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Original Research Article

Impacts of vegetarian and non-vegetarian diet on human health and environmental consequences

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ABSTRACT

Both vegetarian and non-vegetarian food items have been included in the human diet for centuries. To survive and maintain strength, we need food daily. Our digestive system is capable of digesting both vegetarian and non-vegetarian food. We need proteins, fats, carbohydrates, vitamins and minerals from food. Due to the deficiency of any element, some organs may become weak or we may become ill, so it is necessary to choose the food wisely. In nature, some creatures eat only food obtained from plants and some animals are meat eaters. One who has the same type of digestion, eats the same food because the digestive system is made to digest that type of food. Like goat, camel, elephant, horse etc. eat the leaves of the tree and lion, cheetah, wolf, cat eat meat. What kind of animals are we and whether we should eat food from plants or meat, it has been a matter of debate for a long time. There is always an argument on whether the food should be vegetarian or non-vegetarian. Some people consider vegetarianism to be the best and some people consider non-vegetarian to give more power. This paper highlights the impacts of vegetarian and non-vegetarian diet on human health and environmental consequences.

1. Introduction

Vegetarianism includes food obtained from plants. This includes cereals, pulses, fruits, vegetables, etc. Food made from milk or milk like curd, ghee, cheese etc. is also vegetarian. The specialty of vegetarianism is that this type of food does not kill any type of organism [1]. There is no violence and no blood is shed in it. Meat is used for food in non-vegetarian food. This meat can be of any animal, sea creature or bird etc. Meat is available only when an organism dies. Animals are killed to obtain meat. For this special types of weapons and machines are used. The egg of an organism or food made from it is also included in non-vegetarian food [2]. Chicken egg is most commonly used. Some people even consider eggs as vegetarian.

There is always an argument on whether the food should be vegetarian or non-vegetarian. Some people consider non-vegetarian to be superior and some to vegetarian. Those who take vegetarian diet i.e. cereals, pulses, fruits, vegetables, milk etc., they are vegetarians and those who eat meat, fish, eggs etc. are called non-vegetarians. These days some people have started giving up any kind of food related to any living creature even in vegetarianism. These vegans are called Vegans. And they do not even use milk, curd, ghee and cheese etc. in food. Being vegetarian or non-vegetarian has its own advantages and disadvantages which are as follows [3].

Food is good in which proteins, carbohydrates, fats, vitamins, mineral salts, fiber and water elements are present. All these beneficial elements are found in abundance from cereals, pulses, vegetables, fruits and milk etc. included in vegetarian diet. Apart from this, many types of antioxidants

and vitamins are available only from vegetarian food, which help in fighting diseases. A vegetarian diet is low in saturated fat and cholesterol. Due to this, there is less chance of heart problem from vegetarian diet. Vegetarian food is rich in fiber, due to which the intestines are kept clean. It controls blood pressure, does not increase cholesterol, does not cause diabetes and prevents cancer. Due to fiber, hunger is not felt quickly, due to which we avoid overeating. In this way, vegetarianism prevents obesity. The problem of overweight is less in vegetarian people. Obesity brings with it many types of diseases like diabetes, blood pressure, heart disease etc [4]. Vegetarian dieters may over time become deficient in vitamin B₁₂ and zinc, certain omega-3s, vitamin D₃, sulfur, or anemia. The iron element present in vegetarianism is not easily absorbed in the body. Therefore, the problem of anemia often arises, especially in women, due to menstruation etc., this problem is more likely to occur [5].

