HEALTHY IN A VEGAN DIET?

Cristina García Guerrero

Kyiah Jalland

Ins Rovira - Forns

2n Batxillerat

“Let food be thy medicine and medicine be thy food”

– Hippocrates (c. 460 BCE, Greece – c. 375 BCE, Thessaly)

ACKNOWLEDGEMENTS

I would like to thank my Research Project teacher, Kai, for her extraordinary support in this thesis process. I would also like to thank my mum, who and was always willing to help me.

This project would have been impossible without all the people that replied to the survey. And last but not least, I would like to thank the nutritionist Núria Mallén, who helped me with a part of the practical framework.

INDEX

1. INTRODUCTION

It was really hard for me to come up with a topic to do my Research Project about. I wanted to do it about something I actually liked and interested me, something I could get conclusions from and use them in my everyday life later on. Unluckily, I did not seem to know what that was, all I did was discard ideas and more ideas.

Being a vegan myself I have to deal with people questioning my lifestyle choice every single day. Vegans have to put up with a considerable amount of comments about things like “plants feel pain” or “would you eat an animal if you were stranded on an island with only animals?” But I realised that the biggest misconception about veganism is health in general. Vegan diets or plant - based diets are always associated with deficiencies or monotony. That is why I finally decided I wanted to do my Research Project about veganism. More specifically, about whether a vegan diet was healthy or not.

My Research Project is called “Healthy in a vegan diet?” and with it I am aiming to demonstrate to all those people reading this work the following hypothesis:

You can be perfectly healthy without animal products as long as your diet is rich, varied and balanced.

The basic objectives that I expected to complete were:

- Knowing what veganism is and where it comes from: its history.
- Creating a survey and looking for common health and nutrition myths about veganism.
- Disproving the myths.
- Creating a vegan menu from the information gathered and getting it evaluated by a nutritionist.

I based the theoretical part of the work on books, medical studies, documentaries and reliable websites.

In order to know what misconceptions there were about vegan diets, I did some research, including a survey amongst different age - groups.

With the conclusions that I obtained from my theoretical work about vegan diets, I created a sample for anyone who wants to try a vegan diet for themselves.

2. VEGANISM

Even though the vegan lifestyle is becoming more and more popular all over the world, a great amount of people still do not know what being vegan involves.

When *The Vegan Society* became a registered charity in 1979, the Memorandum and Articles of Association updated the definition of veganism as *a philosophy and way of living which seeks to exclude – as far as is possible and practicable – all forms of exploitation of, and cruelty to, animals for food, clothing or any other purpose; and by extension, promotes the development and use of animal–free alternatives for the benefit of humans, animals and the environment. In dietary terms it denotes the practice of dispensing with all products derived wholly or partly from animals*[1].

The term "vegetarian" refers to all those diets which decide to exclude meat. There are different branches inside vegetarianism. We can find lacto-ovo-vegetarianism, ovo-vegetarianism, lacto-vegetarianism, strict vegetarianism, veganism and so on, but these are the main ones and the ones I am going to focus on here.

Every one of these vegetarian diets excludes something else besides meat, be it dairy, eggs or honey. The vegan diet, however, apart from excluding meat, eggs, dairy products and honey, also excludes other animal-derived products or foods that have been processed using animal products such as some beers. Veganism also avoids the use of fur, wool, leather, beeswax, silk, etc. and any product tested on animals.

In the following table there are the differences between all those vegetarian diets I talked about before:

[1] The Vegan Society's web (https://www.vegansociety.com/go-vegan/definition-veganism)

	Meat, fish and seafood	Eggs	Dairy	Honey	Leather, silk, wool...
Lacto-ovo-vegetarian	NO	YES	YES	YES	YES
Lacto-vegetarian	NO	NO	YES	YES	YES
Ovo-vegetarian	NO	YES	NO	YES	YES
Strict vegetarian	NO	NO	NO	NO	YES
Vegan	NO	NO	NO	NO	NO

Nowadays, those who follow a plant – based diet do it for health or moral reasons, but it used to have a religious and philosophic origin.

3. HISTORY OF VEGANISM

Although it seems that veganism is something quite modern, if we take a deeper look at history, we can see how veganism has always been a popular diet among those following certain religions, like the Indians, those with different value scales such as some Greek thinkers or some historical characters, Da Vinci or Einstein, for instance.

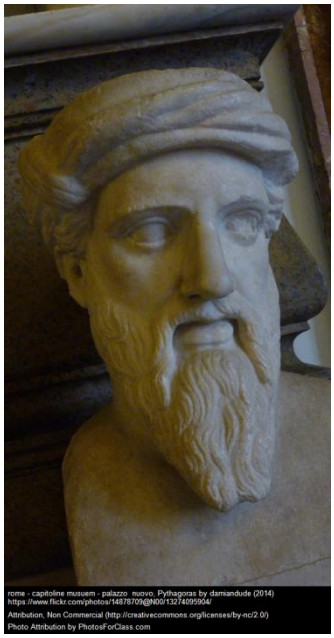
To find the origins of veganism, we must look to the history of vegetarianism, as the term “vegetarian” was used in the 1900’s to describe what we now refer to as a vegan diet, as well as other variations such as lacto-vegetarian, ovo-vegetarian, etc. So it’s often difficult to know what these diets were abstaining from.

It is known that prehistoric people sacrificed animals during rituals. The discovery of bones also shows that they were not vegetarians. However, with some time people started to avoid a diet based on meat and preferred to consume plants instead.

The history of this lifestyle has its roots in the Indus River Valley and ancient Greece.

In Indian culture, Jainism, which is an ancient religion from India that goes back to the 8th century BC, practiced *Ahimsa,* an attitude of nonviolence not only towards humans, but also towards animals.

In ancient Greece, an example of a great vegetarian was the philosopher Pythagoras (570-495 BC), who maintained that *meat polluted and brutalized the human soul.* He also said *"To be non-violent to human beings and to be a killer of poor animals is Satan's philosophy… he who sows the seeds of murder and pain cannot reap joy and love."* He was the father of western vegetarianism. In fact, for some time vegetarianism was called Pythagorean Diet. This diet became a philosophical morality between 490-430 BC with a desire to create a universal and absolute law including injunctions not to kill "living creatures," to abstain from "harsh-sounding bloodshed," in particular animal sacrifice, and "never to eat meat."



The writers Ovid and Plutarch, as well as other Greek vegetarians such as Homer, Empedocles, Plato, Theophrastus, Socio and Seneca, for example, condemned the slaughter of innocent beings.[2]

Almost every religion has preached the abstaining from eating meat. For instance, the Egyptian priests followed a vegetarian diet in order to keep their vow of chastity. They even refused to eat eggs because they were considered to be liquid flesh.

After the Christianization of the Roman Empire, vegetarianism disappeared from Europe. It wasn't until the Renaissance that we see vegetarianism again with the painter, sculptor, architect, engineer and anatomist Leonardo Da Vinci (1467-1516). Da Vinci refused to eat meat since his childhood, when in a party he witnessed a maid slaughtering a piglet.[3]

[2] Ovid, *Metamorphoses*. Plutarch, *Moralia* (Annex 1 and 2)
[3] https://bellezainteriorvegetariana.wordpress.com/category/historia-del-vegetarianismo/

Late in the 18th century, avoiding meat was justified with moral and metaphysical arguments but from the 19th century onwards, the increasing interest for health and a bigger influence of science formulated reasoning in favour of vegetarianism.

Dr. Isaac Jennings (1788-1874) after 20 years of practise in medicine discovered that his patients' health improved with simple changes in lifestyle, such as eating a healthy vegetarian diet, breathing plenty of fresh air, and drinking pure water. In combination with sunshine, exercise, and plenty of sleep, these changes produced better results than modern medical treatment, and his patients no longer needed medication. The practice of natural hygiene started in 1822 as a result of these observations. Although he achieved great success substituting pills with placebos, when Jennings publicly announced his approach, his medical fellow members criticized him and dismissed his methods of health care.[4]

Another famous vegetarian was Albert Einstein (1879-1955). He had supported the idea of vegetarianism for a long time. In a letter to Max Kariel he said, "I have eaten animal flesh with a somewhat guilty conscience", and soon after became a vegetarian, one year before he died. He also wrote this in one of his letters, "So I am living without fats, without meat, without fish, but I am feeling quite well this way. It always seems to me that man was not born to be a carnivore."[5]

It wasn't until November 1944, when Donald Watson (1910-2005), co-founder of The Vegan Society[6], wrote the first article[7] of Vegan News, where the word "Vegan" was used for the very first time.

[4] https://bellezainteriorvegetariana.wordpress.com/category/historia-del-vegetarianismo/
[5] https://www.quora.com/What-were-Albert-Einsteins-views-on-veganism-and-vegetarianism
[6] https://www.vegansociety.com/
[7] Annex 3

4. MYTHS ABOUT VEGANISM

4.1. HEALTH AND NUTRITION

In the survey made[8], 56.5% of people said that humans need animal products in order to be healthy. On the other hand, the other 43.5% maintained that animal products are not needed in order to stay healthy.

Despite the studies made, there is no shortage of disagreement around the healthiness of meat or other animal products. On the one hand we have all those people who support animal products consumption because they believe it is healthy and essential for humans. And on the other hand we have people such as vegans, vegetarians or even regular people who have decided to cut down on animal products because they claim they are not healthy for humans.

Increasingly, more studies and global organizations warn us about the link between eating meat and cardiovascular diseases, obesity, cholesterol, general toxicity, acidification in our blood, deficiency in our immunological system, or cancer.

Some people[9] say that the healthiest way of eating meat, is eating lean meat. Lean meats are meats with relatively low fat content or with the fat trimmed off. Some examples of it are poultry and fish. However, Dr. John A. McDougall, Md, replies to that pointing out that even if the fat in it is low or trimmed off, they are all muscles after all: they are high in fat, high in protein, high in cholesterol and they have no dietary fiber. Dr. Pamela A. Popper, PhD, Nd, says that fish is not healthier in many cases. Sometimes it can even have more fat than chicken or pork. She also adds that due to the ocean hierarchy, when you eat fish you concentrate all the pollutants in the ocean, including mercury.

An equally significant aspect of this controversy is the argument that humans need to consume animal products so as not to lack essential nutrients for the body such as proteins. In the survey, the great majority

[8] Annex 4
[9] Documentary *Food Choices*

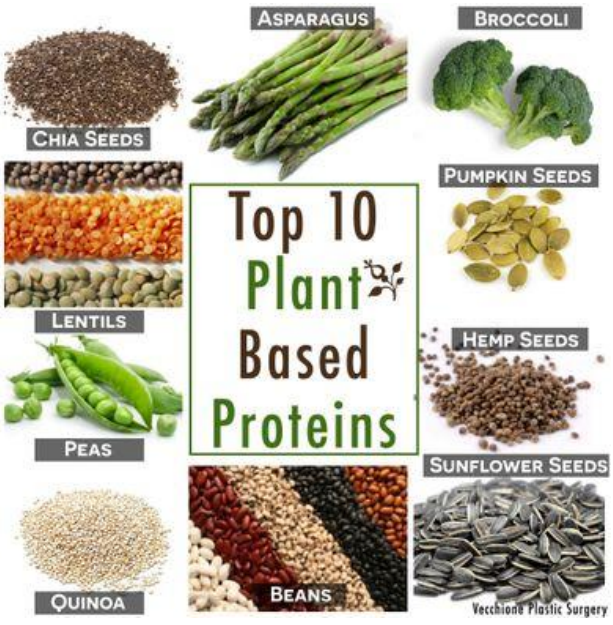
of people (84.8%) stated that because vegans do not consume any sort of animal products, they should supplement their diet with mainly calcium, vitamin B12 and iron.

