Beneficial effects of walnuts on brain activity

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Abstract. The article presents a theoretical analysis of the health benefits of walnuts, which are widely grown in Uzbekistan. A systematic review of modern specialized literature and current scientific data was carried out. The chemical composition and nutritional value of the nut is indicated, its use in various types of medicine and the effectiveness of its use in various diseases are considered. The potential adverse effects of walnuts on the human body under certain medical conditions and diseases are analyzed separately.

1 Introduction

Nuts are mainly a source of vegetable fats, proteins, a small amount of carbohydrates, as well as dietary fiber and vitamins. Nuts contain micro, macro elements and tannins. Walnuts have a high calorie content due to the large amount of fat. Therefore, it is recommended to consume 1–3 servings a day in small quantities

Nuts contain fat-soluble vitamins A, E, as well as B vitamins, vitamin C, PP, K. Minerals contain a lot of zinc and iodine. It is recommended to improve the functioning of the immune system, endocrine, gonads and thyroid glands. Useful for skin diseases.

The membranes of walnuts contain a lot of iodine, so you can make an infusion of them to improve the functions of the thyroid gland. Tannins have an anti-inflammatory effect, the infusion is useful for gargling for chronic diseases.

Nuts are useful for heart and blood vessel diseases because they contain a lot of potassium and magnesium.

It is good to combine nuts with vegetables. Walnuts also go well with grains in baked goods.

Nuts are an ideal source of energy for our body because they contain valuable vegetable oils. Consider that one walnut contains 63 percent omega-3 fatty acids and a large amount of vital vitamins and minerals.

Omega-3s in walnuts protect the heart and blood vessels, as they help lower cholesterol levels. In addition, unsaturated omega-3 fatty acids help to thin the blood and dilate blood vessels.

Each half of a walnut is like a hemisphere of the human brain. Nuts are very useful for the brain. Omega-3 in walnuts fills every cell with the nutritional energy needed to transmit nerve impulses. Thus, omega-3 stimulates brain activity, improves memory and mental activity. It is not for nothing that walnuts are popular, especially among people who have to concentrate for a long time or are in a state of intense mental activity.

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2 Material and methods

Paleontological scientists say that the appearance of species of the genus Juglans (nuts) dates back to the middle of the Cretaceous period of the Mesozoic era (about 100 million years ago), during which the flora of the earth changed and flowering plants appeared. The study of plant remains by paleo botanists showed that the development of walnut fruit trees coincided with the Paleogene period (67 million years ago, its duration was 42 million years), especially in the Neogene period of the Cenozoic era (25 million years ago, its duration was 23 million years).) have been found to be widespread. Naturally, according to some scientists, they grew in Europe, Asia and North America. During this ancient geological period, favorable conditions for the growth and development of plants were created on the globe [1-8].

During the ice age, the area of walnuts was reduced and remained in favorable weather conditions. During this period, walnuts grew in the mountains of Central Asia and the Caucasus, as well as in other regions with favorable conditions. With the end of the ice age, walnuts began to grow in the northern and eastern regions.

In the forest remnants of the Tertiary period, walnuts are found in China, Central Asia, Transcaucasia, Eastern and Northern Iran, Asia Minor, the Balkans, Southern Hungary, and Western Europe.

According to some scientists, the northeastern land part of Eurasia bordering the Arctic Ocean 10,000-11,000 years ago caused the ocean ice to move towards the land at a high speed, and in a short time, the broad-leaved heat-loving mesophyte plants (black forests) and the associated current tropical invades the regional fauna. The cooling of the climate in this region and its sharp decrease caused the disappearance of heat-loving tropical animals or their migration to warmer countries. In particular, the birds flying south from the cold brought with them fruits and seeds of walnuts, pistachios and other plants from the local flora of this area to warm countries. Therefore, they reached Central Asia through Siberia, Kazakhstan, and then Afghanistan, Iran, Turkey, and Greece. The spread of walnut, first in Greece, and then throughout European countries, has intensified in recent times. From Greece, this tree spread to the west (Spain), east through Central European countries (Russia, Ukraine) and other countries.