In a country like India where most people are vegetarian, it is not that the problem of heart, diabetes or blood pressure is less. People who reduce physical activity, do smoking or intoxication etc. or eat more fried and more ghee, they get this type of problem. Therefore, it would be completely wrong to say that eating vegetarian cannot cause harm. Apart from this, the amount of pesticides is very high in fruits, vegetables etc. Many types of harmful chemicals are used to ripen fruits. Cow, buffalo milk is extracted by injecting oxytocin which can cause cancer. Some non-vegetarian food is rich in iron and vitamin B₁₂. The body absorbs iron more easily from non-vegetarian food. So there is no loss of blood. Eating non-vegetarian food



does not cause deficiency of zinc and selenium. Protein content is high in meat and its quality is also good. It provides many essential amino acids which are necessary for physical and mental strength. Omega 3 fatty acids found in fish protect against heart disease and cancer [6]. Cod liver oil used as medicine is derived from fish itself which is rich in omega 3 fatty acids and vitamin D.

Phosphorus from non-vegetarian food is easily absorbed by the body. Therefore, the benefits of phosphorus are more than those from non-vegetarian food. After calcium, phosphorus is the only element that is most abundant in the body.

Most of the non-vegetarian food is practiced all over the world. In developed countries, diseases such as colon and lung cancer, breast cancer in women, high blood pressure, osteoporosis, cholesterol diabetes, etc., are more common, especially colon and lung cancer. After research, found meat-eating to be the reason because there is no fiber in non-vegetarian food. The amount of fat is excessive. Except for a few vitamins, the amount of essential vitamins is very low. Now even in countries like America, people are fast adopting vegetarian food leaving non-vegetarian food [7].

2 Studies in America and Europe

Epidemiologists from Harvard University in the US analyzed 20 studies on 1.2 million people. In 2012, he reported that if red meat of animals such as buffalo, sheep, goat and pig is processed industrially, then even 50 grams of such meat per day can also reduce the risk of heart diseases and increases the probability by 42% and the probability of diabetes by 19%. It is estimated that this is probably due to salt, nitrates and other substances added to the meat during processing.

A long-term study among more than half a million people in Europe found that those who preferred home-cooked plain 'red meat' instead of 'processed red meat' from buffalo, sheep, goat, etc; one cannot be considered safe; have an increased chance of getting colon cancer. The study, named 'European Perspective Investigation into Cancer' (European Cancer Prospect Investigation/EPIC), found that people who ate 100 grams of 'red meat' per day had a 49% increased risk of colon cancer.

In the 1980s, three large studies on the benefits and harms of vegetarianism were conducted by the Nuclear Research Institute of Heidelberg, Germany's University of Giesen, and the German Health Office. They were astonished to see that the blood pressure and body weight of the vegetarians were found to be very favorable. They were less likely to develop cancer and heart disease, and the more likely they were to live longer.

London's 'School of Hygiene and Tropical Medicine' also conducted a similar study with 11,000 vegetarians for 12 years. These vegetarians were compared to a group of people who were non-vegetarians, but their lifestyle and social status were similar to those of vegetarians. The results of this study, also conducted in Germany in the 1980s, were similar to those described above. Researchers in London found that vegetarians had better blood pressure, cholesterol and uric acid (diarrhea) levels than non-vegetarians. Their hearts and kidneys were healthier than those of non-vegetarians. The mortality rate among vegetarians was 20% lower than among non-vegetarians and the incidence of cancer was 40% less. The

researchers also said that the vegetarians included in the study were not deficient in any important thing like vitamins, proteins or minerals. His health was much better than average.

The US National Cancer Institute (NCI) has recently concluded that non-vegetarian cancers are associated with cancer, heart disease, respiratory diseases, brain stroke, diabetes, ulzheimer's disease, liver and kidney disease [8]. Researchers from the 'University of New York' in the US have found more bacteria that protect the intestines than in the intestines of non-vegetarians, in the intestines of normal vegetarians and ultimate vegetarians called 'vegans'.

In the digestive system of our body, there are more than a kilo of different types of microscopic bacteria, which become helpful in digesting food. There are also some of them, which can also make vitamin B₁₂ by fermenting fruits or other foods. This is a vitamin that is otherwise found only in meat. It has been proven time and again by many other studies that vegetarians are less likely to develop high blood pressure and diabetes and to form kidney or gall bladder stones than non-vegetarians.

