



A Mini Review on the Nutritional Benefits of Rabbit Meat



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Abstract

Rabbit meat is increasingly recognized for its significant nutritional benefits, making it a valuable addition to various diets. Characterized by its low-fat content and high protein levels, rabbit meat typically contains 20 to 25% protein and minimal saturated fats, promoting heart health and aiding in weight management. It is also rich in essential vitamins, particularly B12, which supports energy metabolism and neurological function, as well as vital minerals such as iron and phosphorus. The hypoallergenic nature of rabbit meat further enhances its appeal, providing a safe protein source for individuals with dietary restrictions or allergies to other meats. More so, its versatility in culinary applications allow for easy integration into diverse diets. Overall, rabbit meat offers a nutritious, lean protein that supports various health objectives, making it a compelling choice for consumers seeking healthier meat alternatives.

Keywords: Rabbit; Meat; Nutritional; Benefits

Introduction

Rabbit meat is increasingly recognized for its excellent nutritional profile, making it a desirable choice among various meat options. Rabbit meat is known for its appealing option for health-conscious consumers and its mild flavor and lean quality meat, which makes it to be one of the most favorite nutritious foods [1- 2]. Rabbit is farmed extensively globally for production of meat, and it has short gestation period with high rate of feed conversion [2-3]. The rabbit meat is famous and widely consumed in numerous countries in the world specifically in Egypt [2-5]. Rabbit meat, just like any other type of animal meat, could be of public health importance and it is essential to understand the nutritional benefits and methods of meat procession, this will go a long way in helping health and rabbit meat industry [2]. This mini review examines its key nutritional components, health benefits and sustainability aspects.

Nutritional Components

Protein content

Rabbit meat is known to contain a high protein of approximately 25-30 grams per 100 grams. This high concentration of protein

is of benefit for the growth and repairs of muscle, making it the best option for individuals seeking to maintain a high-protein diet especially the athletes [2-6]. This high content of protein in rabbit meat is an indication that it contains all essential amino acids needed for human health. Rabbit meat contains high levels of both essential and non-essential amino acids. For example, the New Zealand White breed of rabbits, contains the following essential amino acids in meat samples lysine, histidine, phenylalanine, valine, methionine, threonine, isoleucine, and leucine. The reports shown that the meat samples from the Egyptian Balady breed have different amino acid compositions, with higher levels of phenylalanine than leucine, possibly due to their genetic makeup. On the other hand, the California breed of rabbits had a slightly different amino acid composition, with lysine, leucine, phenylalanine, histidine, valine, threonine, isoleucine, and methionine [2-7].

Fat concentration

One of the outstanding features of rabbit meat is its low-fat composition, ranging from 7-10 grams per 100 grams, making it a leaner alternative to more commonly consumed meats such

as pork and pig meats respectively [8]. This low concentration of saturated fat is essential for cardiovascular health, aligning with dietary recommendations to reduce saturated fat consumption. Additionally, rabbit meat contains valuable omega-3 fatty acids which make it an excellent food for consumption [9]. The benefits of consuming rabbit meat for human health are clear because rabbit is a lean meat with low cholesterol level, in addition to high levels of unsaturated fatty acids [10].

In Spain, a study was conducted to utilize rabbits as raw materials in fresh sausages to increase their consumption and meet consumers' current requirements. Two final formulations were developed, including a low-fat with konjac gum and a control one. The sausages were kept in MAP under chilling storage and were subjected to microbiological and physicochemical analyses at days 1, 6, 8, and 13 after packaging. The results revealed a considerable decrease in fat content and energy value. Sensory evaluation revealed a drop in distinctive flavour and aroma and also a rise in rancid odour, in the low-fat treatment, while hardness and fragility decreased. The shelf life for all treatments was 7 days, and the multivariate method was deemed a powerful strategy since physicochemical, microbiological, and sensory factors were considered [2-11].

Italian researchers conducted a study to examine the impact of bovine colostrum on the chemical and bacteriological quality of New Zealand rabbit meat after 48 hours post-mortem, three and eight days of chilled storage. The results exhibited that dietary colostrum supplement enhanced the oxidative fatty acid status of rabbits compared to the untreated group, and their fat ty acid profile was higher in saturated fatty acids (SFA) and lower in unsaturated fatty acids (UFA [2-12]. A study was conducted in Romania to analyse meat samples from rabbit and hare nutritionally and technologically. The data obtained showed that the pH value in Triceps brachii muscles from both rabbit and hare was greater, however hare meat was favoured as a diet due to its low-fat content, light energy, and improved lipid health index. The meat from both species was considered healthy for human consumers [2,13].

