Efferent vagal nerve activation affects physiology and behavior. Maintaining glial homeostasis controls inflammation in the brain. Propionic acid affects glucose metabolism and body weight by activating fatty acid receptors in portal vein nucleic terminals. Butyric acid and propionic acid have the ability to change nerve conduction. Both of these increase tyrosine hydroxylase activity in the synthesis of dopamine and noradrenaline. These short-chain fatty acids reduce the activity of the dopamine beta hydroxylase enzyme, which controls the noradrenaline conversion of dopamine. In addition, propionic acid, which increases tryptophan hydroxylase activity, also has the ability to alter serotonergic neurotransmission [22, 27–31].

The benefit of barley in ancient times has been proven by new studies. It is obvious that the food does not only give energy to us but also to our souls. Our new mental home is our hearings, our senses, our thoughts, our decisions, and sometimes the origin of certain neuroses.

3.1. Past traces in nutrition

Nutrition is also an important regulator of the physiological health. It is dependent on adult stem lines that differentiate into self-renewing, specialized cell types in the hemostasis, and

regeneration of the tissues. When the stem cells respond to the signals from the food, they affect the tissue biology by changing the function and activation of adult stem cells; high-fat diets and ketogenic diets affect stem cell function and microenvironment.

Calorie restriction has been shown to increase stem cell function in the intestine and skeletal muscle and has positive effects on adult stem cells and hematopoietic stem cells. Similarly, fasting provides protection against intestinal, hematopoietic, and neuronal stem cells from injury. While high-fat diets induce root-like properties, high-fat diets disrupt hematopoiesis and neurogenesis.

Caloric restriction and fasting are generally beneficial for adult stem cell function, whereas high-fat diets destroy stem cell function or create opportunities for tumor formation. Diets and nutrition must work to understand how adult stem cells respond to diet-induced signals and physiology.

Diet has a profound effect on tissue regeneration in various organisms and has beneficial effects on low-caloric conditions such as intermittent fasting, loss of organ health, and age-related tissue function [35, 36].

The new work defends the antic order of the day. Restriction of intake of nutrients and reduction of fat intake have been expressed by Plato, Hippocrates, Avicenna, Ibn Khaldun, and other philosophers. It is this nutritional way of being healthy in the communities that have fewer meals, less food, and healthy appearance of their skin and their bodies being athletic. Quite surprising words spoken hundreds of years ago are confirmed in recent studies.

Barley flour, an important nutrient in ancient times, has a beneficial metabolic effect in suppressing appetite and increasing insulin sensitivity. These effects of barley are the results of intestinal microbial metabolism SCFA production and their effect and stimulation of the secretion of intestinal hormones. SCFA and possibly other metabolites induced by changes in intestinal microbiology may contribute to metabolic disorders such as obesity and type 2 diabetes mellitus [37].

Flavonoids found in fresh green barley leaves revealed in studies have strong antioxidant activity of saponarin. There are many reports about the antioxidant activity of flavonoids found in natural plants. Therefore, it should be beneficial to health with supplements containing saponarin green barley leaves [38].

Fresh green barley leaves have a strong anti-stress property in mice as evidenced by the inhibition of the decline in voluntary wheel-running activity and hippocampal brain-derived neurotrophic factor (BDNF) messenger RNA(mRNA) reaction to restraint stress. These findings support that the young green leaves with barley supplementation may be beneficial in the prevention of stress-related psychiatric disorders such as depression [39].

Whole barley and barley products during daily nutrition may help alleviate oxidative stress-related disease states, cardiovascular diseases, and colon cancer, among others. However, there are many additional factors such as bioavailability, which can affect the antiproliferative effect in vivo [40].

In ancient times, an important nutrient is olive oil, which is also linked to the high phenolic compound content that protects olive oil against different diseases. Olive oil phenolic compounds prevent cardiovascular disease, cancer, neurodegenerative disease, and osteoporosis. Antioxidant, antiproliferative, proapoptotic, and anti-inflammatory activities of olive oil phenolic compounds have protective effects against heart disease and cancer. Neuroprotective and neuromodulatory effects that inhibit the development of amyloid plaques also apply to neurodegenerative disease. Finally, it is known to protect against osteoporosis that promotes bone regeneration. Olive oil taken with diet may be proposed as an important source of phenolic compounds that prevent chronic disease and ultimately improve quality of life [41].