There is also a discovery that may sound strange and unbelievable, but it is true: Researchers from the University of Prague in the Czech Republic wanted to know if there was any difference in body odor of vegetarian and non-vegetarian women and men. They found that there was a difference. Vegetarian men - not only the body of women, the smell of their sweat is also pleasant than that of non-vegetarian men - women. Psychological studies have shown that vegetarians have a relatively quick heart rate and non-vegetarians have a higher level of violence.

3 Emotional effect of vegetarian and non vegetarian food

Human beings are different from all other living beings because of their emotions. A sense of kindness and compassion motivates one to be a vegetarian. Due to these feelings, human beings are able to live peacefully with each other. As it is said, "Eat food, so get your mind" and almost everyone feels it. Vegetarians have more feelings of kindness, compassion, tolerance etc. In non-vegetarian non vegetarian people, more anger, violent tendencies and feelings of cruelty etc. have been found. These feelings separate from each other.

Being vegetarian or non vegetarian is the individual has his own personal decision. Both have their own advantages; so also loss. Despite this, some research inspires the world to become vegetarian. According to an Oxford University study on diets in the UK in 2014 and 2018, diets high in meat lead to the emission of 7.2 kg of CO₂ per day, whereas only 2.9 kg of CO₂ is emitted from vegetarian diet. In such a situation, it will be interesting to know that what will happen if the whole world becomes vegetarian.

4 Business attitude towards meat

What should a person eat and what not. It is a matter of his personal preference. Vegetarians want the whole world to become vegetarian and non-vegetarians have their own logic. In this sequence, scientists talk about two types of things on this issue. The first is that this is not possible. If this happens, then both its positive and negative effects will be seen in the world. Researchers believe that this argument does not hold true for developing countries. In such countries, not everyone

has the same type of food choices. If a poor man wants to eat protein, he cannot buy almonds daily. For example, buying meat at cheap price in front of him is a better option. From the point of view of nutritional security, this argument seems to be correct to some extent.

On the other hand, researchers argued that the number of ruminant animals in the world is about 3.5 billion, while there are more than 10 billion chickens. They are harvested in the same number every year. A huge population of the world does the work of rearing and cutting them. If the trade of non-vegetarian food is closed, then the employment crisis will deepen in many countries. Thus before going from non-vegetarian to vegetarian, we should find new employment options in the country.

5 Greenhouse connection of meat

Well the above mentioned things are of employment choice and needs. But the most important thing is to understand that after all, what is the harm to nature due to non-vegetarian food? If we look at history, then such examples will be seen in every country. Where, until decades ago, having a large number of animals was a matter of prestige. People used to give them to each other as gifts. Obviously animals have been a part of our culture and life.

Another aspect of this is that eating meat has also been a part of our tradition. Springman's computer model study says that if people all over the world become vegetarian by 2050, the number of premature deaths could be reduced by 6% to 10%. Along with this, it will also be easy to get rid of diseases like cancer, sugar, heart attack. One of the major reasons for the opposition to non-vegetarian food is the continuous increase in the greenhouse effect [9].

A report by Oxford University reveals that a non-vegetarian family of four in America emits more greenhouse gas than two cars. But those who talk about environmental protection and global warming are limited only to the smoke of cars. They don't talk about meat. If only red meat is removed, then the greenhouse gas released from the food will be reduced by 60%. Research by the World Wildlife Fund states that Europeans have done a comparative study of the cost of animals and the meat they get. According to which, it takes several kilos of fodder and 15,455 liters of water to make 1 kg of meat of animals. This water is used to grow the fodder, feed the animals, clean them and the animal's shed for many such works which are not visible in the meat. After this, by the time of slaughter in the slaughterhouse, the animal has eaten an average of 1,300 kg of grain and 7,200 kg of straw etc. On average, each animal has drunk 24 cubic meters of water until the cut. Seven cubic meters of water has been spent on cleaning the place where it was tied in the animal's shed. After this the dirt that contaminates the water inside the ground, it is different. Overall, a large amount of water and fodder is spent to get meat. Another argument is that a large part of that feed in Europe comes from Africa and Latin America.