Vitamin composition

Rabbit meat is rich in numerous vitamins Bs, especially vitamin B12 and niacin (B3). Vitamin B12 is important for the formation of red blood cell and neurological function, while niacin is for energy metabolism and the maintenance of health skin and nervous system function. Rabbit meat can provide up to 4.5 to 7.0 mg of niacin per 100 grams, contributing to daily recommended consumption [14]. Vitamin B6 is moderately present in rabbit meat, contributing to amino acid metabolism and the synthesis of neurotransmitters. It functions also in supporting the cognitive development and immune function [15]. Riboflavin (vitamin B2) is also present in rabbit meat but in a minute quantity (0.1 to 0.2 mg per 100 grams) as reported by [8]. It is essential for energy production and the metabolism of fats, drugs and steroids.

It is also vital in maintaining healthy skin and vision. Thiamine (vitamin B1) is also present in rabbit meat but in minute quantity (0.05mg per 100 grams) as reported by [15]. It is essential for carbohydrate metabolism and nervous system function. Folate is another vitamin that is present also in rabbit meat. It is important for the synthesis of DNA and repairs. According to [16], it is important during periods of rapid growth like pregnancy. These vitamins enhance the overall nutritional profile, making rabbit meat an important component of a balanced diet.

Mineral composition

Rabbit meat provides important minerals such as phosphorus, potassium, selenium, iron, zinc and calcium. Rabbit meat is a good source of phosphorus which is important for bone health, energy metabolism and cellular function. According to [15], rabbit meat contains approximately 200 to 250 mg of phosphorus per 100 grams. Potassium is another mineral that is present in a significant amount in rabbit meat and it is responsible for maintaining fluid balance, muscle contractions and nerve function in humans. The amount of potassium in the rabbit meat ranges from 250 to 300 mg per 100 grams as reported by [8]. Selenium is another essential mineral found in rabbit meat which acts as an antioxidant, supporting the immune system and plays vital role in thyroid hormone metabolism [15]. The selenium concentration in rabbit meat is around 30 to 40 µg per 100 grams as reported by [6]. Rabbit meat is not as rich in iron as red meats, it is still containing a notable amount that ranges from 1.0 to 2.0 mg per 100 grams as reported by [14]. Iron is important for hemoglobin formation and oxygen transport in the body. The iron in rabbit meat is primarily in the *heme* form, which is more easily absorbed than non-*heme* iron found in plant [14]. Zinc is another mineral that is also found in the meat of rabbit. It ranges from 2.0 to 3.0 mg per 100 grams as reported by [15]. Zinc is essential for immune function, protein synthesis and DNA synthesis. Adequate zinc intake according to [15], is essential for wound healing. Rabbit meat does not contain a significant amount of calcium as compared to dairy products; it does contain small quantity. According to [8], the calcium level is around 10 to 20 mg per 100 grams. It is important for bone health and muscle function.

Health benefits

Heart health

Studies indicated that the low saturated fat and cholesterol contents in rabbit meat may help to reduce the risk of cardiovascular diseases [9-10]. Replacing red meat with rabbit meat can lower overall fat intake and improve lipid profile.

Weight management

Due to its high protein and low-fat concentration, rabbit meat can promote satiety and help in weight management. High-protein diets have been linked to reduced hunger and better weight control [2,6-9].

Muscle development

The protein quality in rabbit meat supports muscle development and repairs, making it beneficial for athletes and those engaged in regular physical activity [2-6].

Nutritional versatility

Rabbit meat is adaptable in various culinary applications, making it easier for individuals to incorporate into different diets, including low-fat and high-protein regimens [2,6-8].

Allergic properties

Rabbit meat is considered hypoallergenic compared to other meats, making it suitable for individuals with certain food allergies or sensitivities [17].

Environmental and ethical considerations

While not a direct health benefit, the lower environmental impact of rabbit farming compared to larger livestock can promote sustainable dietary choices [18-20].

Sustainability Considerations

Beyond its nutritional value, rabbit meat is noted for its environmental sustainability. According to [16], rabbits require less feed and water compared to traditional livestock, producing a smaller ecological footprint. This aspect is increasingly important as consumers become more conscious of the environmental impact of their food choices.