Taking virgin olive oil phenolic compounds (PC) alone or in combination with thyme PC mixture for 3 weeks decreases calorie-LDL in hypercholesterolemic people. This cardioprotective effect, together with the increase in the populations of bifidobacteria, can be mediated by an increase in PC microbial metabolites of antioxidant activities such as protocatalytic acid and hydroxytyrosol. The specific growth stimulation of bifidobacteria in the human gut initially demonstrates a potential prebiotic activity of an olive oil enriched in extra virgin olive oil and thyme PC [42].

3.2. Importance of nutrition philosophy education

Nutrition philosophy education is necessary so that individuals can get rid of their bad nutrition habits. Under the heading of nutrition philosophy, people who have been mentioned for centuries are able to gain the nutritional habit that will bring their spirit and body health to the best level and this nutrition is a way of life.

The acquisition of healthy eating habits by individuals will ensure that the community is fed better and that a general quality of life is achieved. The social cultural habits that society is in should be considered when giving the training of this nutrition philosophy. The subject to be focused on nutrition philosophy education is to describe that collection of nutrition habits. Why is it important to educate people about nutrition philosophy and what is the effect on the body and soul health of the foods we eat? It is important to ensure that awareness occurs during meals. It is necessary to teach the delightful individual nutrition model which is both enjoyable and nourishing the body and feeding all the senses. It has been taught in person to choose the right food choice for emotional and physical well-being in balance, reaching awareness [43].

4. Conclusion

Many times since ancient times, it has been mentioned by philosophers that an important part of feeding the body is feeding the soul. In antiquity we often find barley and olives in the speeches on nutrition and health. In ancient times the gut-brain axis relation was known. In their observations, philosophers observed and told that the soul was influenced by nutrition.

Philosophers have stated that people who eat less recover faster and their tissues renew itself. Ibn Khaldun has observed with his own eyes that people who nurture themselves with a large variety of food do not only look physically unhealthy, but also their minds and souls seem to be blurred.

In general, nutrition seems simple, but it is an art at first and nutrition is a philosophy. In the last years, the progress of medicine and the development of technology resulted in diagnosis and treatment instead of looking at people's faces and recognizing the whole picture. The deterioration of nature with technology makes it difficult to reach a certain quality of natural food. The decline in the quality of our food disrupts people's physical and mental health.

Doctors are so busy nowadays with people's diseases that they cannot find the time to make profound researches concerning the reasons. Chronical diseases, depressions, and cancer and heart diseases are getting more frequent every year.

In recent years, researches found clear links between the state of people's well-being beforehand and occurring diseases like chronical illness and cancer. It is amazing how many similarities are between the written documents of the old philosophers and the researches today. A special focus is on barley, where we found out that it prevents chronical diseases and how healthy it is to consume it in general. What they found out with their pure eyesight can be proven today with all our technological development. This demonstrates how important it is to observe people's alimentation.

The philosophy of alimentation might give us a clear start to see the patient as a whole again. It can not only be drugs and medicine to treat the diseases. We have to find its beginning.

Every food can be the medicine already or vice versa the beginning of an unhealthy state of mind. We shall consider to change our thinking from "feeding ourselves" to nurture our bodies, minds, and souls.

Selective nutrition is more important than a variety of all kinds of food. We shall never forget that there is a clear link between our intestines and our brains: the gut-brain axis.

Author details

Gulsen Meral

Address all correspondence to: gulsenmeral@drgulsenmeral.com

Acibadem Taksim Hospital, Istanbul, Turkey

References

- [1] Preamble to the Constitution of the World Health Organization as Adopted by the International Health Conference, N.Y., 19-22 June, 1946; Signed on 22 July 1946 by the Representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and Entered into Force on 7 April 1948. Geneva, Switzerland: World Health Organization; 2006
- [2] Bircher J, Hahn EG. Understanding the nature of health: New perspectives for medicine and public health. Improved wellbeing at lower costs. *F1000Research*. 2016;5:167