Forests are cut for fodder, due to which the amount of CO₂ is seen increasing. Along with this, CO₂ bound in the humus soil of the forests is also releasing into the air and increasing the global temperature. In such a situation, if the number of meat eaters is reduced, then this waste can be reduced. According to the study, twelve billion acres of land in the

world are used for agriculture and related work. 68% of it is used for animals. If all become vegetable eaters, then about 80% of the land will be used for pastures and forests. That is, the environment will be benefited in every respect. However, turning the world completely vegetarian will remain a myth. Nevertheless, scientists argue that if the prices of meat and meat products are increased, then fewer people will use it. On the other hand, if the prices of fruits and vegetables are stabilized, then it will be accessible to the common people. This will maintain the balance of nature. Of course, reducing the use of meat can reduce the greenhouse effect, but instead of stopping it completely, an attempt should be made to find a middle ground.

6 Argument in favor of non-vegetarian food

The biggest argument in favor of non-vegetarian food is that our body is able to make almost all that it needs for its energy and physical development in the form of meat of animals and birds. This flesh is very similar to the biological structure, which is also our body's own biological structure, whereas the biological structure of plants and plants is very different. Meat also contains many types of amino acids (amino acids), unsaturated fatty acids (unsaturated fatty acids), many vitamins of the vitamin B class and many minerals like iron, zinc which are essential for our body, are very necessary. 20% of our body is made up of proteins and protein is made up of amino acids [10].

7 Biological similarities between meat and the human body

It is also said that the density of all these things in meat is much higher than in plants. Due to the very similarity in biological structure, our body is unable to digest and absorb vegetarian food to the extent that it can digest and absorb non-vegetarian food. A common example given in this context is that 100 grams of beef contains half a milligram of iron, whereas to get the same microscopic amount of iron, we would have to eat 700 grams of spinach. 70% of the iron in our body resides in red blood cells and hemoglobin and myoglobin cells of muscles. It is true that our intestines absorb up to 20% of the iron contained in any meat, while they can only absorb 3% - 8% of the iron contained in pulses and cereals. But this quantity can be increased by eating such fruits etc. with food, which are rich in Vitamin C. That is, the need to eat meat for iron is less, the excuse is more.

8 All options available in vegetarianism too

Despite some of the benefits of non-vegetarian diets, the German dietitian body DGE recommends that adults eat no more than 600 grams of meat a week. Markus Keller, dietician of this organization, says, 'In fact, even a well-organized vegetarian diet can provide all the necessary nutrients. For example, they may also contain secondary substances that reduce high blood pressure and cholesterol and have a favorable effect on digestion, which are possible only in vegetarianism [11]. Experts of 'DGE' say that vegetarianism also has alternatives to those vitamins and micro-mineral elements, which are said to be characteristic of non-vegetarian food. For example, spinach contains not only iron but also calcium. The same calcium is also found in Karmasag and

Bathua (Arugula). All the iron deficiency can also be filled with pulses. Iodized salt can be taken for iodine. Zinc will be found in the bran flour of wheat and barley and in the seeds of kumhada (pumpkin). Vitamin B₂ and vitamin D are found in mushrooms (mushrooms, mushrooms).