Great Russian biologist, cultural of plants come output centers of the doctrine the founder N.I. Vavilov (1931) of walnut initial come exit gen center Medium Asia center - Afghanistan, North-West India, Tajikistan, Uzbekistan and Western Tien-Shan regions cover takes Asia took center - Small Asia, beyond the Caucasus, Iran and mountainous Turkmenistan.

N.I. Vavilov stated, Middle of Asia mountainous and mountain in front, in the Tien-Shan mountains, behind the Caucasus fruity of trees, including walnut the world resources collected.

Uzbekistan, Kyrgyzstan, Tajikistan in the territories so far so great natural walnut groves have been saved. Especially Ferghana in the valley of the walnut different forms meeting can of Uzbekistan Korjantog, Ugom, Piskom, Chotkal and Hisar ridge of the mountains. In his arms natural walnut groves there is. They are much thicker without the Bostonian district ridge in the mountains. Kyrgyzstan and Tajikistan mountains and mountains took territories. Natural Walnuts are very valuable in walnut groves, and unique types occur.

Walnut, a lot of edged, and valuable properties have that it was because of long ago a lot of countries cultured. Many scientists in his opinion, the nut the first being in ancient Persian gardens grow started

Later on not the country of Persia from the nursery to Greece take bride

Ancient of the world botanist, naturalist and philosopher Geophrastus Persian nut of the plant named Walnut From Greece to Rome was given. A famous Roman scholar Varro (116-97 BC) and Pliny (24-79 BC) walnut in the works that called Persians, Greeks and Romans

highly valued walnuts and in their territories have grown and from him food, medicine and healing plant as used [2]

Walnut from Rome From the Balkans Western To Europe - to France, Spain, and then to all European countries spread Walnut some Persian, Greek, king among nations walnut to that called

So, walnuts from our era a lot before tribe and in nations civilized, on earth wide spread out and present at the time Turkey, Italy, Romania, France, Russia, Ukraine, Macedonia, Greece, Bulgaria, Spain, USA, Iran, Afghanistan, Caucasus countries, China, India, Moldavia, Germany, Hungary, Japan, Central Asia countries and of the world another in countries big fields occupied Walnuts are ground the most ancient and rare from the trees is considered [1] Many hundreds of years pass with of walnuts new-new variety types appear later on the whole earth, including in Uzbekistan too widespread

Walnut of the tree the size of the leaves big-big that it is the fruit shell with wrapping like biological features with another fruity from the trees difference does It is a leaf through poisoned the air sucking take from himself healthy with phytoncides the air emits and antibiotic properties with the air cleans, pests negative effect shows the disease distributor bacterium loses, keeps moisture in the soil, its productivity increases, roots sisot waters in collecting importance big Because of this too many of countries naturalists right respectively to the nut water, and they named it" air factory ". Because the phytoncide-essential oil of nuts and oxytocin substances work, he himself, in turn, spreads various diseases, including viruses and bacteria. Scratch sends nuts; this feature is first in line with a person's organism and health, which is important.

Nut groves cause soil erosion against gardens and orchards, vegetables and other crops, both from the wind and from garmsel which blocks green. The role of wrestlers

Central in Asia, but. According to those who called Walnut, the core is the whole person's organism, in particular the brain, heart, eye, ear, stomach, intestine, kidney, skin, body, liver, blood pressure and sugar diseases. In treatment, the most good natural drug is considered to have a high caloric value to be with together a person's organisms stomach gastritis, cancer and other to diseases against protection power increases.

Walnut oil a person fast digestion in the body will be, the person energetic holds his soul invigorating the nerve strengthens Own of the era great doctors Abu Ali ibn Sina, Farabi, al-Aqimi and others too own in his works These are the benefits of walnuts note by doing those who passed

Great our grandfather Abu Ali ibn Sina of walnuts fruit, peel, root and from a branch using row diseases treated nerve system, weakness, heart-blood system, spleen cold, stomach, gallbladder, rheumatism, goiter, tooth, throat the pain in treatment from walnuts used.

