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Review Article

# Availability, Price, Tradition, Religion, Income, Social, Development and Economic Influences on Meat Consumption

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## Abstract

The Muslims slaughtered AL-Odhia in Eid Al-Adha Almubark. The Al-Odhia includes the animal's sheep, goat, cattle, buffaloes and camel in Eid Al-Adha Almubark every year and the Muslims eat the meat of AL-Odhia. The Muslims not eat the pork. The Muslims eat the meat all over the year. The Christians not eat meat and other foods of animal origin in certain periods of the year. The Jewish not eat pork and camels' meat. The meat consumption is based largely on the availability, price and tradition. The meat production is a very complex operation depending not only on the demand which is usually based up on the price and the income, but up on the many social and economic influences such as the official policy, the price support mechanisms, and the interrelations such as the interaction between beef and milk production, the availability of animal feedstuffs and the competition for the food between the man and the animals.It is difficult to make accurate comparisons of the meat consumption between the countries in the world because the different methods are used to estimate the consumption. The figures may be derived from the total supplies available at wholesale level, or from the records of the household purchases, with or without estimates of what is consumed away from the home; the estimate of waste, both in the preparation of the food and by the individual adds to the uncertainty. Some national estimates fail to include the imports, and some surveys include the weight of the non-meat components of the products, for example the amount of the meat in a product can range between hundred percentages in some types of the burger to ten percentages in some types of the pizza. The food Balance Sheets are prepared from the figures for the production, the imports, the stock changes and the exports with allowances for the feed, the processing and "The other uses" and the same methods are applied to all the regions. The amount of the meat consumed in different countries in the world varies enormously with social, economic and political influences, religious beliefs and geographical differences.

**Keywords:** the muslims; the christians; meat consumption; religion, diets; development; imports; meat production

## Introduction

Up to a certain level of the income, the amount of the meat eaten varies with the income, in the relatively affluent the western world where the proportion of available income spent on the food has been steadily falling over the past generation, there is now a little if any difference between the amounts of the meat eaten by the different income groups. This contrasts with the Third World countries in the world (1,2,3,4,5 and 6). The meat consumption is very large in the meat-producing areas such as Uruguay, Argentina, Australia and New Zealand, at three hundred grams per head per the day compared with an average of ten grams in India, Indonesia and Sri Lanka, the contrast between the total meat supplies in developed and developing countries in the world, allowing for exports, imports and stock changes, and the production per capita in the former is five times as much as in the developing countries in the world. These tables also show the relative size of production of the different types of animals involved. The role of the meat in the diet of undeveloped and developing countries in the world. The meat is held in high esteem in most communities. It has prestige value, it is often regarded as the central food round which meals are planned, various types of the meat are sometimes made the basis of festive and celebratory occasions, and from the popular as well as the scientific point of view, it is regarded as a food of high nutritive value (7,8,9,10,11 and 12). While it is clear that meat is not essential in the diet, as witness the large number of vegetarians who have a nutritionally adequate diet, the inclusion of animal products makes it easier to ensure a good diet. There is a marked difference at the present time in attitudes towards the meat between the people of the developing and the industrialized communities in the former where the meat is in short supply it can be taken as a measure of the nutritional quality of the diet as a whole. Where a typical diet is heavily dependent on one type of the cereal or the root crop, the meat, even in the small amounts, complements the staple food. The meat provides a relatively rich source of well absorbed iron and also improves the absorption of iron from other foods, its amino acid composition complements that of many plant foods, and it is a concentrated source of B vitamins, including vitamin B12 which is absent from plant foods. Consequently, there is pressure to increase the availability of the meat products (13,14,15,16,17 and 18).