9 Balanced vegetarian diet

The question arises, is being vegetarian enough for good health and a long life? Doctors and dieticians in Western countries say that a vegetarian diet alone is not everything. There should be a balanced vegetarian diet for good health. Balanced vegetarian diet means, not only lentils-rice, greens-vegetables and roti, milk-curd, fruits-flowers, tuber roots etc. should also be substituted in the food. It should also be taken into account that which food item has which vitamin, how much protein and which mineral element will be available from what. For example, pulses provide the most protein, fruits and vegetables provide the most vitamins, and dry fruits provide the most saturated fat. The average daily requirement of protein is said to be equal to 50 grams, which can be easily met by pulses. It should also be seen that what should be cooked in such a way that its vitamins, proteins etc. remain intact, not destroyed. Avoid black tea, coffee and chocolate and avoid excessive use of onions and garlic, as these things hinder the absorption of iron. Along with being a vegetarian, abstaining from things like cigarettes and alcohol, walking in the open air and getting some exercise are also important for good health and longevity.

10 Vegetarianism is a waste of resources

The ruminant animals that are reared to satisfy the hunger of carnivores are actually grass-fed herbivores. They convert mostly the same vegetarian things into meat in their body, which we also eat partly. That is, we are putting more energy, labor, resources and time together and eating the same things in the form of meat, which could have been eaten directly, without all this mess, as a vegetarian. If this is not a waste of energy and resources, then what is? Various hormones and antibiotics are also given to the meat-giving animals to make them bigger and fatter in the shortest possible time. Along with their meat, some parts of these medicines also reach the body of the meat eater and sometimes it also causes some disease or physical deformity [12].

11 Climate and environmental damage

Increasing demand for non-vegetarian food not only increases diseases, but also increases the damage already being done to the climate and environment. Especially beef-eaters should think that animals do not live only by eating grass and straw. They also have to feed grains like wheat, corn, barley etc. as fodder, which are also part of vegetarian diet. The World Wildlife Fund (WWF), for example, has calculated that it takes several kilos of feed and 15,455 liters of water to produce one kilo of meat in European animals, for example. Called 'virtual water' or 'water footprint', this water is used to grow fodder, feed the animals, clean them and the animal's shed, etc. It is not visible in the flesh. By the time of slaughter in the slaughterhouse, each animal has consumed an average of 1,300 kg of grain and 7,200 kg of straw etc. By the time each animal is cut, an average of 24 cubic meters of water has been

consumed and seven cubic meters of water has been spent on cleaning the place where it is tied in the animals shed [13].

12 Ground water is polluted

Most of the water spent on animals seeps into the ground as dirty water and pollutes the ground water. A large part of the medicines given to animals also mix with their excreta and urine in the ground water. Ground water is the main source of drinking water supply for most cities in Europe. Animals need so much fodder that a large part of that fodder in Europe is imported from countries in Africa and Latin America. In these countries and in Europe itself, deforestation is done to grow fodder. Due to this, not only the trees that bind CO₂ are decreasing, CO₂ bound in the humus soil of forests is also increasing the global temperature by releasing it into the air. All these things are not as accurate as Europe-America, yet being the world's largest animal husbandry country, it must be happening in India too!

The World Wildlife Fund also says that every animal emits 200 liters of methane gas every day. Methane's ability to raise the temperature is 25 times greater than that of CO₂. In other words, the damage each animal is doing to the climate with its methane gas every day is comparable to the damage caused by the smoke from a small car driving 18,000 kilometers a year. Germany's Federal Office for Environmental Defense said in a 2016 report that animal husbandry for meat is the main source of methane gas and dinitrous-monooxide emissions in Germany. According to the report, 7 to 28 kg of temperature-enhancing gases are emitted in the process of making one kg of beef, while producing one kg of fruits or vegetables produces less than one kg of such gases [14]. Even so, the value support that meat is getting in Germany in the form of a sales tax exemption is 57 billion euros. It is worth noting that this concession is 20 billion euros more than even Germany's defense budget!

Another similar comparison is that non-vegetarian foods are responsible for 70% of the temperature-enhancing gases we produce on Earth through our food and only 30% of vegetarian foods. Reversing this ratio alone can not only prevent many diseases, but can also reduce the emissions of gases that increase the temperature by billions of tons per year.