4.1.1. PROTEIN

The protein deficiency in a vegan diet argument is one of the most commonly used reasons to turn down veganism.

Proteins are molecules made out of smaller ones called amino acids. Our body uses those amino acids to create its own proteins with its DNA. In total there are around twenty amino acids that the human body uses to build proteins. These amino acids are classified as either essential or non-essential. While our bodies can produce non-essential amino acids, we need to get the essential amino acids through our diet since we cannot produce them.

The proteins found in meat - and other animal products - are considered to be complete sources of protein because they contain all the amino acids the human body needs to function effectively. While animal proteins tend to contain a good balance of all the amino acids that we need, some plant proteins are low in certain amino acids.



(http://vecchioneplasticsurgeryblog.com/plant-based-protein/)

Even though that is true, we can still get the essential amino acids we need in a vegan diet. A recommendation is that those who follow an animal protein free diet make specific combinations of plant proteins. For example, grains and cereals are extremely low in lysine. Nevertheless, legumes contain a lot of it. On the

other hand, legumes are not a good source of tryptophan, methionine and cystine, but those amino acids are found in grains and cereals. There are some exceptions of plants that have all the essential amino acids; those are soya and other soya products (tofu, tempeh, soy milk, edamame, etc.) and quinoa.

It is not needed to eat complementary proteins together at every meal in a plant based diet. As long as you get a variety of proteins throughout the day, you will get ample amounts of each amino acid.

On the basis that omnivorous and vegan diets can provide the right amount of proteins that our body needs, and we need 0.8 grams of protein per kilogram of bodyweight, which one is better for humans?

There are associations between protein-high meat diets and disorders of bone and calcium balance, increased cancer risk, disorders of the liver and worsening of coronary artery disease.

Harvard University researchers made a study on thousands of healthy women for more than a decade to look for the presence of excess protein in their urine[10], a sign that kidneys may be starting to fail. The researchers found three components associated with this sign of declining kidney function: animal protein, animal fat and cholesterol. No association was found between kidney function decline and intake of plant protein or fat.

Animal protein consumption also appears to trigger the release of insulin-like growth factor 1 (IGF-1)[11], a cancer - producing growth hormone. IGF-1 levels rise during childhood to power our development and decrease when we reach adulthood. If the levels remain too high, however, our cells will receive a message to grow, divide and keep going and growing. The more IGF-1 in our bloodstream, the higher our risk for developing some cancers. Animal protein appears to stimulate IGF-1 production.

[10] Nutritionfacts.org
[11] Nutritionfacts.org

However, after just eleven days of cutting down on animal protein, our IGF-1 levels may drop by 20 percent.

Consuming more plant protein may be useful for cancer prevention[12]. The largest diet and bladder cancer study found that a 3% increase in animal protein consumption was associated with a 15% increase of bladder cancer; while a 2% increase in plant protein intake was associated with a 23% decreased cancer risk.

The China Study, by T. Colin Campbell, Ph.D. and Thomas M. Campbell II, M.D. examines the link between eating animal-based foods with some chronic diseases such as coronary heart disease, diabetes, breast cancer, prostate cancer and bowel cancer. The study compared the health consequences of diets rich in animal-based foods to diets rich in plant-based foods in sixty five countries in China among people who were genetically similar.

The authors of this best-seller concluded that people who eat a predominantly whole-food, plant-based diet, avoiding animal products as a main source of nutrition (including beef, pork, fish, poultry, eggs, cheese, milk...) and reduce their intake of processed foods and refined carbohydrates, will escape, reduce or even reverse the development of numerous diseases.

An example of animal protein being the cause of chronic diseases is D. Anthony Evans[13]. He is a neurofibromatosis patient and a MNPST cancer survivor. MNPST is a rare sarcoma, one of the most aggressive and fast infiltrating cancers that there are. He has had over three hundred and twenty five tumors removed from his body. Anthony made the decision to switch to a plant - based diet.

Anthony said in the documentary *Food Choices* “The insane mindset that animal protein is the key to being very healthy almost killed me. I am not saying that plant - based diets cure or they are the end-all, be-all, but

[12] Nutritionfacts.org
[13] Documentary *Food Choices*

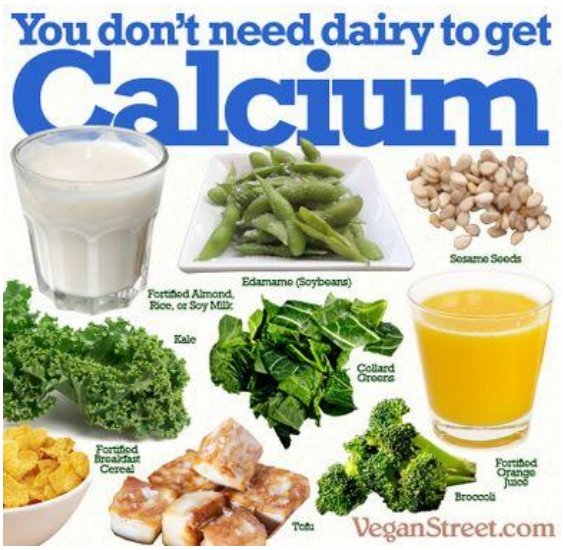
what I am saying is that if you are going through some type of health crisis, your odds are very much greater when you embrace a plant - based lifestyle. Those are just the facts. And my life is the living proof."

In conclusion, although animal protein seems to be a complete source of all the essential amino acids, it also promotes the risk of some chronic disease. In my opinion, plant protein might be the answer in the long term since it does not only prevent chronic diseases, but also reverses the disease in many cases.

4.1.2. CALCIUM

Calcium is a chemical element that is essential for living organisms, including humans. It is the most abundant mineral in the body and vital for good health. We need to consume a certain amount of calcium to build and maintain strong bones and healthy communication between the brain and other parts of the body. Calcium is found naturally in many foods and is also added to certain products.

Dairy products are not the only source of calcium. Many plant foods are marvellous sources of calcium: kale, broccoli, calcium-set tofu, beans, green leaves, figs, chia seeds, almonds, coconut and so on. A downside of getting our calcium from plants, however, is that some leafy green vegetables contain oxalates, which can inhibit the absorption of calcium. On the one hand, beet greens, Swiss chard and spinach contain a lot of calcium but they are high in oxalates, therefore they are not good choices for meeting calcium needs. On the other hand, the calcium in leafy greens such as kale, mustard greens or collard is absorbed at very high rates.



https://sunshineandslaughter.files.wordpress.com/2014/01/youdontneedmilktogetcalcium-lg.jpg?w=652

An advantage of getting our calcium from plant sources is that leafy green vegetables, apart from being rich in calcium, are rich in vitamin K[14]. This vitamin directs calcium and allows the blood to clot. Other nutrients found in fruits and vegetables that support bone health are potassium and vitamin C.

Many people support that dairy products do us good because they are an excellent source of calcium and they help us have strong and healthy bones. While it is true that dairy has calcium and calcium is necessary for a good bone health, a 2005 review[15] on dairy products and bone health published in the official journal of the American Academy of Pediatrics claimed that there is little evidence to support increasing the consumption of dairy products in children and young adults in order to promote bone health.

There are several clinical studies that link the consumption of animal protein to osteoporosis. This is because animal protein causes our blood to acidify, which results in the leaching of calcium from our bones and our eventually excreting it from our bodies. So the consumption of dairy products not only does not prevent osteoporosis but it can actually cause it.

Yet, studies show that the more servings of dairy foods that adults consume, the greater the percentage of their total calories that comes from saturated fats. Even though saturated fats are bad for us, dairy has good things too. Dairy has many nutrients like protein, calcium, magnesium, folate and vitamins B1, B2, B6, B12, A, D and E which help with the proper functioning of our body.[16]

In the book *The China Study,* Dr. T. Colin Campbell found that a protein found in cow's milk (casein) promotes cancer.

[14] *Guía Completa de Prebióticos y Probióticos para la salud. Un plan para equilibrar tu hora intestinal*, by Dr. Maitreyi Raman, Angela Sirounis and Jennifer Shrubsole.
[15] Annex 5
[16] *Guía Completa de Prebióticos y Probióticos para la salud. Un plan para equilibrar tu hora intestinal*, by Dr. Maitreyi Raman, Angela Sirounis and Jennifer Shrubsole.

In the study *Calcium absorption in Australian osteopenic postmenopausal women: an acute comparative study of fortified soy milk to cows' milk*[17] they found that "Calcium absorption from fortified soy milk was found to be comparable to that of cow's milk."

To sum up, if both dairy and plants provide calcium and there is not only no association between dairy and good bones but also dairy is directly connected with some diseases such as osteoporosis and cancer, I believe diets high in fruits and vegetables are important for keeping bones healthy. It would be better to cut down on our dairy intake and get used to getting our calcium from plant sources.

4.1.3. VITAMIN B12

Vitamin B12 is a water-soluble vitamin that is involved in the metabolism of every cell of the human body: it is a cofactor in DNA synthesis and in both fatty acid and amino acid metabolism. It is particularly important in the normal functioning of the nervous system via its role in the synthesis of myelin, and the maturation of developing red blood cells in the bone marrow. The daily quantity of B12 needed depends on age.[18]

AGE (MEN AND WOMEN)	RECOMMENDED DAILY QUANTITY
0 – 6 months	0.4 mcg
7 – 11 months	0.5 mcg
1 – 3 years	0.9 mcg
4 – 8 years	1.2 mcg

[17] Annex 6

[18] Table from the book *Guía Completa de Prebióticos y Probióticos para la salud. Un plan para equilibrar tu hora intestinal*, by Dr. Maitreyi Raman, Angela Sirounis and Jennifer Shrubsole

9 – 13 years	1.8 mcg
14 + years	2.4 mcg
During pregnancy	2.6 mcg
During breastfeeding	2.8 mcg

B12 deficiency is characterized by giving anaemia or low levels of haemoglobin in the bloodstream, fatigue, weakness or appetite loss. Neurological changes such as sensitivity loss and prickling sensation in the extremities of the body (arms, legs) are some symptoms of B12 deficiency and can cause irreparable damages in the nerves. Other symptoms could be confusion, dementia, bad memory and pain in the mouth or tongue.

There is a large number of this vitamin in animal products, mainly in meat and fish. It is not made by the animals themselves but by a bacteria that live inside them. Vegetarians get their B12 through dairy and eggs, but vegans should take B12 supplements to make sure they are getting a good deal of it, elsewhere they could suffer from a B12 deficiency. The B12 used in vegan supplements is made by 'farming' the bacteria directly and harvesting the vitamin.

Although vitamin B12 is only naturally found in animal products and some nutritional yeast, it can also be found in foods like algae or tempeh. However, these are not considered reliable sources of it, and so the advice is to take a daily supplement.

By Natcha S "Yellow pills forming shape to B12 alphabet on wood background"

It is not just vegans who should supplement it. People with pernicious anaemia or who suffer from Crohn's or lupus, or who drink heavily are at risk of

being deficient. Since the risk of being deficient increases with age, the advice given in the United States is for everyone over the age of fifty to take a daily B12 supplement.

Pregnant women and lactating women who follow a vegan diet have to keep in mind that this can lead to a B12 deficiency in their breast milk. If this happens, their newborns could develop a B12 deficiency at a very young age.

A non-detected or non-treated B12 deficiency in children can cause negative neurological results. For that reason, the Nutrition and Dietetics Academy recommends vegan and vegetarian women to take B12 supplements to guarantee that their children get the proper amounts of vitamin B12.