**Social effect on the meat consumption:**

In the industrialized countries in the world where food of all kinds is plentiful and cheap there is concern, whether or not misplaced, about the potentially

harmful effects of a high intake of saturated fat from animal foods, emphasis on continuous development of regulations dealing with hygiene in slaughter houses and during subsequent handling, concern about hormones administered to cattle, what is perceived as excessive addition of water to some processed products - concerns that can scarcely be afforded in developing countries in the world when the balanced against the food supplies. With increasing the mechanization in the industrialized communities, the steady fall in the human energy expenditure and consequently in per capita the food consumption poses a potential problem in achieving an adequate intake of nutrients even where there is an abundance of the food available. With the variety of the food available a diet of eight Ml (2000 kcal) or more per day is likely to supply enough of all the nutrients, but when the intake is 6.5 to 7 MJ (1600-1800 kcal) per day the consumer needs to make an informed choice of foods to ensure an adequate intake of nutrients. In the Western Europe the daily average energy intake of women is about 6.5 Ml and that of men eight MJ and there are reports of the biochemical signs of deficiencies of several B vitamins and iron. It is not clear whether this is accompanied by the functional defects (19, 20, 21, 22,23,24 and 25). In the industrialized countries in the world there have been slow but continuous changes over the years in the relative amounts of different types of the meat consumed depending partly on the price and influenced by the fashion, the advertising, etc. During the more recent years health aspects, the more correctly, the perceived health aspects, have become a factor. The concerns about the public health in the industrialized countries in the world where the coronary heart disease and the other "diseases of affluence. are common have led to the recommendations to the public to modify their diet, the popularized as Dietary Guidelines. These particularly recommend a reduction in the fat consumption, especially the saturated fatty acids and consequently, even if incorrectly, in the red meat. This has led in some sections of their populations to a relative increase in the consumption of the poultry and the fish at the expense of the red meat. In addition, there is concern, whether or not misplaced, about the presence in the meat of pesticides, the residues of the hormones and the growth promoters used to increase the yields, and the concern about the human diseases thought to be transmitted by the beef, together with an increase, for many reasons, in the vegetarianism (26, 27, 28,29,30 and 31).

**The meat as a source of protein for the Human Protein Requirements:**

The human requirements for protein have been thoroughly investigated over the years and are currently estimated to be fifty-five grams per the day for the adult man and forty-five grams for the woman. There is a higher requirement in the various disease states and the conditions of stress. These amounts refer to the protein of what is termed the good quality and the highly digestible, otherwise the amount ingested must be increased proportionately to compensate for the lower quality and the lower digestibility (32,33,34,35,36 and 37).

**The Protein Quality:**

The quality of a protein is a measure of its ability to satisfy the human requirements for the amino acids. All proteins, both the dietary and the tissue proteins, consist of two groups of amino acids - those that must be ingested ready-made, i.e., are essential in the diet, and those that can be synthesized in the body in adequate amounts from the essential amino acids. Eight of the twenty food amino acids are essential for the adults and ten for the children. The quality of the dietary protein can be measured in various ways but basically it is the ratio of the available amino acids in the food or the diet compared with the needs. In the earlier literature this was expressed on a percentage scale but with the adoption of the S.I. system of nomenclature it is expressed as a ratio. Thus, a ratio of 1.0 means that the amino acids available from the dietary proteins are in the exact proportions needed to satisfy the human needs; a ratio of 05 means that the amount of one of the essential amino acids present is only half of that required. If one essential amino acid is completely absent the protein quality would be zero. There is a popular impression, originating at one time from the nutrition textbooks, that the qualities of the proteins from the animal sources are greatly superior to those from the plant sources. This is true only to the extent that many animal sources have the Net Protein Utilization, NPU, around 0.75 while that of many, but not all the plant foods are 0.5-0.6. However, after infancy people consume a wide variety of proteins from the different foods and a shortfall in any essential amino acids in one food is usually made good, at least in part, by a relative surplus from another food - this is termed the complementation. As a result, the protein quality of whole diets even in developing countries in the world rarely falls below NPU of 0.7, a value that can be compared with the average of 0.8 in industrialized countries in the world. The value of the meat in this respect is that it is a relatively concentrated source of the protein, of high quality, highly digestible, about 0.95 compared with 0.8-0.9 for the many plant foods, and it supplies a relative surplus of one essential amino acid, lysine which is in relatively short supply in the most cereals (38,39,40,41,42,43 and 44).