" Tib Laws" in his work It is said to be a walnut, and his shell, the blood in stopping, is useful. Peel it with condensed juice and cough ointment; if so, the fruit intestine eliminates the pain. Fruit contain iron, phosphorus, serotonin, darmandorisi, oil and proteins that improve food digestion; iodine and thyroid function are restored.

T. Abdullaev "Uzbekistan walnut products" (2018) in the book Nutty to History Stopping, owner Amir Temur too walnut that he valued his tree very much and him Samarkand around to multiply recommendation what they did telling past [1]

High to agricultural technology suitable respectively maintained and adult reached each a bunch of walnuts tree almost one per ton near harvest giving, income brings

Fire is white, never indifferent, and she does not leave because she is great. ta ' mga have SHE IS often walnuts the king that is called And good to the reason according to his botany name Juglans Regia Latin from the language "Jupiter fruit" translation done

From this Except, the nut is the white tree, and on the face, the most ancient of the trees is, according to him, the glacier during the O'Scan. Archaeological findings that's it show that

the stone century from our era, thousands of years during which people lived, fire and white collected, and especially during heavy times, of the result when you don't alive the rest

Fire away the most big quantity today's in the day California, USA in the state work is issued. General area is 82 thousand hectares for 5 thousand near walnut plantations there is. Every year this 300 thousand in the state tons precious walnut it is cultivated in the world for sale 2/3 of walnuts organize does From this In addition, it is France, Russia, China, Turkey and in Italy is cultivated.

Barcelona Global Health Institute scientists walnut white daily consumption to be done of teenagers' intellectual ability effect according to wide scope research the results' announcement did, writes Arguments and Facts.

In research 11 to 16 years old from Barcelona 770 people student participation did Theirs half for six months each 30 grams per day walnut to eat need was, second half walnut didn't get it.

Control period from the end then, small amount the walnut regularly respectively consumption did school students attention and mind for in charge has been the brain in functions significant improvement They showed that their complicated from the tests successful that it has passed confirmed.

Plant omega-3 fatty acid, alpha-linolenic acid also known as, to the brain positive effect shows. This is especially a teenager brain in the example significant was Puberty is of the body wide scope again structure and in the frontal lobes logic and thinking for in charge has been nerve synapses (" neurons between contact lines ") growth era Omega-3 neurons faster to growth and mutually new of synapses formation possibility will give.

So do it, and the nut the brain and cognitive to abilities useful impact, especially children and teens in the example significant and the walnut adulthood during diary to the ration really useful addition does

3 Results

Any kind of nuts, that's it including walnut, Mediterranean of diet important is part of Currently it is the most healthy is considered and to research according to diabetes, heart and blood vein diseases, obesity and another one series problems risk reduces Walnut a person body for necessary has been different rich in substances. In them nutritional of components sure composition diversity and growth conditions depend

Oils. They are walnut nuclei of weight approx 69% to organize does These are basically a lot of unsaturated oily acids, that's it including important linoleic and alpha-linolenic acids. To the diet a lot of unsaturated oily acids insert heart-blood vein diseases and stroke risk to reduce help to give was determined.

Protein. All nuts are protein-rich foods and walnuts too except it's not. 100 g of walnuts for - about 15 g of protein. Contains protein L- arginine amino acid there is it is blood veins tone in order comparing participation which nitrate oxide produces NO release for is necessary. His deficiency, for example, hypertension with depends onbeing can

Cellulose. in 100 g of walnuts there are about 5 g, this another to nuts compared to a little less, but a lot to fruits compared to more Fiber, first in turn, the normal functioning of the intestine and healthy the weight storage for need

Vitamins and trace elements. All nuts as well as in walnuts amount potassium, magnesium, phosphorus, calcium, as well as vitamins E and C there is.