4.1.4. IRON AND ANAEMIA

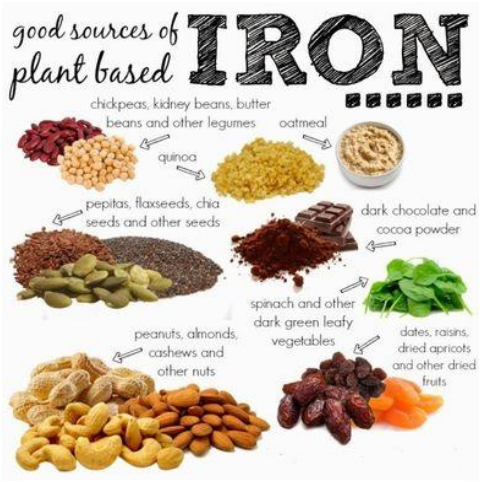
Anaemia is a condition that develops when your blood lacks enough healthy red blood cells or haemoglobin. Iron is an essential mineral and an important component of haemoglobin, which transports oxygen from the lungs to the rest of our body. If there is a lack of Iron, our body cannot produce enough red blood cells to move oxygen.

Not all iron found in food is bioavailable. It can happen that a vegan diet has the same quantities of iron than a non vegan diet; however, the iron coming from plant foods is less bioavailable. This is called non-heme iron.

Iron is found in two forms; heme iron, which is about 40% of the iron found in meat, poultry and fish, and non-heme iron, which makes up the other 60% of iron in animal tissue and all the iron in plant foods.[19] Even though heme iron is more easily absorbed than non-heme iron, studies have shown that iron deficiency is no more common among vegans than among non-vegans. Moreover, dairy products such as milk and other forms of calcium could reduce or inhibit iron absorption. It is advisable to separate foods rich in iron and dairy products.

[19] https://www.vrg.org/nutrition/iron.php

Some nutrients tend to work better when you mix them with others than on their own. The combination of iron and vitamin C is no exception. Vegan diets tend to be higher in Vitamin C, which increases the absorption of non-heme iron by turning them into their ferrous form, which is easier for our small bowel to absorb.



http://www.veggiechallenge.com/wp-content/uploads/2015/06/good-sources-of-iron-vetetarian1.jpg

Many plant foods are actually higher in iron than animal foods.[20]

Foods	Mg of iron per cup
Spinach	6.4 mg
Steak	5.6 mg
White beans	6.6 mg
Pork	2.0 mg

Choosing foods rich in fibre and whole grains instead of foods low in fibre and refined grains can greatly influence iron absorption. Due to the fact that non-heme iron is influenced by other dietetic factors and nutrients, generally, the need of iron in vegans is about twice the need of iron in those who eat meat.[21]

[20] Numbers from Self Nutrition Data

[21] Table from the book *Guía Completa de Prebióticos y Probióticos para la salud. Un plan para equilibrar tu hora intestinal*, by Dr. Maitreyi Raman, Angela Sirounis and Jennifer Shrubsole.

HOW MUCH IRON SHOULD WE HAVE?		
Age and gender	**Non-vegan diet (md/day)**	**Vegan diet (md/day)**
Men 19 + years	8	16
Women 19 – 50 years	18	32-36
Women 51 + years	8	14-16

The evidence above shows that vegan and omnivorous diets provide enough iron to stay healthy. Vegan diets will not give you more anaemia than an omnivorous diet as long as you eat a varied diet. The disadvantage of getting iron in a vegan diet, however, is that it may be slightly more complicated since the iron is harder to absorb and you have to consume twice as much iron than you would in an omnivorous diet.

4.1.5. VEGAN DIETS AND ATHLETES

The myth that vegan athletes are weaker than meat eater athletes comes from the already disproved myth which suggests that vegans do not get enough protein.

Some vegan athletes[22] are:

- CARL LEWIS, vegan Olympic sprinter: Carl Lewis' outstanding career includes nine gold and one silver Olympic medals in one hundred and two hundred metres sprint, long jumps and 4 x 100

[22] According to http://www.greatveganathletes.com/

meters relays. He was voted World Athlete of the decade (1980s) and Olympic Athlete of the Century (1900s).

- ALEXANDER DARGATZ, vegan bodybuilder: Alexander Dargatz won the World Champion Fitness title in 2005 with WFF (World Fitness Federation). Five years before this he had become vegan in response to the cruelty of the animal food industries. He said:

"My power has increased since becoming vegan, especially my endurance, and I almost never get ill anymore."

- VENUS WILLIAMS, vegan tennis player: Venus Williams has won seven Grand slam singles titles and fourteen Grand Slam Women's doubles titles. She has also won the Wimbledon women's singles title five times and has four Olympic gold medals.
- SCOTT JUREK, vegan ultramarathon runner: Scott Jurek has won sixteen prestigious ultramarathon titles, and holds a personal record of running 165.7 miles (266.7 km) over a 24 hour period. He said:

"If athletes aren't fuelled properly, they don't have great results."

- BARNY DU PLESSIS, vegan bodybuilder: Barny du Plessis is the world's first vegan bodybuilder and Mr Universe 2014, amongst other national and international titles.

Du Plessis went vegan after retiring from bodybuilding in 2013 due to an ever-growing list of concerns which included hernias and acid reflux. After adopting a vegan lifestyle, the bodybuilder saw his fitness radically improve and he returned to the stage. He said:

"These days I train half as much, do half as much but get better results. Why? Only one answer, going vegan, GMO free, and organic. My body is running perfectly."

As one can see, the examples above demonstrate that a vegan diet is perfect for athletes across all disciplines, and many world class competitors credit their achievements to their plant-based diet.

4.1.6. VEGAN DIETS AND PREGNANT WOMEN

Even though the survey was quite equalised, (52.2% of people said that vegan diets were not healthy for either pregnant women or children, while the other 47.8% stated that vegan diets are healthy for both of

them) there are a significant amount of people who declare that pregnant women cannot follow a vegan diet because it can damage the baby. That is a fair concern since a mother's diet during pregnancy will affect the child's health for many years.

The British Dietetic Association (BDA) offers cautious advice, stating that "*well-planned vegetarian diets are appropriate for all stages of life and have many benefits".*[23]

Pregnant women will have to increase their calorie intake in the second and third trimester. The physicians Committee for Responsible Medicine suggest women pay particular attention to the following nutrients.[24]

- Calcium: It suggests women choose tofu, soya beans, dark green leafy vegetables like spinach and kale, bok choy, broccoli, beans, figs, sunflower seeds, tahini, almond butter and fortified non-dairy milks.
- Essential Fatty Acids: It is possible to meet Omega-3 fatty acid needs by consuming enough sources of ALA (alpha linolenic acid), balanced by not having too many Omega-6 fatty acids. It is best to eat flaxseeds, walnuts and soya beans for Omega-3.
- Folic Acid: This is especially important in the first weeks of pregnancy, and so all women should aim to eat plenty of folate from leafy greens, beans, peas and other legumes, oranges, wheat bran, whole grain foods and yeast extract.
- Iron: Iron requirements increase during pregnancy, and so iron-rich foods should be included daily: whole grains, legumes, seeds, nuts, kale, sprouts, spinach, dried fruits and blackstrap molasses. Eating foods high in Vitamin C will help to absorb iron.
- Protein: Protein requirements also increase during pregnancy. Vegans should be aiming for around 71g per day during the second and third trimester. Their diet should include whole grains, beans and legumes, soya products, vegetables, nuts and seeds. If

[23] Annex 7
[24] https://veganuary.com/

enough calories are consumed and those products are included, protein needs are almost certain to be met.

- Vitamin B12: Its requirements increase only slightly during pregnancy and so all the usual fortified foods (cereals, dairy-free milks, nutritional yeast) should be consumed. Nevertheless, it is wise to take supplements.
- Zinc: Zinc requirements increase during pregnancy. Good sources of this are nuts, legumes, whole grains and cereals. Its absorption can be increased by including sprouted grains, beans, or seeds and yeast-raised breads in the diet, soaking and cooking legumes, and combining zinc sources with acidic ingredients such as lemon juice or tomato sauce.

To sum up, it is completely safe to follow a vegan diet in pregnancy providing that the women know that some nutrient requirements will increase during pregnancy. It is advisable, however, to talk with your general practitioner so as not to lack anything and ensure the fetus's health.

4.1.7. VEGAN DIETS AND CHILDREN

Any diet needs to be carefully planned to ensure correct nutrition, and this is obviously particularly important when it comes to children.

The British Dietetic Association, who are experts in the field, say that a vegan diet can be suitable for people of any age. Also, the US-based organisation Physicians Committee for Responsible Medicine supports this view.[25]

Vegan diets do meet the nutritional needs of children. This, of course, depends on the right foods given in the right quantities. We also have to bear in mind that the low-fat, high-fiber diet recommended for an adult is not suitable for children. Because children burn a lot of energy, they need a high calorie intake and too much fiber will cause small stomachs to feel full before they've actually got enough.

[25] https://veganuary.com/

Children also need calcium from fortified milks and breakfast cereal, green vegetables and tofu to help meet their requirements. A vitamin B12 supplement should be considered as well, even though they can have nutritional yeast and some fortified non-dairy milk or cereal.

4.1.8. SOYA AND CANCER

Many epidemiological studies have shown that the risk of certain diseases, like cardiovascular illnesses, cancer and osteoporosis, is smaller in Asia than in the west. The cause of this difference has been related with soya consumption. Even so, we must point out that the high soy consumption in Asian countries is only one of many healthy factors which make them stand out.

There were some theories that, because soya contains phytoestrogens, known as isoflavones, which resemble oestrogen chemically, they would act in the same way as oestrogen. Since most breast cancers are sensitive to oestrogens, some rumours spread about soya products causing cancer. But since then, much research has been carried out and the results show that, far from causing cancer, soya actually protects against it.

The lower rates of breast and prostate cancers in Asian countries, where soya is consumed in greater quantities than in the United Kingdom and the United States, have led scientists to investigate the role of soya foods on cancer, with a particular focus on breast cancer and prostate cancer. Consumption of soya is associated with a twenty to thirty percent reduced risk of prostate cancer. Incredibly, research[26] has also shown that consuming soya can also help slow down the rate of prostate cancer if it has already taken hold.

And it is a similar story for women. Research[27] shows that women who consume more soya suffer fewer breast and uterine cancers. One study found that women who have just one cup of soya milk per day (or half a cup of tofu) have thirty per cent less risk of developing breast cancer

[26] Annex 8
[27] Annex 9

compared with women who have little or no soya. And the sooner we start eating soya, the better, as breast tissue forms in adolescence, but it is also never too late. The Women's Healthy Eating and Living Study found that women who had previously been diagnosed with breast cancer would do well to include soya products in their diet as those who consumed the most soya products cut their risk of cancer recurrence or mortality in half.

5. VEGAN MENU

At this stage of my practical framework, I created a vegan menu taking into consideration what I had written in the theoretical part. Apart from that, I also did some research online to help me find the proper daily quantities of vegetables, fruits, protein, carbohydrates, nuts and seed fats for the menu per day:

FOOD	PORTION / DAY
Vegetable	3
Fruits	2
Protein	4
Carbohydrates	2
Nuts	1
Seed Fats	1

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
BREAKFAST	Whole grain toast with almond butter + Smoothie (protein powder, hemp seeds, plant milk, fruit)	Soy Yoghurt with chia seeds + Muesli + raspberries	Whole grain toast with peanut butter + Calcium – fortified orange juice	Oatmeal with chia seeds, almond butter and banana (oatmeal made with soy milk)	Whole grain toast with peanut butter + Smoothie (protein powder, hemp seeds, water, fruit)	Soy Yoghurt with chia seeds + Muesli + raspberries	Whole grain toast with peanut butter + Calcium – fortified orange juice
SNACK	Banana	Apple + nuts	Pineapple	Grapes	Banana	Orange + nuts	Mango
LUNCH	Whole grain zucchini hummus wrap	Cooked lentils + Baked sweet potato + Steamed vegetables	Brown Rice + Veggie stir fry + quinoa	Whole grain pasta + Tofu + Tomato sauce with vegetables	Sauteed Kale + Beans + Corn on cob	Baked sweet potato + Broccoli + Lentils	Brown Rice + Veggie stir fry + Kidney beans
SNACK	Edamame	Edamame	Edamame	Edamame	Edamame	Edamame	Edamame
DINNER	Steamed broccoli and asparagus + Tempeh	Seitan burger + Leafy green salad	Sauteed mushrooms + White beans	Asparagus + Seitan	Steamed vegetables + Tempeh	Seitan burger + Leafy green salad	Vegetable broth + quinoa

To see if this menu would be suitable for someone who is vegan, I calculated the calcium and the iron of each day of the week[28].