**The Effect of Cooking on Protein Quality:**

Apart from the inherent quality of the various proteins a reduction in the quality takes place if there is damage to the amino acids when the food is cooked. At a temperature below 100°C when the proteins are coagulated, there is no change in the nutritional quality of the meat. The first changes take place when the food is heated to the temperatures around 100°C in the presence of the moisture and reducing the sugars, the present naturally or added to the food. There is a chemical reaction between the part of one essential amino acid, the lysine and a sugar to form a bond that cannot be broken during the digestion, and so the part of the lysine is rendered unavailable. When the proteins are analyzed in order to determine their amino acid composition the procedure involves a preliminary hydrolysis with the strong acid which does break the lysine sugar bond, so the chemical analysis does not reveal this type of the damage and the special methods are needed. At a higher temperature or with the more prolonged heating, the lysine in the food protein can react with the other chemical groupings within the protein itself and more becomes unavailable. In addition, the sulphur amino acids are rendered partly unavailable. The lysine-sugar reaction results in a brown-coloured compound which produces an attractive flavour in the food and is the main cause of the colour of the bread crust and the roast meat. While such severe heating reduces the amount of the lysine available in these foods the loss is nutritionally insignificant since it affects only a very small fraction of the total amount present. At the temperature needed to cook the meat there is little loss of the available lysine or the sulphur amino acids but there can be some loss if the meat is heated together with the reducing substances, as may be present when the meat is canned with the addition of the starch-containing gravy or other ingredients. Overall, the damage to protein caused by cooking is of little practical significance and it can be argued that if there is meat in the diet it is likely that the quantity of the protein would compensate for any shortfall in the quality. The nutritional quality of the proteins of the meat rich in connective tissue is low since collagen and elastin are poor in the sulphur amino acids - there is only 0.8 g of each per 100 g of total protein compared with values of 2.6 and 1.3 of each respectively in "The good meat. The meat is tough to eat when it is rich in the connective tissue and such meat is often used for the canning since the relatively high temperature involved in the sterilization process partly hydrolyses the collagen so making the product more palatable. However, it still results in a product with NPU as low as 0.5 compared with a value of 0.75 - 0.8 for the good quality meat (45,46,47,48,49,50 and 51).

**The adequacy of the Dietary Protein:**

The protein requirement of an individual is defined as the lowest level of protein intake that will balance the loss of nitrogen from the body in persons maintaining energy balance at modest levels of physical activity. The "requirement" must allow for desirable rates of deposition of protein during growth and pregnancy. When energy intake is inadequate some of the dietary protein is diverted from tissue synthesis to supply energy for general physical activity - this occurs at times of the food shortage and also in disease states where the food is incompletely absorbed and utilized. A diet adequate in energy is almost always adequate in protein - both in quantity and quality. For example, an adult needs an amount of protein that is equivalent to 7 - 8% of the total energy intake, and since most cereals contain 8 - 12% protein even a diet composed entirely of cereal would, if enough were available and could be consumed to satisfy energy needs, satisfy protein needs at the same time. Growing children and pregnant and nursing mothers have higher protein requirements as do people suffering from infections, intestinal parasites and conditions in which protein catabolism is enhanced. During the stress that accompanies fevers, broken bones, burns and other traumas there is considerable loss of protein from the tissues which has to be restored during convalescence and so high intakes of protein are needed at this time together with an adequate intake of energy. The digestibility of the proteins of various diets varies considerably. For example, the digestibility of the

typical Western diets and the Chinese diets is 0.95. That of the Indian rice diet and the Brazilian mixed diet is 0.8. Digestibility is high in the diets that include the meat and low when the maize and the beans predominate. An increase in the amount of the protein eaten beyond the requirement the figures compensate for any shortfall in the digestibility and the protein quality (52,53,54,55,56,57 and 58).