- [3] Topdemir HG. Felsefe nedir? Bilgi nedir? Türk Kütüphaneciliği. 2009;**23**:119-133
- [4] Beslenme HÜSBF, Bölümü D. Türkiye'ye Özgü Besin ve Beslenme Rehberi. 1nd ed. July Merdiven; 2015. pp. 4-18
- [5] Tountas Y. The historical origins of the basic concepts of health promotion and education: The role of ancient Greek philosophy and medicine. Health Promotion International. 2009;**24**:185-192
- [6] Meyer-Abich KM. Human health in nature—Towards a holistic philosophy of nutrition. Public Health Nutrition. 2005;**8**:738-742
- [7] Galenus C. De sanitate tuenda. In: Kühn CG, editor. Claudii Galeni Opera Omnia. Vol. 6. Hildesheim: Olms; 1965
- [8] Bircher J, Kuruvilla S. De ning health by addressing individual, social, and environmental determinants: New opportunities for health care and public health. Journal of Public Health Policy. 2014;**35**:363-386
- [9] Skiadas PK, Lascaratos JG. Dietetics in ancient Greek philosophy: Plato's concepts of healthy diet. European Journal of Clinical Nutrition. 2001;**55**:532
- [10] Trichopoulou A, Vasilopoulou E, Lagiou A. Mediterranean diet and coronary heart disease; are antioxidants critical? Nutrition Reviews. 1999;**57**:253-255
- [11] Buranova DD. The value of Avicenna's heritage in development of modern integrative medicine in Uzbekistan. Integrative Medicine Research. 2015;**4**:220-224
- [12] Demircioğlu A. İslam felsefesinde açlığa övgü: erzurumlu İbrahim Hakkı örneği. Journal of Social Sciences Institute. 2014;**4**:73-88
- [13] Demircioglu A. The effects of shortage and abundance on human being in Ibn Khaldun idealism. Studies on Ethno-Medicine. 2014;**8**:1-6
- [14] Kadiri Ugan Z, Haldun İ. Mukaddime çev. İstanbul. 1989
- [15] Cengizhan C. Öğrencilerin bilgisayar ve internet kullanımında yeni bir boyut: İnternet bağımlılığı. M.Ü. Atatürk Eğitim Fakültesi. Eğitim Bilimleri Dergisi Yıl. 2005;**22**:83-98
- [16] Çam HH, Nur N. A study on the prevalence of İnternet addiction and its association with psychopathological symptoms and obesity in adolescents. TAF Preventive Medicine Bulletin. 2015;**14**:181-188
- [17] Muslu GK, Bolışık B. Çocuk ve Gençlerde İnternet Kullanımı. TAF Preventive Medicine Bulletin. 2009;**8**:445-450
- [18] Alpaslan AH, Koçak U, Avcı K, Taş HU. The association between İnternet addiction and disordered eating attitudes among Turkish high school students. Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity. 2015;**20**:441-448
- [19] Wang HX, Wang YP. Gut microbiota-brain axis. Chinese Medical Journal. 2016;**129**:2373
- [20] Evrensel A, Ceylan ME. Bağırsak beyin eksenı: Psikiyatrik bozukluklarda bağırsak mikrobiyotasının rolü. Psikiyatride güncel yaklaşımlar. 2015;**7**:461-472