According to the table of iron (page 22), vegan men older than nineteen years old and women older than fifty one years old, should have, approximately, between fourteen and sixteen milligrams of iron. Following the menu, they would easily meet their iron needs.

Nevertheless, vegan women between nineteen and fifty years of age should have between thirty two and thirty six milligrams of iron per day. Even though in the menu such high rates of iron are only found on Tuesday and Saturday, it is still found the same milligrams of iron than non vegan women between those age - groups would need. Taking into consideration that having twice the iron than a non vegan is only a recommendation in case your body cannot absorb all the non-heme iron coming from plant foods, I would not say that is a problem since the menu is very rich in vitamin C too.

In contrast to iron and calcium, owning to the fact that there is little or no vitamin B12 in the menu, it is very advisable to supplement vitamin B12.

5.1. APPOINTMENT WITH A NUTRITIONIST

On 22 November, I had an appointment with Núria Mallén (Num. Col. CAT729), who is a dietician and nutritional coach, and we talked about the vegan diet.

She told me that nutritionists in Spain recommend the omnivorous diet, specially the Mediterranean one. Even so, she said that a well balanced vegan diet can be suitable for athletes, children, elderly people and even pregnant women.

When asked about iron and anaemia, she said that there was no evidence of more anaemia amongst vegan people than those who follow an omnivorous diet. She added, however, that there had not been much research done.

Furthermore, she said that, because humans can only absorb that vitamin B12 found in animal products, it was a must for vegans to supplement it.

[28] Annex 10

We also talked about the link between soya and cancer. She said that soya does not produce cancer. Yet, she said that western people are not used to it and starting to consume huge amounts of soya all of a sudden could be detrimental to our body.

We ended the appointment talking about the disadvantages of being vegan, and she affirmed that the biggest disadvantage of being vegan was not health - because you could be perfectly healthy in a vegan diet - but society. She said that the greatest difficulty about being vegan was eating out.

I also showed the menu to her in order to get some feedback and she told me to be careful with the soya intake if you are not used to it. Moreover, on Tuesday's lunch, she said that the sweet potato was optional because lentils were a good source of proteins but also a good source of carbohydrates, so it would be unnecessary to add more carbohydrates with the sweet potato.

Regarding the daily protein quantities, the table in the beginning of the Vegan Menu section said that we should have protein four times a day, which means that you must have protein in your breakfast. Nonetheless, the nutritionist said that having protein with breakfast was not necessary since our body accumulates the protein. So having protein powder in the Smoothies could be avoided.

5.2. FINAL MENU

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
BREAKFAST	Whole grain toast with almond butter + Smoothie (hemp seeds, plant milk, fruit)	Soy Yoghurt with chia seeds + Muesli + raspberries	Whole grain toast with peanut butter + Calcium – fortified orange juice	Oatmeal with chia seeds, almond butter and banana (oatmeal made with soy milk)	Whole grain toast with peanut butter + Smoothie (hemp seeds, water, fruit)	Soy Yoghurt with chia seeds + Muesli + raspberries	Whole grain toast with peanut butter + Calcium – fortified orange juice
SNACK	Banana	Apple + nuts	Pineapple	Grapes	Banana	Orange + nuts	Mango
LUNCH	Whole grain zucchini hummus wrap	Cooked lentils + Steamed vegetables	Brown Rice + Veggie stir fry + quinoa	Whole grain pasta + Tofu + Tomato sauce with vegetables	Sauteed Kale + Beans + Corn on cob	Broccoli + Lentils	Brown Rice + Veggie stir fry + Kidney beans
SNACK	Edamame	Edamame	Edamame	Edamame	Edamame	Edamame	Edamame
DINNER	Steamed broccoli and asparagus + Tempeh	Seitan burger + Leafy green salad	Sauteed mushrooms + White beans	Asparagus + Seitan	Steamed vegetables + Tempeh	Seitan burger + Leafy green salad	Vegetable broth + quinoa

6. CONCLUSION

Throughout this work I have been trying to give answers to the most common health misconceptions that people have towards vegan diets. The result has turned out to be quite similar for most of the statements:

It has been demonstrated - in the case of protein and iron – that animal sources of iron and protein are more easily absorbed by our bodies than plant sources. Nonetheless, it has been proven that the intake of animal products also increases the risk of chronic diseases, such as cancer, type II diabetes, heart disease or obesity. On the other hand, while plant sources of these nutrients are harder for the body to absorb, they do not seem to cause any type of disease.

Calcium is very much the same as protein and iron. Calcium can be obtained through either plant or animal sources. The downside of meeting calcium needs that the body requires through animal sources is that animal protein can cause osteoporosis and some other chronic diseases such as cancer. On the whole, there is no reason to consume dairy in order avoid osteoporosis.

Equally important is vitamin B12. As has been mentioned in this work, vegans must supplement this vitamin in order to stay healthy. This is because vitamin B12 can only ever be found in animal products.

The conclusion of the practical part of this work is that if a varied, rich and well balanced diet is followed (the menu made was an example. There could be numerous variations depending on the person), it does not matter what stage of life you are in, you can still be healthy being vegan and following a plant – based diet.

In brief, it has been much corroborated that well balanced and varied vegan diets are healthy for athletes, children, pregnant women and anyone in general. They do not only protect us from diseases, but they also teach us to be health wise and care about what we put into our bodies.

I would like to conclude with a quote which I believe leaves very clear the result of the theoretical framework:

«The beef industry has contributed to more American deaths than all the wars of this country, all natural disasters, and all automobile accidents combined. If beef is your idea of real food for real people, you'd better live real close to a real good hospital» (Neal Barnard, M.D.)

BIBLIOGRAPHY

Francione, Gary L. and Charlton, Anna. (2013). *Eat Like You Care* (1st edition). Exampla Press

Raman, Maitreyi, Sirounis, Angela and Shrubsole, Jennifer. (2017) *Guía Completa de Prebióticos y Probióticos para la salud. Un plan para equilibrar tu hora intestinal.* Málaga : Sirio Editorial, DL 2017

Campbell, T. Colin and Campbell, Thomas M., II. (2005). *El Estudio de China*. Málaga : Sirio Editorial, cop. 2011

WEBGRAPHY

http://maryashz1.wixsite.com/hawaiianfasting/natural-hygiene

http://www.greatveganathletes.com/

https://bellezainteriorvegetariana.wordpress.com/category/historia-del-vegetarianismo/

https://en.wikipedia.org/wiki/Vitamin_B12

https://foodrevolution.org/wp-content/uploads/2018/01/blog-featured-veganism1-20180117-1430.jpg

https://ivu.org/history/greece_rome/ovid.html

https://ivu.org/history/greece_rome/plutarch.html

https://ivu.org/history/greece_rome pythagoras.html/

https://nutritiondata.self.com

https://nutritionfacts.org/topics/animal-protein/

https://veganuary.com/

https://vegetariannutrition.net/docs/Calcium-Vegetarian-Nutrition.pdf

https://www.healthline.com/nutrition/animal-vs-plant-protein

https://www.quora.com/What-were-Albert-Einsteins-views-on-veganism-and-vegetarianism

https://www.vegansociety.com/go-vegan/definition-veganism

https://www.verywellfit.com/vegan-protein-combinations-2506396

https://www.vidanaturalia.com/pros-y-contras-de-la-carne-es-bueno-comer-carne-o-no/

https://www.vrg.org/nutrition/iron.php

https://www.whitelies.org.uk/health-nutrition/osteoporosis

DOCUMENTARIES

Siewierski, Michal (producer and director). (2016). *Food Choices [Documentary]. USA : New Root Films*

ANNEX 1

Extracts from 'Metamorphoses':
from *The Extended Circle* by Jon Wynne-Tyson.

Take not away the life you cannot give;
For all things have an equal right to live,
Kill noxious creatures where 'tis sin to save;
This only just prerogative we have;
But nourish life with vegetable food,
And shun the sacriligeous taste of blood.

Forbear, O mortals,
To spoil your bodies with such impious food!
There is corn for you, apples, whose weight bears down
The bending branches; there are grapes that swell
On the vines, and pleasant herbs, and greens
Made mellow and soft with cooking; there is milk
And clover-honey. Earth is generous
With her provision, and her sustenance
Is very kind; she offers, for your tables,
Food that requires no bloodshed and no slaughter.

Oh Ox, how great are thy desserts! A being without guile, harmless, simple, willing for work! Ungrateful and unworthy of the fruits of earth, man his own farm labourer slays and smites with the axe that toil-worn neck that had so oft renewed for him the face of the hard earth; so many harvests.

ANNEX 2

Various extracts from 'Moralia':

from *The Extended Circle* by Jon Wynne-Tyson.

Can you really ask what reason Pythagoras had for abstaining from flesh? For my part I rather wonder both by what accident and in what state of soul or mind the first man did so, touched his mouth to gore and brought his lips to the flesh of a dead creature, he who set forth tables of dead, stale bodies and ventured to call food and nourishment the parts that had a little before bellowed and cried, moved and lived. How could his eyes endure the slaughter when throats were slit and hides flayed and limbs torn from limb? How could his nose endure the stench? How was it that the pollution did not turn away his taste, which made contact with the sores of others and sucked juices and serums from mortal wounds?

The obligations of law and equity reach only to mankind, but kindness and benevolence should be extended to the creatures of every species, and these will flow from the breast of a true man, is streams that issue from the living fountain.
Man makes use of flesh not out of want and necessity, seeing that he has the liberty to make his choice of herbs and fruits, the plenty of which is inexhaustible; but out of luxury, and being cloyed with necessaries, he seeks after impure and inconvenient diet, purchased by the slaughter of living beasts; by showing himself more cruel than the most savage of wild beasts .... were it only to learn benevolence to human kind, we should be merciful to other creatures.

... we eat not lions and wolves by way of revenge, but we let those go and catch the harmless and tame sort, such as have neither stings nor teeth to bite with, and slay them.
... But if you will contend that yourself were born to an inclination to such food as you have now a mind to eat, do you then yourself kill what you would eat. But do it yourself, without the help of a chopping-knife, mallet, or axe - as wolves, bears, and lions do, who kill and eat at once. Rend an ox with thy teeth, worry a hog with thy mouth, tear a lamb or a hare in pieces, and fall on and eat it alive as they do. But if thou hadst rather stay until what thou eatest is to become dead, and if thou art loath to force a soul out of its body, why then dost thou against Nature eat an animate thing?

Why do you belie the earth, as if it were unable to feed and nourish you? Does it not shame you to mingle murder and blood with her beneficent fruits? Other carnivora you call savage and ferocious - lions and tigers and serpents - while yourselves come behind them in no species of barbarity. And yet for them

murder is the only means of sustenance! Whereas to you it is superfluous luxury and crime!