**The meat as a source of vitamins and minerals:**

The meat and the meat products are important sources of all the B-complex vitamins including the thiamin, the riboflavin, the niacin, the biotin, the vitamins B6 and B12, the pantothenic acid and the folacin. The last two are especially abundant in the liver which, together with the certain other organs is rich in the vitamin A and supplies appreciable amounts of the vitamins D, E and K. The meat is an excellent source of some of the minerals, such as the iron, the copper, the zinc and the manganese, and play an important role in the prevention of the zinc deficiency, and particularly of the iron deficiency which is widespread (59, 60, 61,62,63,64,65 and 66).

**The meat Iron**:

The amount of the iron absorbed from the diet depends on a variety of factors including its the chemical form, the simultaneous presence of the other food ingredients that can enhance or inhibit the absorption, and the various physiological factors of the individual including his/her iron status. Overall, in setting Recommended Daily Intakes of nutrients the proportion of iron absorbed from a mixed diet is usually taken as ten percentage. Half of the iron in the meat is present as the haemoglobin. This is well absorbed, about fifteen to thirty-five percentage, a figure that can be contrasted with the other forms of iron, such as that from the plant foods, at one to ten percentage. Not only is the iron of the meat well absorbed but it enhances the absorption of the iron from the other sources - e.g., the addition of the meat to a legume/cereal diet can double the amount of the iron absorbed and so contribute significantly to the prevention of the anemia, which is so widespread in the developing countries in the world. The Zinc is present in all tissues of the body and is a component of more than fifty enzymes in the body. The meat is the richest source of the zinc in the diet and supplies one third to one half of the total zinc intake of the meat-eaters. A dietary deficiency is uncommon but has been found in the adolescent boys in the Middle East eating a poor diet based largely on the unleavened bread. The public health concerns associated with the consumption of the meat (67,68,69,70,71,72,73,74 and 75).

**The Poultry Meat versus the Red Meat**:

The dietary guidelines sometimes include the advice to substitute, at least in part, the chicken for the red meat. The chicken meat including its skin contains about the same amount of the fat as does medium-fat red meat, twenty percentage; it is important to remove the skin with the adhering subcutaneous fat, to reduce the fat content to around 5% - which is no lower than the figure for the lean meat. However, the chicken flesh has less saturated fatty acids and more PUFA (fourteen percentage) than the lean meat with forty-five percentage and four percentage, respectively. The duck flesh is very fat, containing about ten percentage fats – forty-five percentages when the skin and the subcutaneous fat are included; only twenty-seven percentage of the duck fat is saturated. The meat from the game birds, the grouse, the partridge, the pheasant and the pigeon, contains about five, seven, nine and thirteen percentage fat, respectively, of which about one quarter is saturated. Apart from the differences in the amounts and types of the fatty acids in the various kinds of the meat, the poultry and the game their nutrient compositions are similar (76,77, 78,79,80,81,82 and 83).

**The toxic compounds formed during the processing and the cooking steps:**

While the cooking is necessary to develop the desirable flavours in the meat the oxidation of the fats, especially at the frying temperatures, can give rise to the compounds that decompose to the aldehydes, the esters, the alcohols and the short chain carboxylic acids with the undesirable flavours. The meats are particularly susceptible because of the unsaturated lipids present which are more readily oxidised and because of catalysis by the haeme and the non-haeme iron. The more PUFA present the greater the likelihood of the oxidation, and the pork, the duck and the chicken are the most susceptible. Other types of the meat are less susceptible, e.g., the Iamb, the turkey, and the beef. The adverse effect of these oxidation products on the eating quality is well recognized but more recently it has been suggested that some of them may be carcinogenic, and also may be involved in the ageing process and the CHD. However, it is possible or even likely that the unpleasant flavours would cause the rejection of the food at the levels below the harmful ranges. The cholesterol can also be oxidized and the oxidation product has been suggested as a possible factor in the CHD (84,85,86,87,88,89,90,91 and 92).