Other connections. Walnut in the composition some antioxidants and trace amount another many substances there is.

Calories composition. Very high - per 100 g about 700 kcal in walnuts of calories most of them from fat come it turns out that while them to energy - dense food turns (table 1)

Table 1. 100 g of walnuts nutritional value

What is he ? own into takes	**walnut**
Protein	14.6 years
Oils	69.7 years
Carbohydrates	10.9 years
Cellulose	5.2 years
Calcium	88 mg
Magnesium	142 mg
Potassium	424 mg
Phosphorus	365 mg
Calories composition	730 kcal

Nuts heart and common health for potential benefits confirmed by numerous studies covering all nuts. However, this product about another data there is.

Nuts regularly consumption to do can improve overall health. Nuts benefits about of evidence, most of them test tubes and animals from experiences comeout, although there are studies in humans as well there is.

Walnut and heart health in 2023 Journal of Nutrition Reviews authors from 2017 published since of walnuts health for effect according to studies seeing came out the article publication did See exit of the authors to his opinion according to the walnut per week one times or from him more consumption to do heart-blood vein diseases and stroke risk reduce with depends on and heart and blood veins for important normal blood lipid levels save to stay help will give.

Drugs.com is an independent international drug portal. Experts analysis conclusions agree withhis opinion than, not a lot unsaturated oily of acids good source they are heart-blood vein system for is useful because they are blood lipid levels to normalization help will give.

Walnut and diabetes American Diabetes Association for type 1 and type 2 diabetes played alpha-linolenicto patients acid own into received nuts more consumption to do recommendation does This is a disease blood vein complications risk to reduce help will give. But nuts, sugar degree control to do, or diabetes development prevention to get help to give about enough evidence, no.

Walnut and weight loss Not body mass to the index effect about a little evidence or kilogram to give help will give. However, in studies them regularly consumption did people kilogram did not give In general when, har how the walnut regularly consumption who does people healthy they eat

Walnut and another diseases. Nuts blood pressure, intestine microflora, cancer of the disease prevention get and cognitive to the function positive effect to show about yet enough evidence no.

American heart association recommends eating a handful of walnuts every day,i.e. about 40 g, experts two yearly randomized test information is based on There are 708 people in it participation did, they two to the group divided Nuts consumption in those who do cholesterol level is low. However, this product quantity kilogram to increase take did not come

Other clinical in studies volunteers different amount walnut consumption they did average, people per day one different 40 grams consumption when you do heart-blood vein to the system, positive effect showed.

Walnut of nuclei mass 5.8–9.4 g the organized does, that is 2 to 7 a day the walnut consumption to do can - they raw and without salt if good will be Nuts others with your replacement or your diet more different to do for they are with your replacement possible ; All nuts approx one different health for the benefits have

Walnut in the cores the most, a lot has been vitamins:

- B1 (thiamine), this of the body all metabolic in processes important role plays and of muscles development help will give. 100 g product of a person daily, 29% of the need to own into takes
- B6 (pyridoxine) aging prevention requires 100 g of walnuts consumption to meet 36% of the daily vitamin requirement.

In fruits, a lot amount of other B vitamins there is :

- B2 (riboflavin)
- B4 (choline)
- B5 (pantothenic acid)
- B9 (folio acid)
- From this, except walnut, the following vitamins are taken:
- C (ascorbic acid)
- E (tocopherol)
- H (biotin)
- K (phylloquinone)
- RR (niacin)
- A (retinol)
- D (calciferol)

Nut" brain" food" is called this because the fruit's regular consumption encouragesa person's mental activities encourages. Even in the form of a nut core of the brain, half balls look like

Walnut fruits' composition is a lot of unsaturated oily, including acids (linoleic Omega-6 and alpha-linolenic Omega-3), which are also called essential. These acids of the mind provide clarity and efficiency to help overcome neurological disease development hindrances

A lot amount of biological active substances and lecithin because of walnut memory strengthens, nervous tension loses and mental fatigue with will fight That's why for them intellectual of workers to the diet insert recommendation will be done.