But for the sake of some little mouthful of flesh we deprive a soul of the sun and light, and of that proportion of life and time it had been born into the world to enjoy.

ANNEX 3

"THE VEGAN NEWS"

(QUARTERLY MAGAZINE OF THE NON-DAIRY VEGETARIANS.)

Price 2d. (Post free 3d.) Yearly Subscription 1/-

NO. 1. NOVEMBER 1944.

The recent articles and letters in "The Vegetarian Messenger" on the question of the use of dairy produce have revealed very strong evidence to show that the production of these foods involves much cruel exploitation and slaughter of highly sentient life. The excuse that it is not necessary to kill in order to obtain dairy produce is untenable for those with a knowledge of livestock farming methods and of the competition which even humanitarian farmers must face if they are to remain in business.

For years many of us accepted, as lacto-vegetarians, that the flesh-food industry and the dairy produce industry were related, and that in some ways they subsidised one another. We accepted, therefore, that the case on ethical grounds for the disuse of these foods was exceptionally strong, and we hoped that sooner or later a crisis in our conscience would set us free.

That freedom has now come to us. Having followed a diet free from all animal food for periods varying from a few weeks in some cases, to many years in others, we believe our ideas and experiences are sufficiently mature to be recorded. The unquestionable cruelty associated with the production of dairy produce has made it clear that lacto-vegetarianism is but a half-way house between flesh-eating and a truly humane, civilised diet, and we think, therefore, that during our life on earth we should try to evolve sufficiently to make the 'full journey'.

We can see quite plainly that our present civilisation is built on the exploitation of animals, just as past civilisations were built on the exploitation of slaves, and we believe the spiritual destiny of man is such that in time he will view with abhorrence the idea that men once fed on the products of animals' bodies. Even though the scientific evidence may be lacking, we shrewdly suspect that the great impediment to man's moral development may be that he is a parasite of lower forms of animal life. Investigation into the non-material (vibrational) properties of foods has yet barely begun, and it is not likely that the usual materialistic methods of research will be able to help much with it. But is it not possible that as a result of eliminating all animal vibrations from our diet we may discover the way not only to really healthy cell construction but also to a degree of intuition and psychic awareness unknown at present?

A common criticism is that the time is not yet ripe for our reform. Can time ever be ripe for any reform unless it is ripened by human determination? Did Wilberforce wait for the 'ripening' of time before he commenced his fight against slavery? Did Edwin Chadwick, Lord Shaftesbury, and Charles Kingsley wait for such a non-existent moment before trying to convince the great dead weight of public opinion that clean water and bathrooms would be an improvement? If they had declared their intention to poison everybody the opposition they met could hardly have been greater. There is an obvious danger in leaving the fulfilment of our ideals to posterity, for posterity may not have our ideals. Evolution can be retrogressive as well as progressive, indeed there seems always to be a strong gravitation the wrong way unless existing standards are guarded and new visions honoured. For this reason we have formed our Group, the first of its kind, we believe, in this or any other country.

ORGANISATION OF THE GROUP.

Our 25 Members are scattered far and wide, therefore a Committee is not possible. In the absence of other volunteers I have undertaken the duties of Hon. Secretary, Hon. Treasurer, and Hon. Auditor, and if this undemocratic Constitution offends, I am open to receive suggestions of any scheme that would enable me, either intentionally or accidentally, to embezzle the Group's funds from subscriptions of a shilling a year!

The work of the Group at first will be confined to the propaganda contained in the Bulletin. Very great interest has recently been aroused by our argumonts, and it seems certain that the Bulletin will be widely read. Many orders for the first four quarterly issues have already been received, and more will come when we advertise. Mr J.W.Robertson Scott, Editor of "The Countryman", has written to us - "I should be glad to hear what success you have in collecting non-dairy produce consumers. I have always felt that from the agricultural point of view the vegetarian occupies an illogical position, for just as eggs cannot be produced without killing cockerels, dairy produce cannot be economically got without the co-operation of the butcher." The clarity by which vegetarians generally are seeing this issue is well represented by the result of a recent debate arranged by the Croydon Vegetarian Society, when the motion was carried almost unanimously 'That vegetarians should aim at eliminating all dairy produce'. If we remember rightly the voting was 30 to 2.

Our Members are pronounced individualists, not easily scared by criticism, and filled with the spirit of pioneers, and one feels they will never allow their magazine to degenerate into a purely secretarial production. All are invited to subscribe something periodically to make the magazine interesting, useful, and thought provoking. Could we have a series of articles (of about 500 words) on "My Spiritual Philosophy"? Articles, letters, recipes, diet charts, health records, press cuttings, gardening hints, advice on baby culture, advertisements (free to Members), all will be welcome. Letters of criticism from those who disagree with us will also be published. This is real pioneer work, and if we co-operate fully we shall certainly see an advancement in humanitarian practice, and perhaps we shall reveal some otherwise inaccessible dietetic truths. Let us remember how very much of modern dietetic research is fostered by vested interests and performed in vivisection laboratories, and that incidentally we are still without much data concerning the merits of diets free from animal food. We know that domesticated animals to-day are almost universally diseased, therefore so long as 99.9999% of the population consume the products of these diseased bodies, how are we to measure the mischief such foods may be doing? A hundred people living strictly on a 'live' non-animal diet for a few years would furnish data of inestimable value. Government grants have been made for much less useful social work!

WANTED - A NAME.

We should all consider carefully what our Group, and our magazine, and ourselves, shall be called. 'Non-dairy' has become established as a generally understood colloquialism, but like 'non-lacto' it is too negative. Moreover it does not imply that we are opposed to the use of eggs as food. We need a name that suggests what we do eat, and if possible one that conveys the idea that even with all animal foods taboo, Nature still offers us a bewildering assortment from which to choose. 'Vegetarian' and 'Fruitarian' are already associated with societies that allow the 'fruits'(!) of cows and fowls, therefore it seems we must make a new and appropriate word. As this first issue of our periodical had to be named, I have used the title "The Vegan News". Should we adopt this, our diet will soon become known as a VEGAN diet, and we should aspire to the rank of VEGANS. Members' suggestions will be welcomed. The virtue of having a short title is best known to those of us who, as secretaries of vegetarian societies have to type or write the word vegetarian thousands of times a year!

OUR RELATIONS WITH THE LACTO-VEGETARIANS.

The object of our Group is to state a case for a reform that we think is moral, safe and logical. In doing so we shall, of course, say strongly why we condemn the use of dairy produce and eggs. In return we shall expect to be criticised. It will be no concern of ours if we fail to convert others, but we do think

it should concern them if, deep in their hearts, they know we are right. In any case, there need be no animosity between ourselves and the 'lactos'. We all accept that lacto-vegetarianism has a well appointed place in dietary evolution, and for this reason several of us spend a great deal of our time working for the lacto-vegetarian Cause. During recent years the two national vegetarian societies have devoted much space in their magazines to this question of the use of dairy produce, and we have every reason to believe they will attach importance to our work and occasionally report on it. (Before forming the Group, the suggestion was made to The Vegetarian Society that such a Section be formed as part of the Society. The suggestion was considered sympathetically by the Committee, who decided that the full energies of the Society must continue to be applied to the task of abolishing flesh-eating, and that any such Group would, therefore, be freer to act as an independent body.) The need to prove that it is possible to thrive without dairy produce is, of course, far too important for any lacto-vegetarian to ignore. To resign oneself to lacto-vegetarianism as a satisfactory solution to the diet problem is to accept a sequence of horrible farmyard and slaughter-house incidents as part of an inevitable Divine Plan. Need it be added that it would imply too accepting the spectacle of a grown man attached to the udder of a cow as a dignified and rational intention on the part of Nature!

Without making any claims to self-righteousness, we feel in a strong position to criticise lacto-vegetarianism, because the worst we can say will be but a repetition of criticism we have already levelled against ourselves. Therefore we shall express the Truth as we see it and feel it, and though our friends the lacto-vegetarians may reject our ideas if they wish, we hope they will not reject us for stating them.

CONCERNING OURSELVES.

So far as we are aware, every Member of our Group has discarded the use of dairy produce for humanitarian reasons. We are not by any means ignorant of orthodox dietetic theories, and in exercising our moral conviction we find we must refute some of these theories. We do so without fear because we feel that a moral philosophy combined with a dash of common sense is a more rational guide than theories hatched in vivisection laboratories. We will not accept that adequate nutrition need violate conscience. We question very strongly whether those dieticians who laud the praises of animal proteins have ever tried living on a sensible diet free from such proteins, and if they have not, we fail to see how they can pass useful judgment. We know that man's anatomy is unquestionably frugivorous. We know that milk drinking by adults is an absurdity never intended by Nature. We know that we are at least as well without dairy produce as we were with it. We know that 40% at least of cows are now tubercular. We know that pasteurisation enables the milk retailers to sell milk several days old. We know what happens to those who feed on the 'nourishing first-class proteins' recommended by orthodox dieticians - they nearly all die of malignant and filthy diseases. Heaven help us if our diet fails us to anything like the same degree!

Apart from saying that we are 'Quite well, thanks', we consider the time perhaps premature to make any great claims for the physiological superiority of our diet. Humbly, your Secretary is able to state that he can now cycle 230 miles in a day, whereas years ago when he stoked himself with milk and eggs he was ready for Bed and Breakfast after doing half that distance. He can also dig his allotments for ten hours a day without feeling any different next morning, but we must be careful in making claims lest the world hears of us and expects to meet eight foot rosy cheeked muscular monsters who are immune to all ills of the flesh. We may be sure that should anything so much as a pimple ever appear to marr the beauty of our physical form, it will be entirely due in the eyes of the world to our own silly fault for not eating 'proper food'. Against such a pimple the great plagues of diseases now ravaging nearly all members of civilised society (who live on 'proper food') will pass unnoticed. It is as well that we gird ourselves to meet our critics! In our more reflective moments we cannot help thinking that there are greater risks in life than living on clean salads, fruits, nuts, and whole cereals. We can hardly wish to be classed as moral giants because we choose to live on a diet so obviously favouring self preservation.

Believing that some Members may wish to correspond with each other, we propose to publish in our next issue their names and addresses. Any Member preferring not to be included in the list should let me know.

We hear that a pamphlet opposing the use of milk was written 40 years ago by a Harley Street specialist. Does any Member happen to know anything of this publication?

CONCERNING THOSE NOT YET WITH US.

We agree that to eliminate all dairy produce creates personal difficulties which vary in magnitude from one individual to another. We agree also that the present is not the easiest time to make such a change, but we think that in laying the foundations of our Movement now, many will soon join us as one of their 'Peace Aims'. We know that there is particular unrest in the minds of vegetarians generally concerning the use of rennet in cheese making, and as this appears to be the most glaring inconsistency of lacto-vegetarianism, we suggest that others do as we did and eliminate cheese first. Our friend and fellow member Dugald Semple tells us he has never tasted cheese, therefore it cannot be considered as an essential 'binding agent' for body and soul! The following passages from the editorial of the current issue of "The Vegetarian News" does not, we think, allow of much argument: "Most vegetarians are doubtless aware that the use of calve's rennet in the production of cheese has always presented a problem to anyone of humane principles, necessitating as it does the killing of calves to obtain the rennet. In the supposed absence of any purely vegetarian substitute for rennet some vegetarians abstain altogether from the use of cheese, except for the simple cottage varieties, while probably the majority of vegetarians take their ration of ordinary cheese and try to forget the incidence of the calve's rennet in its making." Should moralists dissipate their energies trying to forget such things?

During the war eggs have all but vanished, and they can readily be dispensed with for good without any sense of loss if one dwells on the fact that they are for the most part nothing more than reconstituted grubs and beetles! The elimination of milk undoubtedly presents the greatest difficulty. Nut milk is a good substitute, but it does not go well in tea (therefore cut out the tea and add yet another ten years to your life!)