**Nitrosamines**:

The Nitrites, used in the curing salts can react with the amines commonly present in the food, to form the nitrosamines. These have been shown to be carcinogenic in all species of animals examined but it is not clear, despite years of the intensive research, whether the amounts present in the cured meat affect the human beings. The problem is particularly difficult because the nitrosamines have been found in the human gastric juice, the possibly formed from the nitrites and the amines naturally present in the diet. As a precaution, the legally enforced in some countries in the world, there is a tendency to reduce the amount of the nitrite used in the curing mixture and to add vitamin C which inhibits the formation of the nitrosamines (115,116,117,118,119 and 120). The erythorbic acid and the tocopherol are also effective in reducing the nitrosamine formation. The problem is complex since the process of the curing is designed to prevent the growth of the Clostridium botulinum which is responsible for the botulism, and the risk of botulism is increased if the concentration of the nitrate-nitrite is reduced too far. Moreover, the cigarettes contribute far greater amounts of the nitrosamines, up to one hundred times as much as the cured meat (93,94,95,96,97,98,99 100 and 101).

The Residues of the Drugs. The Pesticides: The residues of the drugs, the pesticides and the agricultural chemicals can be found in small amounts in the meat and the meat products. The pesticides, for example, may be applied specifically to the animals to control the insects or the intestinal parasites but may also be present in the meat as a result of exposure of the animals to the chemicals used on the buildings, the grazing areas and the crops. While there is no clear evidence that these small amounts cause harm to the consumer they are perceived as a risk. For this reason there is widespread legislation to the test for and the control a range of the chemical substances that may be present in the meat.The problem is complicated because the several hundred substances are used to treat the animals, to preserve the animal health and to improve the animal production (110,111,112,113,114,115 and 116). These include the antimicrobial agents, the beta-adrenoreceptor blocking agents the anti-helminthic, the tranquillizers, the anti-coccidial agents, the vasodilators and the anesthetics. The potential safety problems arise from the possibility of the residues of these drugs and their metabolites remaining in the tissues consumed by the human beings. Some tranquillizers, for example, are used in the pigs in the immediate pre-slaughter period when there is no time for their removal through the normal metabolic processes. They can persist in the human body so that repeated intakes could possibly result in the accumulation of the drugs. In order to protect the consumers from such as risks, Practice for control of the use of the veterinary drugs. These provide guidelines for the prescription, the application, the distribution and the control of the drugs. Where there is sufficient scientific information available about the drug, the Acceptable Daily Intake as a measure of the amount of a veterinary drug, expressed on a body weight basis, that can be ingested over a life-time without appreciable health risk and the food additives (102, 103,104,105,106,107,108 and 109).

## Conclusion:

The meat is not an essential part of the diet but without the animal products it is necessary to have some reasonable knowledge of the nutrition in order to select an adequate diet. Even the small quantities of the animal products supplement and complement a diet based on the plant food so that it is nutritionally adequate, whether or not there is informed selection of the food. The Side by side with these known benefits of including the meat and the meat products in the diet are problems associated with the excessive intakes of the saturated fats, the risks of the food poisoning from the improperly processed products, the residues of the chemicals used in the agriculture and the animal production and other potentially adverse aspects. Within these concepts is the major problem of the meat production under the conditions that used to avoid the food poisoning and satisfy the economic demands of the profitability with the traditional, the cultural and the religious concerns of the community. There is a steadily increasing demand for the meat in the developing countries in the world which can be satisfied by increased the

domestic consumption and the increased imports. It is thought that the major increase in the domestic production will come from the small producers rather than from creating the large production units but these lack the essential facilities for producing the safe and wholesome products. If there is to be a significant increase in the meat production it will require clear policy decisions with the necessary financial, the legislative and the technical support. There is considerable potential for the increased supplies through the better management, selection of the animals, the avoidance of the waste and making use of the indigenous species. If the exports are to be considered then the attention has to be paid to the strict hygienic and the safety requirements involved, whatever the domestic market might tolerate.

## Conflicts of Interest

The author declares no conflicts of interest

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