Men for of walnuts benefits

Nuts regularly consumption of doing men health, especially reproductive to the system effect excess evaluation difficult

A lot of unsaturated oily acids through male power for necessary has been sexual hormones synthesis done is increased.

Omega-3 is a metabolic of processes active participant is hormonal degree in order to put help will give and of the body immunity protection increases.

Walnuts contain the amino acids serotonin and testosterone, which are responsible for male hormones' synthesis.

Vitamins A, B, C and E to the organism effect because of pelvis members and genitourinary system work is encouraged.

Magnesium, iron and calcium such as trace elements male to the body positive effect shows. They are heart speed and of tissues oxygen with that it is saturated to improve help will give. Men health for important zinc is a trace element, it is prostate function and spermatogenesis in support role plays

Nuts, of course, to the gym regularly visit of those who command to the diet the introduction because it is necessary they are a source of protein is considered nuts consumption to do strong the muscles to keep and whole of the body common situation to improve help will give. Ether oils, tannins and fibers each how excess from work after physical strength restores

Nuts Women for how benefits, is there

A woman's health in different aspects affects who does the walnut consumption of doing one series of positive sides there is.

Walnut that it is rich in vitamins C and E in its kernels for women of the skin dry, aging prevention to get help will give. Also, hair and of are the beauty save

Like zinc minerals of women reproductive health and to birth positive effect shows.

Nuts consumption to do a woman body harmful bacteria and from viruses protection does and Omega-3 acids to inflammation against properties have

Walnut of women hormonal level positive effect shows sex of glands activities normalizes, as well as analgesic to the effect have

Weight and weight loss for walnuts have unique advantages. The opposite visible this two to the goal, one different product using is achieved, but every different in proportions.

Nuts regularly consumption to do psycho-emotional the situation stabilizes, calms to the effect have, stress, fatigue and bad to the mood resistance increases.

Product varicose veins appearance prevention takes It is particularly high with heels shoes to wear good who sees Women for is useful.

Pregnant iron deficiency in women prevention get for walnut consumption to do recommendation will be done. But the doctor with consultation through reach possible has been to the dose compliance to do important

Nuts nutritional value and calories composition

In the walnut calories again to work (raw or fried) and addition ingredients or spices such as another to factors looking will change. However, in general, in the case of walnuts, the high-calorie' product that we say can

100 g of walnuts contains 654 kcal, there is. That's why for walnut of grains calories quantity high good quality wheat from bread two even a lot

100 g of product nutritional value :

- Proteins - 16 g
- Fats - 60 g
- carbohydrates - 11 g
- Ash - 2 g
- water - 4 g

Per day how much walnut you eat can

Nuts daily consumption common eating your needs, physical activity, health status and other individual factors such as one how much to factors looking difference to do can However, some recommendations you for manual being service to do can

Average in the account this to the product to contraindications haven't happened, or individual intolerance haven't happened adults about 10 per day walnut to eat that it is possible it is believed.

Pregnant 10–12 nuts for women consumption to do recommendation will be (product dried fruits and herbs with consumption to do or cores to water in advance to moisten is good).

For old people, the norm is 5–7 cores.

Weight in order to put for on a diet, those who are 2–3 nuts per day consumption to do recommendation will be done.

Children are usually about 5–7 fruits. If the product of the child is on the menu the first time, the kernel half offer to do is better.

Eco in the buffet nutty how food taste you see can

Nuts, very nice in the taste because he is cooking wide, areused. Inour café, this great product has received one of the most delicious and useful food offers we will

Cutlet "Bara" with nuts too much except hunger satisfies because from walnuts except, nuts, seitan (wheat protein) and corn he owns into takes

And if you're delicious and useful at the same time as adessert, enjoy being with mango. If you want a thin cashew cake, choose He is a nut and Cajun aromatic tropical fruits with unites

Nuts, sour cream added honey cakes, as well as apricots and dried apricots Radharani cake energy and health increase those who want the ideal choice for turns

4 Discussion

Walnut of the fruit has a lot of benefits for everyone, obviously. But this is the fruit of a cool water drink with many unknown features.