Those of us who have lived for long periods without dairy produce are able to give the assurance that we remain well and strong; that we enjoy our food as much as ever, and that once the new diet has been arranged the sight and smell of dairy produce is soon forgotten.

"The incidence of disease of one kind and another continues to be a great limiting factor in milk production, besides involving loss to the farmer. Tuberculosis is one of the most intractable sources of trouble, so much so that a speaker at the Farmers' Club recently said we had made no progress in the last 40 years."

The Agricultural Correspondent,
"The Yorkshire Post",
18.11.44.

"Give me a drink of whisky, I'm thirsty."
"You should drink milk - milk makes blood."
"But I'm not blood-thirsty."

---

67 Evesham Road,
Leicester.
November 24th, 1944.

Donald Watson.

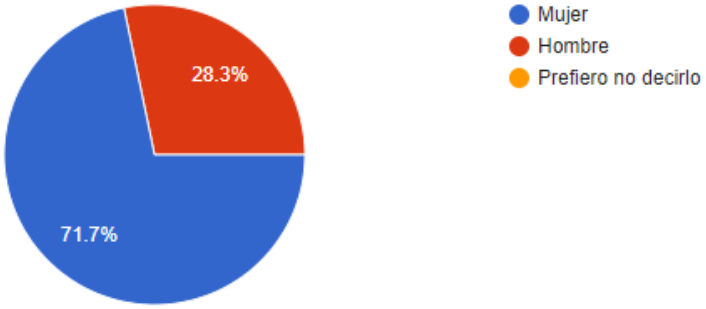
ANNEX 4

The survey was predominantly answered by Spanish speaking people. This is why the questions and the answers are in a different language than the research project.

Answers to the survey:

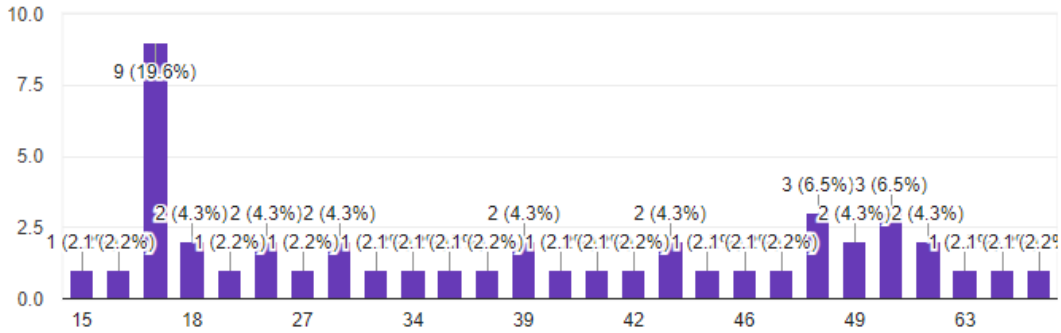
1. Sexo.

46 responses



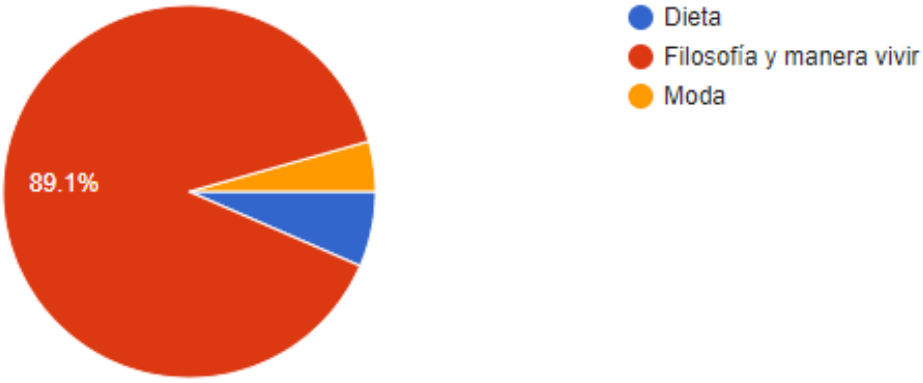
2. Edad.

46 responses



3. ¿Qué es el veganismo?

46 responses

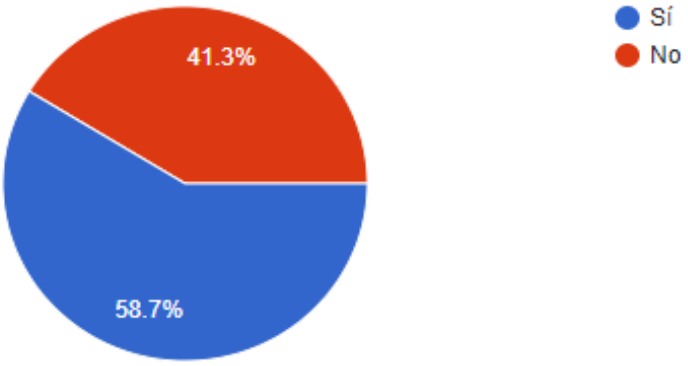


4. ¿Los humanos necesitamos productos animales para estar sanos? (ej. carne, lácteos, huevos...)

46 responses

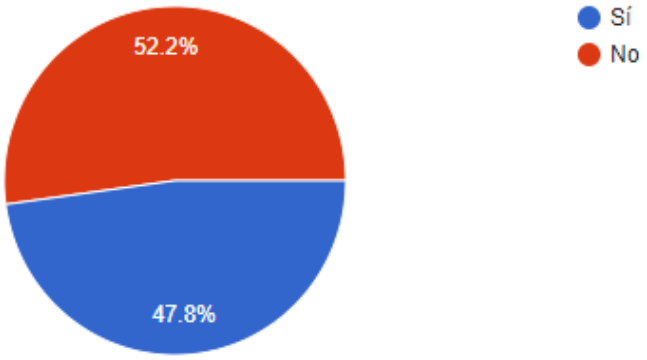
5. ¿Son las dietas veganas aptas para deportistas?

46 responses



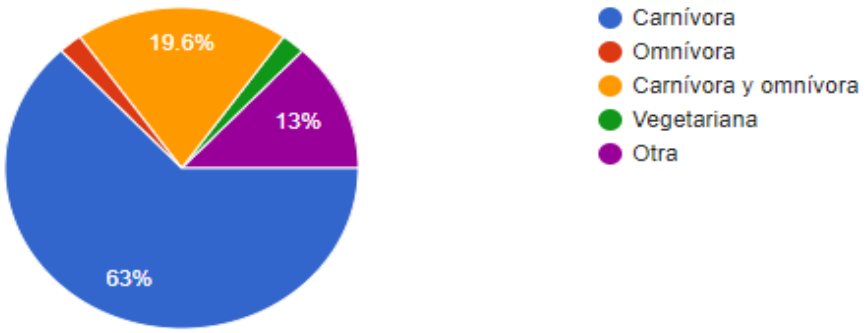
6. ¿Son las dietas veganas aptas para mujeres embarazadas y niños?

46 responses



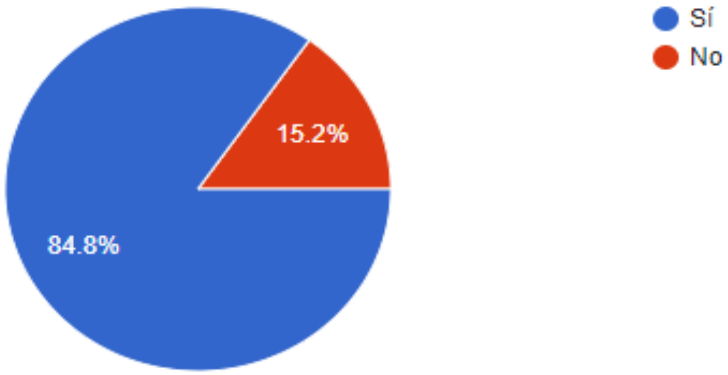
7. ¿Qué dieta piensas que es la causante de más enfermedades crónicas entre los humanos?

46 responses



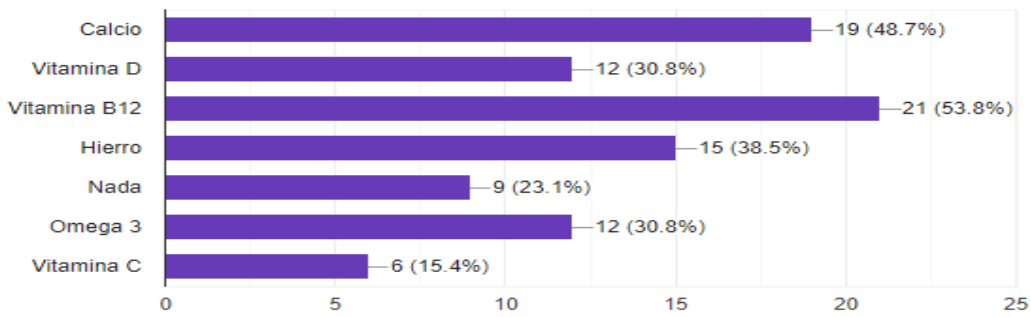
8. ¿Los veganos necesitan suplementar su dieta?

46 responses



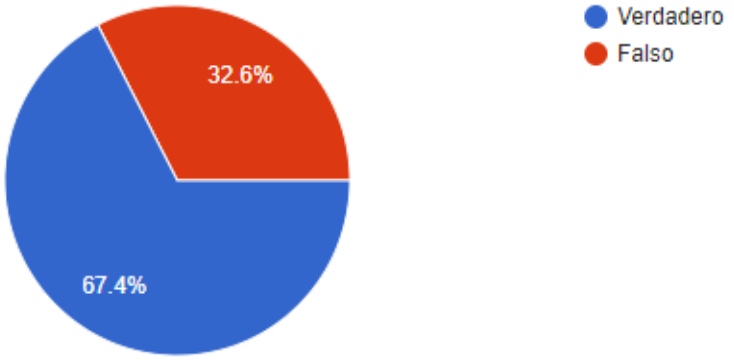
9. ¿Qué suplementos son necesarios en una dieta vegana?

39 responses



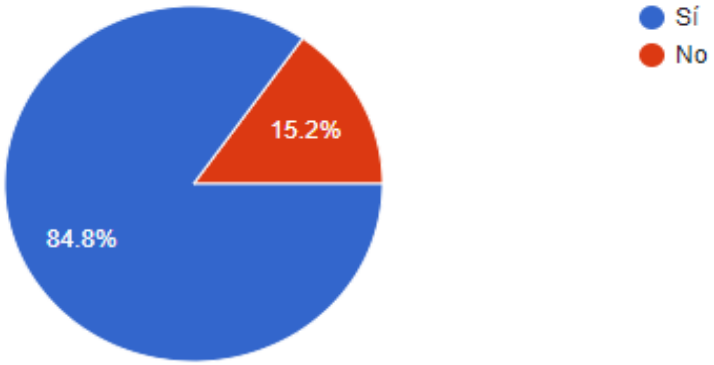
10. Las personas que comen carne también necesitan tomar suplementos.

46 responses



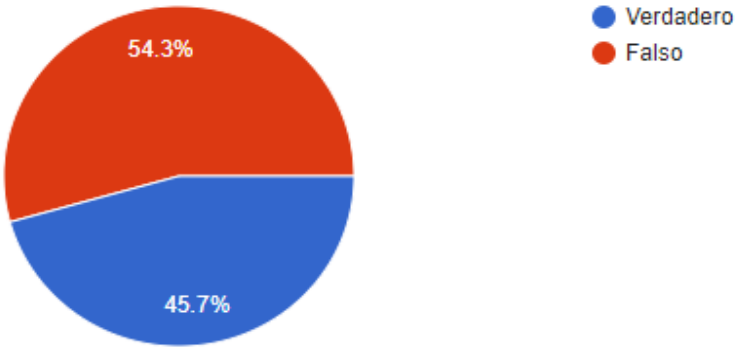
11. ¿Está nuestro cuerpo diseñado para ingerir proteína animal?