13 What will happen if everyone becomes vegetarian?

Dr. Marco Springman of the University of Oxford in the UK is one of the most well-known researchers of global dietary trends. According to him, due to increasing income, urbanization and globalization, the food and drink of the people of developing countries will become similar to that of the western countries. Due to this, the diet system of the world will have to face huge challenges in the future. But if all the people of the world give up non-vegetarian food, the results will be amazing! His team found that then by 2050, 73 million deaths would be reduced every year. The global mortality rate will drop by 7%. This is because people who live by eating fruits and vegetables instead of meat, they are less prone to obesity and heart disease. Due to the production of food items, the amount of temperature-enhancing gases that are reaching the atmosphere at this time, their quantity will also be reduced by two-thirds due to becoming vegetarian. 70% water will also be saved. Living and living on earth will become much more

pleasant than today. Marco Springman's team calculated that ending meat-eating would reduce health care costs and climate change-related damages by 2050 to a total of \$1.5 trillion in savings worldwide each year. The reduction in spending on health services alone would be equal to 3% of the sum of the total gross domestic product (GDP) of all countries projected for 2050. These scientists also found that if the world can leave meat and become vegetarian by 2050, then 20 billion chickens, one and a half billion buffalos, one billion sheep and pigs will neither have to die nor keep them all. At present, land equal to 30 million square kilometer area is trapped due to keeping and rearing all these animals. This land alone, on which the amount of warming gases can be further reduced by planting trees, is equal to the area of the entire continent of Africa, grazing land is not included in it.

The United Nations Agricultural Organization 'FAO' also believes that if the dominance of non-vegetarian food remains in place of vegetarianism, then the food problem of the growing population of the world will become even worse by 2050. Those who have money will become fat and sick after eating meat, and those without money will be malnourished. Our food intake will be responsible for half of that climate-changing emissions, which is the limit for preventing global warming by more than two degrees. That is, if the climate is to be saved, then the meat-eating will have to be destroyed. Vegetarianism is an alternative to non-vegetarian food, but there is no substitute for climate.

At present, non-vegetarians around the world burp 300 million tonnes of meat every year. The fear is that this unimaginable quantity will increase, instead of decreasing, to 500 million tonnes by 2050. For this, the worldwide yield of soybeans alone would have to be doubled for fodder for the animals that would be first reared and then harvested. Soybean cultivation alone would require more land, more water and more fertilizers. The meat-giving animals will spread more temperature-enhancing gases in the air by eating this saab.

14 Conclusions

Some people eat non-veg food to get more protein. But due to excess protein, diseases like kidney stones, osteoporosis, heart problems and cancer can occur. The same protein can be found from cereals, pulses, milk etc. which is not harmful. Soy products like soy milk, soya paneer etc. are capable of providing protein like meat. Some people believe that meat is necessary to gain more strength to build muscles. But the strength that horses, elephants and bulls possess, they get only from vegetarianism. A vegetarian buffalo has the power to lift a lion and throw it.

If we compare ourselves with carnivorous creatures and herbivores to understand the gesture of nature, then it seems that we are made for vegetarianism. From the teeth to the intestine, the digestive system does not seem appropriate for meat-eating from anywhere. Our teeth are not going to tear the flesh. In carnivorous organisms, hydrochloric acid is secreted in large quantities for bone dissolution. Our skin sweats like herbivores. So nature tells us to be vegetarian.

Therefore, it comes to the conclusion that whether the food is vegetarian or non-vegetarian, it should not be fried or fried. Don't be too spicy. Exercise should be a part of the

routine. Grains, pulses, vegetables, fruits etc. produced by organic method should be used. If we take non-vegetarian food, then fiber things should also be taken with us. Processed meat is more harmful, so it should not be used. By understanding the aspects related to vegetarianism and non-vegetarianism and looking at their advantages and disadvantages, only we can decide whether we would like to become a vegetarian or become a non-vegetarian.

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