- [21] Mu C, Yang Y, Zhu W. Gut microbiota: The brain peacekeeper. *Frontiers in Microbiology*. 2016;7(345):2016
- [22] Sherwin E, Sandhu KV, Dinan TG, Cryan JF. May the force be with you: The light and dark sides of the microbiota–gut–brain axis in neuropsychiatry. *CNS Drugs*. 2016;30:1019-1041
- [23] Daulatzai MA. Chronic functional bowel syndrome enhances gut-brain axis dysfunction, neuroinflammation, cognitive impairment, and vulnerability to dementia. *Neurochemical Research*. 2014;39:624-644
- [24] Kelly JR, Kennedy PJ, Cryan JF, Dinan TG, Glarke G, Hyland NP. Breaking down the barriers: The gut microbiome, intestinal permeability and stress-related psychiatric disorders. *Frontiers in Cellular Neuroscience*. 2015;9:392
- [25] Poutahidis T, Kearney SM, Levkovich T, Qi P, Varian BJ, Lakri JR, et al. Microbial symbionts accelerate wound healing via the neuropeptide hormone oxytocin. *Plos One*. 2013;8:1-15
- [26] Bravo JA, Forsythe P, Chew MV, Escaravage E, Savignac HM, Dinan TG, et al. Ingestion of *Lactobacillus* strain regulates emotional behavior and central GABA receptor expression in a mouse via the vagus nerve. *Proceedings of the National Academy of Sciences*. 2011;108:16050-16055
- [27] Stilling RM, Dinan TG, Cryan JF. Microbial genes, brain & behaviour—Epigenetic regulation of the gut-brain axis. *Genes, Brain, and Behavior*. 2014;13:69-86
- [28] Munoz-Munoz J, Cartmell A, Terrapon N, Baslé A, Henrissat B, Gilbert HJ. An evolutionarily distinct family of polysaccharide lyases removes rhamnose capping of complex arabinogalactan proteins. *Journal of Biological Chemistry*. 2017;117:1-9
- [29] DeCastro M, Nankova BB, Shah P, Patel P, Mally PV, Mishra R, et al. Short chain fatty acids regulate tyrosine hydroxylase gene expression through a cAMP-dependent signaling pathway. *Molecular Brain Research*. 2005;142:28-38
- [30] De Vadder F, Kovatcheva-Datchary P, Goncalves D, Vinera J, Zitoun C, Duchampt A, et al. Microbiota-generated metabolites promote metabolic benefits via gut-brain neural circuits. *Cell*. 2014;156:84-96
- [31] Nankova BB, Agarwal R, MacFabe DF, La Gamma EF. Enteric bacterial metabolites propionic and butyric acid modulate gene expression, including CREB-dependent catecholaminergic neurotransmission, in PC12 cells—Possible relevance to autism spectrum disorders. *Plos One*. 2014;9:103740
- [32] Latorre R, Sternini C, De Giorgio R, Greenwood-Van Meerveld B. Enteroendocrine cells: A review of their role in brain–gut communication. *Neurogastroenterology and Motility*. 2016;28:620-630
- [33] Nøhr MK, Pedersen MH, Gille A, Egerod KL, Engelstoft MS, Husted AS, et al. GPR41/FFAR3 and GPR43/FFAR2 as cosensors for short-chain fatty acids in enteroendocrine

cells vs FFAR3 in enteric neurons and FFAR2 in enteric leukocytes. *Endocrinology*. 2013;**154**:3552-3564

- [34] O'Mahony SM, Clarke G, Borre YE, Dinan TG, Cryan JF. Serotonin, tryptophan metabolism and the brain–gut–microbiome axis. *Behavioural Brain Research*. 2015;**277**:32-48
- [35] Mihaylova MM, Cheng CW, Cao AQ, Tripathi S, Mana MD, Bauer-Rowe KE, et al. Fasting activates fatty acid oxidation to enhance intestinal stem cell function during homeostasis and aging. *Cell Stem Cell*. 2018;**22**:769-778
- [36] Mana MD, Kuo EYS, Yilmaz ÖH. Dietary regulation of adult stem cells. *Current Stem Cell Reports*. 2017;**3**:1-8
- [37] Miyamoto J, Watanabe K, Taira S, Kasubuchi M, Li X, Irie J, et al. Barley β -glucan improves metabolic condition via short-chain fatty acids produced by gut microbial fermentation in high fat diet fed mice. *PLoS One*. 2018;**13**:196579
- [38] Kamiyama M, Shibamoto T. Flavonoids with potent antioxidant activity found in young green barley leaves. *Journal of Agricultural and Food Chemistry*. 2012;**60**:6260-6267
- [39] Yamaura K, Tanaka R, Bi Y, Fukata H, Oishi N, Sato H, et al. Protective effect of young green barley leaf (*Hordeum vulgare* L.) on restraint stress-induced decrease in hippocampal brain-derived neurotrophic factor in mice. *Pharmacognosy Magazine*. 2015;**11**:86-93
- [40] Madhujith T, Shahidi F. Antioxidative and antiproliferative properties of selected barley (*Hordeum vulgare* L.) cultivars and their potential for inhibition of low-density lipoprotein (LDL) cholesterol oxidation. *Journal of Agricultural and Food Chemistry*. 2007;**27**:5018-5024
- [41] Pedret A, Fernández-Castillejo S, Valls RM, Catalán Ú, Rubió L, Romeu M, et al. Cardiovascular benefits of phenol-enriched virgin olive oils: New insights from the virgin olive oil and Hdl functionality (Vohf) study. *Molecular Nutrition & Food Research*. 2018;**62**:1800456
- [42] Martín-Peláez S, Mosele JI, Pizarro N, Farràs M, de la Torre R, Subirana I, et al. Effect of virgin olive oil and thyme phenolic compounds on blood lipid profile: Implications of human gut microbiota. *European Journal of Nutrition*. 2017;**56**:119-131
- [43] Gerson A. *Philosophy of Nutrition Education*. NFSC 660. pp. 1-10