Conclusion

Rabbit meat is a nutrient-dense food that offers a host of health benefits due to its high protein content, low fat concentrations and rich array of vitamins and minerals. Its sustainability further enhances its appeal as a responsible food choice. As dietary preferences continue to shift towards healthier and more sustainable options, rabbit meat presents a viable and nutritious alternative.

References

1. El-Adawy MM, Salem AZ, Khodeir MH, Khusro A, Elghandour MM, et al. (2020) Influence of four tropical medicinal and aromatic plants on growth performance, digestibility, and blood constituents of rabbits. *Agroforest Syst* 94: 1279-1289.
2. Abdullatif AF, Mahmoud AFA, Hafez AEE, Abdelkhalek A, Ras R (2023) Rabbit Meat Consumption: A Mini Review on the Health Benefits, Potential Hazards and Mitigation. *Journal of Advanced Veterinary Research* 13(4): 681-684.
3. Hathwar SC, Rai AK, Modi VK, Narayan B (2012) Characteristics and consumer acceptance of healthier meat and meat product formulations-a review. *J Food Sci Technol* 49(6): 653-664.
4. Zotte AD, Szendrő Z (2011) The role of rabbit meat as functional food. *Meat Sci* (88): 319-331.
5. Morshdy AM, Ashkar ATA, Mahmoud AFA (2021) Improving the quality and Shelf life of rabbit meat during chilled storage using lemongrass and black seed oils. *J Anim Health Prod* 9(1): 56-61.
6. Kumar A, Singh M, Singh P (2014) Nutritional Evaluation of Rabbit Meat. *Journal of Animal Science and Technology* 5(1): 16.
7. Morshdy AEM, Darwish WS, Sebay ESS, Ali EM (2022) Amino acid profile of rabbit meat: dietary intake and the effect of freezing on the amino acid composition. *Thai J Vet Med* 52(2): 251-258.
8. Ruusunen M, Puolanne E (2005) Reducing Sodium Intake from Meat Products. *Meat Sci* 70(3): 531-541.
9. Li S, Zeng W, Li R, Hoffman LC, He Z, et al. (2018) Rabbit meat production and processing in China. *Meat Sci* 145: 320-328.
10. Sherief (2018) Nutritional value and quality profile of fresh rabbit meat in Assiut city Egypt. *Int J Res Agric Food Sci* 4(7): 1-15.
11. Honrado A, Afnsa A, Marquina PL, Beltrán JA, Calanche JB (2022) Low-fat fresh sausage from rabbit meat: An alternative to traditional rabbit consumption. *Meat Sci* 194: 108973.
12. Castrica M, Menchetti L, Agradi S, Curone G, Vigo D, et al. (2022) Effect of Bovine Colostrum Dietary Supplementation on Rabbit Meat Quality. *Foods* 11(21): 3433.
13. Frunză G, Murariu OC, Ciobanu MM, Radu-Rusu RM, Simeanu D, et al. (2023) Meat Quality in Rabbit (*Oryctolagus cuniculus*) and Hare (*Lepus europaeus* Pallas)-A Nutritional and Technological Perspective. *Agriculture* 13(1): 1-17.
14. Suvajđić B, Čobanović N, Grkovića N, Vičić I, Vasilevureau D (2023) The Nutritional Profile and Technological Properties of Rabbit Meat. *Meat Technology* 64(2): 171-176.
15. Zotte AD (2002) Perception of Rabbit Meat Quality and Major Factor Influencing the Rabbit Carcass and Meat Quality. *Livestock Production Science* 75(1): 11-32.
16. GonzálezRedondo P, ContrerasChacón GM (2012) Perceptions among University Students in Seville (Spain) of the Rabbit as livestock and as a Companion Animal. *World Rabbit Science* 20(3): 155-162.
17. Nistor E, Bampidis VA, Păcală N, Pentea M, Tozer J, et al. (2013) Nutrient Content of Rabbit Meat as Compared to Chicken, Beef and Pork Meat. *Journal of Animal Production Advances* 3(4): 172-176.
18. Szendrő Z, Szendrő K, Zotte AD (2012) Management of reproduction on small, medium and large rabbit farms: A review. *Asian-Australasian Journal of Animal Science* 25(5): 738-748.
19. Cullere M, Zotte AD (2018) Rabbit meat production and consumption: State of knowledge and future perspectives. *Meat Science* 143: 137-146.
20. Nielsen SS, Álvarez J, Bicout DJ, Calistri P, Depner K, et al. (2020) Health and welfare of rabbits farmed in different production systems. *EFSA Journal* 18(1): e05944.



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