46 responses



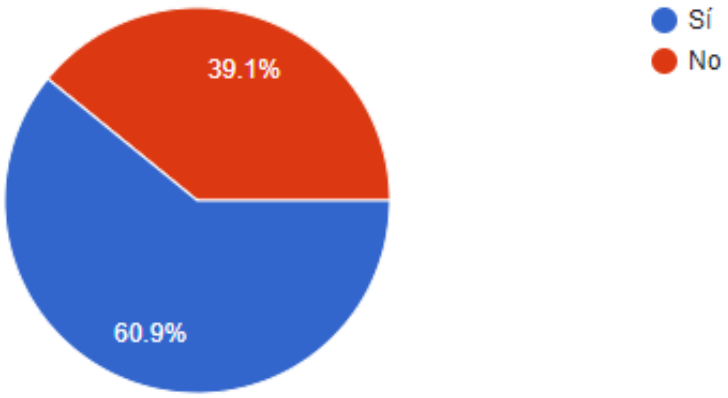
12. En muchos casos, llevar una dieta vegana produce anemia.

46 responses



13. ¿Crees que una dieta vegana es sana y variada?

46 responses



ANNEX 5

Saturday 14 October 2006

BMJ

Bone health in children

Guidelines for calcium intake should be revised

Conventional wisdom, public policy on nutrition in many westernised countries, and advertise-ments for dairy products link increased consumption of calcium to better bone health and prevention of osteoporosis in later life. However, a meta-analysis by Winzenberg and colleagues in this week's *BMJ* shows that calcium supplementation in children is unlikely to result in a clinically relevant decrease in the risk of fracture in childhood or in later life.[1]

Previous research has questioned whether increas-ing calcium intake through diet or supplements benefits children's or young adults' bones. Exercise significantly increased bone density and bone strength, but calcium intake between 500 and 1500 mg had no effect on the same outcomes in adolescent girls studied prospectively for 12 years as they passed into young adulthood.[2] Of three qualitative reviews of literature published in this decade, two concluded that it is not known whether the modest increments in rate of bone gain after supplementation with calcium or dairy produce will translate into clinically meaningful reductions in the risk of osteoporosis later in life or even persist beyond the treatment period.[3 4] The third concluded that increases in dairy or total dietary calcium intake did not reliably increase bone mineral density or reduce fracture rate in children or adolescents.[5]

None the less, the recommended intake of calcium in children remains high in the United Kingdom, the European Union, Australia, the United States, and Canada (350-800 mg/day for children and 800-1300 for adolescents).[6] Consequently, policy guidelines and nutrition programmes promote the intake of two to four servings of dairy products daily. For example, the US government promotes the consumption of three or more servings of cow's milk or other dairy products daily, and it subsidises the distribution of dairy products through the national school lunch pro-gramme and the women's, infants', and children's nutrition programme. The justification has been to avert a so called "calcium crisis" (a mismatch between calcium intake and recommendations) thought to be responsible for high rates of osteoporosis later in life.

What if we—researchers, paediatricians, marketers, and policy experts—have been wrong? What if increas-ing calcium intake in youth has no significant impact on fracture risk in early or later life as Winzenberg and colleagues conclude? Populations that consume the most cow's milk and other dairy products have among the highest rates of osteoporosis and hip fracture in later life.[6 7] Given this fact, it is important to ask whether sufficient evidence exists to continue assum-ing that consumption of these foods is part of the solution.

Furthermore, we need to ask the question of whether we are doing children a disservice by encour-aging them to meet recommendations. Childhood obesity is on the rise in westernised countries, and dairy products—the main source of calcium recom-mended by nutrition guidelines—contribute greatly to the intake of fat and sugar in children.[8] Nearly three quarters of the world's population are estimated to be lactose intolerant after the age of weaning and therefore do not tolerate the consumption of milk and other dairy products well. In addition, some studies suggest that the consumption of cow's milk increases the risk of some types of cancer.[9 10]

The meta-analysis by Winzenberg and colleagues strengthens previous evidence that calcium or dairy products do not have a clinically relevant impact on bone health in youth. The focus on calcium recommendations in nutrition policy and research draws attention away from more comprehensive research on how to promote long term bone health among young people. Public health would be better served by researching how other dietary and lifestyle factors affect children's bones. Promising areas include the effect of regular exercise, vitamin D status, increas-ing fruit and vegetable consumption, limiting salt intake, limiting or avoiding animal protein, and avoid-ing smoking.

It is time to revise our calcium recommendations for young people and change our assumptions about the role

of calcium, milk, and other dairy products in the bone health of children and adolescents. While the policy experts work on revising recommendations, doctors and other health professionals should encour-age children to spend time in active play or sports, and to consume a nutritious diet built from whole foods from plant sources to achieve and maintain a healthy weight and provide an environment conducive to building strong bones.

Amy Joy Lanou *assistant professor*

(alanou@unca.edu)

Department of Health and Wellness, CPO 2730, University of North Carolina Asheville, Asheville, NC 28806, USA

Competing interests: None declared.

Editorials

1 Winzenberg T, Shaw K, Fryer J, Jones G. Effects of calcium supplementations on bone density in healthy children: meta-analysis of randomized controlled trials. *BMJ* 2006 doi: 10.1136/bmj.38950.561400.5.

2 Lloyd T, Beck TJ, Lin HM, Tulchinsky M, Eggli DF, Oreskovic TL, et al. Modifiable determinants of bone status in young women. *Bone* 2002;30:416-21.

3 Bachrach LK. Acquisition of optimal bone mass in childhood and adolescence. *Trends Endocrinol* 2001;12:22-8.

4 Wosje KS, Specker BL. Role of calcium in bone health during childhood. *Nutr Rev* 2000;58:253-68.

5 Lanou AJ, Berkow SE, Barnard ND. Calcium, dairy products and bone health in children and young adults: a re-evaluation of the evidence. *Pediatrics* 2005;115:736-43.

6 Report of a Joint Food and Agriculture Organization of the United Nations/World Food Organization of the United Nations Expert Consultation. *Human vitamin and mineral requirements*. Bangkok, Thailand; September 1998. ftp://ftp.fao.org/es/esn/nutrition/Vitrni/vitrni.html (last accessed 6 Oct 2006).

7 Abelow BJ, Holford TR, Insogna KL. Cross-cultural association between dietary animal protein and hip fracture: a hypothesis. *Calcif Tissue Int* 1992;50:14-8.

8 Subar AF, Krebs-Smith SM, Cook A, Kahle LL. Dietary sources of nutrient among US children, 1989-1991. *Pediatrics* 1998;102:913-23.

9 Larsson SC, Bergkvist L, Wolk A. Milk and lactose intakes and ovarian cancer risk in the Swedish mammography cohort. *Am J Clin Nutr* 2004;80:1353-7.

10 Chan JM, Stampfer MJ, Ma J, Gann PH, Gaziano JM, Giovannucci E. Dairy products, calcium, and prostate cancer risk in the physicians' health study. *Am J Clin Nutr* 2001;74:549-54.

doi 10.1136/bmj.38996.499410.BE

ANNEX 6

Click the link below to see the study “Calcium absorption in Australian osteopenic postmenopausal women: an acute comparative study of fortified soymilk to cows’ milk”

http://apjcn.nhri.org.tw/server/APJCN/19/2/243.pdf

ANNEX 7

Vegetarian diets

People follow vegetarian diets for a variety of reasons – whatever your reason, plan your diet to ensure you're getting all the required nutrients.

Types of vegetarian diets

Vegetarians typically don't eat meat, poultry, fish or shellfish. However different types of vegetarian diets exist:

- Lacto-ovo vegetarians – eat dairy foods and eggs but not meat, poultry or seafood
- Ovo-vegetarians – include eggs but avoid all other animal foods, including dairy
- Lacto-vegetarians – eat dairy foods but exclude eggs, meat, poultry and seafood
- Vegans – don't eat any animal products at all, including honey.

Variations include:

- Pescetarians – eat fish and/or shellfish
- Semi-vegetarians (or flexitarians) – occasionally eat meat or poultry.

Eating for optimum health

The government's eatwell plate still applies to vegetarians. This includes eating plenty of fruit, vegetables and starchy foods such as bread, cereals and potatoes; moderate amounts of meat/fish-alternatives; some dairy foods or alternatives; and a small amount of food high in fat and/or sugar.

Well planned vegetarian diets can be nutritious and healthy. They are associated with lower risks of heart disease, high blood pressure, Type 2 diabetes, obesity, certain cancers and lower cholesterol levels. This could be because such diets are lower in saturated fat, contain fewer calories and more fibre and phytonutrients/phytochemicals (these can have protective properties) than non-vegetarian diets.

However, there are some specific nutrients you need to consider:

Protein

Vegetarian sources of protein include:

- beans, lentils and chickpeas
- soya and soya products e.g. soya dairy alternatives, tofu, soya nuts and soya mince
- seeds
- nuts and nut butters (e.g. peanut butter)
- grains such as wheat (found in cereals, pasta and bread), rice and maize.

If you eat them:

- eggs
- milk and dairy products (yoghurts and cheese)
- mycoprotein a high-protein vegetarian meat alternative (has added egg).

Protein is made up of building blocks called amino acids. Some amino acids are essential as the body can't make them itself. Animal proteins contain the complete mix of essential amino acids. Soya, quinoa and hemp are plant foods containing all the essential amino acids.

Most other plant proteins provide some, with each plant providing a different combination. So, as long as you're eating a mixture of different plant proteins you'll be getting all the essential amino acids your body needs.

If you eat dairy foods, don't over rely on cheese for protein or you may end up having too much unhealthy saturated fat in your diet.

Iron

Red meat is the most easily absorbed source of iron, but various plant foods also contribute:

- fortified breakfast cereals
- dried fruit
- beans/lentils
- leafy green vegetables
- sesame seeds
- nuts
- wholemeal bread.

To help your body absorb iron from plant foods, include a source of vitamin C with your meal (e.g. vegetables, fruit or a glass of fruit juice).

Calcium

Dairy foods are rich in calcium. If you're not eating these, include plenty of the following:

- tofu
- calcium-fortified foods e.g. soya milk, yoghurts and puddings; rice/oat drinks; and fruit juice
- green leafy vegetables, especially kale and pak-choi, but not spinach. Although spinach contains calcium it is bound to a compound called oxalate. This greatly reduces it absorption making it a poor source of unusable calcium.
- brown/white bread
- sesame seeds/ tahini
- nuts
- dried fruit e.g. apricots and figs.

Vitamin D

Our bodies make vitamin D from sunlight during the spring and summer. At other times of the year eat foods that contain vitamin D, such as:

- most margarines
- fortified brands of soya milks, yogurts and desserts – check the label
- fortified breakfast cereals – check the label
- dried skimmed milk
- fortified yoghurts
- eggs.

Additional supplements are recommended for all pregnant and breastfeeding women, children under five-years-old, people aged over 65 years and people who are not exposed to much sun. Speak to your doctor or a health professional.

Vitamin B12

Eggs and dairy foods contain Vitamin B12. Vegans should include fortified foods containing Vitamin B12 (check the label):

10 yeast extract
11 soya milk, yoghurts and desserts
12 breakfast cereals
13 certain brands of rice drinks and oat drinks.