This juice in the body excess oil reduction in the blood sugar quantity and heart hit to the norm compare, Alzheimer's (memory weakening) disease risk reduces constipation treatment, and another row to diseases against in the struggle benefit gives

In the evening from sleeping before, in a glass of water from the skin cleaned, a piece of walnut was placed. In the morning, after waking up, hungry to the stomach, only water or nuts are drunk.

Walnut of water healing

Sugary in diabetes good effect shows. Open to the stomach drank 1 cup of walnuts water in the blood excess sugar the amount reduces Contains vitamins in the blood sugar the amount to the norm puts and heart attack risk reduces

From stress to exit help gives Walnut water as an anti-stress if used will be He is nervous system in order to a person silence dedicates Walnut water heart health keeps Blood rotation in order put, heart veins good to work they help.

The liver heals. Walnut water liver functions improving, rich in vitamins. Hormones to the norm, and as a result, liver activity improves.

In thyroid disease, hand will come From thyroid disease suffering smoker people a lot of walnut water consumption.

Healthy to lose weight help gives Nuts core to water put consumption to do through in the body excess fats melting can

Skin heals. Orderly and regularly walnut water consumption to do the face moist, lively, shiny to be provides. Fungus, various wounds like skin and facial diseases cures

Mobility improves. Blood contained sugar to the norm cause, blood exchange improves this during the day as a result mobile to be provides.

Your memory strengthens. The brain's functions improve. The main one is Alzheimer's disease probability reduces.

Pregnant to women help gives. Walnut water pregnant or breastfeeding women constant consumption to do recommendation will be done. Because walnut water in pregnancy, getting fat goes away.

The digestion system improves. Walnut water digestion system in order to put gas in the stomach. Constipation is a problem for the same period.

Insomnia the problem solution is enough From sleeping before drinking 1 cup of crushed walnuts water calm and without bothering to sleep provides.

Strong hair and healthy quotes. Hair and quotes heals them beautiful and polisher apparently help gives.

Walnut of water damages is there

Walnut water benefits with one in line harmful features there is also He is to everyone too recommendation does not reach :

- nut is an allergen that it was for sometimes on the skin redness, itching, rash to leave possible ;
- in the stomach problem to those who recommendation not done. Such in case walnut water to drink in the stomach, the pain cause release can.

Walnut water one in the day, the most popular drink; no more than 1 glass can. The effect felt for 15 days, one break by doing what needed. A gar lose weight for consumption, those who do if so, if you want to weight until they fall regularly, one glass per day drinking walks too can.

5 Conclusions

Nuts nutritional expensive priceless is considered He is not only useful and nutritious only not only that, it is also very tasty. In the Caucasus, with" nut milk" (crushed walnut and water mixed) from the mother separated, young babies were fed.

Ancient in Greece born to mothers walnut consumption to do ordered. Walnut very useful for the elderly is one row old age to diseases cure is considered Walnut physical work with to those engaged in and heavy from illness curable very necessary for patients food as is considered. In ancient times long to the trip out caravan, moved walker the military in their lungs walnut take walked. Mental work with engaged in of people to the activity the walnut positive effect Ancient From Babylon known.

According to Herodotus, according to Babylonian priests, walnuts were simple for people to consume to do banned. His reason is a nut, the fruit from the pod when cleaned from his core to the human brain, similar to what simple people consumed when they did from the priest's smarter being from leaving scared. Walnut core to the human brain similarity; even Greek thinker Plato was too surprised. He is a smart nut, and this fruit is ripening with people's lives between them; he is hiding that he will get it in mind was Swedish scientist and traveler Sven Hedin, but not ripe the walnut. If you disconnect it, it will crackle and he will cry.

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