Omega-3 fats

There are two types of omega-3's:

- long versions found in oily fish – docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA)
- short versions from vegetable oils, particularly flaxseed, walnut, rapeseed and soya oils – alpha linolenic acid (ALA).

The long versions are particularly good for us and current advice recommends eating two portions of fish a week, one of which should be oily. The short versions may not have the same benefits. Although our bodies can convert some ALA into EPA and DHA, the conversion isn't very efficient. To maximise this conversion:

- avoid foods high in saturated fats
- limit vegetable oils high in linoleic acid (an omega-6 fat) such as safflower, sunflower and corn oils and instead obtain this fat from whole plant foods such as soya
- focus on plant foods that contain ALAs
- If you don't eat fish, consider a supplement made from algae derived DHA, include sea vegetables into your diet or eat foods fortified with DHA.

Zinc

Phytates found in plant foods such as wholegrains and beans reduce zinc absorption, so it's important to eat good sources of zinc-containing foods. Eat fermented soya such as tempeh and miso; beans (soak dried beans then rinse before cooking to increase zinc absorption); wholegrains; nuts; seeds and some fortified breakfast cereals.

Selenium

Meat, fish and nuts are good sources of selenium. If you don't eat meat/fish include some nuts into your diet, especially Brazil nuts.

Iodine

If you're a vegan include small amounts of iodised salt or sea vegetables for your iodine.

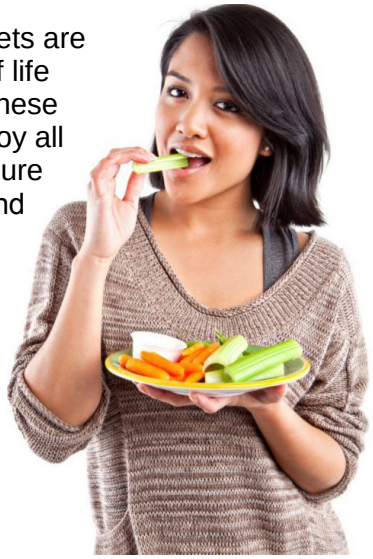
Extra care is needed during pregnancy, breastfeeding, weaning and in childhood to make sure that all nutritional needs are met. Speak to a dietitian or other health professional.

Summary

Well-planned vegetarian diets are appropriate for all stages of life and have many benefits. These guidelines will help you enjoy all the health benefits and ensure you're eating a nutritious and complete diet.

Further information:

Food Fact Sheets on other topics including Healthy Eating, Supplements, Calcium and Vitamin D can be found at www.bda.uk.com/foodfacts



ANNEX 8

Click the link below to see the study “Soy Isoflavones and Prostate Cancer: A Review of Molecular Mechanisms”

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3962012/

ANNEX 9

J Cancer Res Ther. 2018 Sep;14(Supplement):S609-S615. doi: 10.4103/0973-1482.187292.

Soybean (Glycine max) prevents the progression of breast cancer cells by downregulating the level of histone demethylase JMJD5.

Wang Y[1], Liu L[2], Ji F[3], Jiang J[3], Yu Y[3], Sheng S[3], Li H[1].

Author information

Abstract

BACKGROUND:

Breast cancer is the first noticeable disease in female patients. Long-term use of soybean (Glycine max) may prevent the progression of cancer. However, the molecular mechanism for the functions of soybean remains unclear. Histone demethylase JMJD5, an important epigenetic molecule, is overexpressed in the progression of breast cancer suggesting that soybean may ameliorate cancer by affecting the expression of JMJD5.

MATERIALS AND METHODS:

To test the hypothesis, human breast cancer cell lines MCF-7 and MDA-MB-231 were treated with different concentrations of soybean and/or transfected with the plasmids pcDNA3.1-JMJD5 and pTZU6 + 1-shRNA-JMJD5. The growth rate was measured using xCELLigence real-time cell analysis. The level of JMJD5 was measured by using quantitative reverse transcription-polymerase chain reaction and Western blot.

RESULTS:

Soybean showed significant inhibitory effects on the growth rates ofMCF-7 and MDA-MB-231 cells in a concentration-dependent way ($P < 0.05$). Meanwhile, the levels of JMJD5 were reduced with the increase of soybean concentration ($P < 0.05$). JMJD5 transfection increased the growth rates of MCF-7 and MDA-MB-231 by 25% and 40%. In contrast, the growth rates of MCF-7 and MDA-MB-231 cells were decreased by 17% and 23% after being transfected with JMJD5 shRNA. Soybean inhibited the growth rate of MCF-7 and MDA-MB-231 cells when they were transfected by JMJD5 gene but no for the cells transfected with JMJD5 shRNA.

CONCLUSION:

The complicated compositions of soybean will be beneficial to the therapy of breast cancer since its causes may be involved in multiple aspects. Soybean represses breast cancer development by downregulating the level of JMJD

ANNEX 10

MONDAY	**TUESDAY**	**WEDNESDAY**	**THURSDAY**	**FRIDAY**	**SATURDAY**	**SUNDAY**
Whole grain toast (1 slice) (26.6 mg) Almond butter (2 tbsp) (111 mg) Hemp seeds (1 ounce) (-) Oats milk (250 ml) (300 mg) Banana (medium) (5.9 mg) Zucchini (medium) (29.4 mg) Hummus (100 g) (49 mg) Edamame (1 cup) (175 mg) Broccoli (1 cup) (62 mg) Asparagus (1/2 cup) (20.7 mg) Tempeh (1 cup) (184 mg)	Soy yoghurt (6 ounces) (300 mg) Chia seeds (1 ounce) (177 mg) Muesli (1 cup) (0 mg) Raspberries (19 g) (4.7 mg) Apple (medium) (10.9 mg) Nuts (1/4 cup) (94 mg) Lentils (1 cup) (37.6 mg) Sweet Potato (114 g) (43.3 mg) Vegetables Edamame (1 cup) (175 mg) Seitan (1 cup) (60 mg) Leafy green salad (1 cup) (50 mg)	Whole grain toast (1 slice) (26.6 mg) Peanut butter (1 tbsp) (116 mg) Calcium-fortified orange juice (8 ounces) (350 mg) Pineapple (1 cup) (21.5 mg) Brown rice (1 cup) (19.5 mg) Vegetables Quinoa (1 cup) (31.5 mg) Edamame (1 cup) (175 mg) Mushrooms (1 cup) (4.4 mg) White beans (1 cup) (131 mg)	Oatmeal Chia seeds (1 ounce) (177 mg) Almond butter (2 tbsp) (111 mg) Banana (medium) (5.9 mg) Grapes (1 cup) (13 mg) Whole grain pasta (1 cup) (21 mg) Tofu (4 ounces) (334 mg) Tomato sauce (100 g) (17 mg) Vegetables Edamame (1 cup) (175 mg) Asparagus (1/2 cup) (20.7 mg) Seitan (1 cup) (60 mg)	Whole grain toast (1 slice) (26.6 mg) Peanut butter (1 tbsp) (116 mg) Hemp seeds (1 ounce) (-) Banana (medium) (5.9 mg) Kale (1 cup) (184 mg) Kidney beans (1 cup) (62 mg) Corn on cob (1 ear, 125 g) (5 mg) Edamame (1 cup) (175 mg) Vegetables Tempeh (1 cup) (184 mg)	Soy yoghurt (6 ounces) (300 mg) Chia seeds (1 ounce) (177 mg) Muesli (1 cup) (0 mg) Raspberries (19 g) (4.7 mg) Orange (large) (73.6 mg) Nuts (1/4 cup) (94 mg) Sweet potato (114 g) (43.3 mg) Broccoli (1 cup) (62 mg) Lentils (1 cup) (37.6 mg) Edamame (1 cup) (175 mg) Seitan (1 cup) (60 mg) Leafy green salad (1 cup) (50 mg)	Whole grain toast (1 slice) (26.6 mg) Peanut butter (1 tbsp) (116 mg) Calcium-fortified orange juice (8 ounces) (350 mg) Mango (medium) (16.5 mg) Brown rice (1 cup) (19.5 mg) Vegetables Kidney beans (1 cup) (62 mg) Edamame (1 cup) (175 mg) Vegetable broth (1 cup) (30.4 mg) Quinoa (1 cup) (31.5 mg)

MONDAY	**TUESDAY**	**WEDNESDAY**	**THURSDAY**	**FRIDAY**	**SATURDAY**	**SUNDAY**
Whole grain toast (1 slice) (0.7 mg) Almond butter (2 tbsp) (1.2 mg) Hemp seeds (1 ounce) (2.7 mg) Oats milk -- Banana (medium) (0.3 mg) Zucchini (medium) (0.7 mg) Hummus (100 g) (1.6 mg) Edamame (1 cup) (3.5 mg) Broccoli (1 cup) (1.0) Asparagus (1/2 cup) (0.8 mg) Tempeh (1 cup) (4.5 mg)	Soy yoghurt (6 ounces) (1.4 mg) Chia seeds (1 ounce) (-) Muesli (1 cup) (7.4 mg) Raspberries (19 g) (0.1 mg) Apple (medium) (0.2 mg) Nuts (1/4 cup) (4.9 mg) Lentils (1 cup) (6.6 mg) Sweet Potato (114 g) (4 mg) Vegetables Edamame (1 cup) (3.5 mg) Seitan (1 cup) (1.9 mg) Leafy green salad (1 cup) (2 mg)	Whole grain toast (1 slice) (0.7 mg) Peanut butter (2 tbsp) (0.6 mg) Calcium-fortified orange juice (8 ounces) (0.5 mg) Pineapple (1 cup) (0.5 mg) Brown rice (1 cup) (0.8 mg) Vegetables Quinoa (1 cup) (2.8 mg) Edamame (1 cup) (3.5 mg) Mushrooms (1 cup) (0.6 mg) White beans (1 cup) (5.1 mg)	Oatmeal -- Chia seeds (1 ounce) (-) Almond butter (2 tbsp) (1.2 mg) Banana (medium) (0.3 mg) Grapes (1 cup) (0.3 mg) Whole grain pasta (1 cup) (1.5 mg) Tofu (1/2 cup) (6.6 mg) Tomato sauce (100 g) (0.9 mg) Vegetables Edamame (1 cup) (3.5 mg) Asparagus (1/2 cup) (0.8 mg) Seitan (1 cup) (1.9 mg)	Whole grain toast (1 slice) (0.7 mg) Peanut butter (2 tbsp) (0.6 mg) Hemp seeds (1 ounce) (2.7 mg) Banana (medium) (0.3 mg) Kale (1 cup) (1 mg) Kidney beans (1 cup) (4 mg) Corn on cob (1 ear, 125 g) (1 mg) Edamame (1 cup) (3.5 mg) Vegetables Tempeh (1 cup) (4.5 mg)	Soy yoghurt (6 ounces) (1.4 mg) Chia seeds (1 ounce) (-) Muesli (1 cup) (7.4 mg) Raspberries (19 g) (0.1 mg) Orange (large) (0.2 mg) Nuts (1/4 cup) (4.9 mg) Sweet potato (114 g) (4 mg) Broccoli (1 cup) (1.0) Lentils (1 cup) (6.6 mg) Edamame (1 cup) (3.5 mg) Seitan (1 cup) (1.9 mg) Leafy green salad (1 cup) (2 mg)	Whole grain toast (1 slice) (0.7 mg) Peanut butter (2 tbsp) (0.6 mg) Calcium-fortified orange juice (8 ounces) (0.5 mg) Mango (medium) (0.2 mg) Brown rice (1 cup) (0.8 mg) Vegetables Kidney beans (1 cup) (4 mg) Edamame (1 cup) (3.5 mg) Vegetable broth (1 cup) (0.8 mg) Quinoa (1 cup) (2.8 mg)