

THE ROLE OF DIETARY FIBERS IN ENHANCING MEAT PRODUCTS AND PROMOTING HUMAN HEALTH

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DOI: <https://doi.org/10.5281/zenodo.20792018>

ABSTRACT

The incorporation of dietary fibres into meat products has emerged as a promising strategy to enhance both the nutritional profile and functional properties of these foods. This article explores the dual role of dietary fibres in meat products—improving human health and enhancing food quality. Dietary fibres, known for their benefits in digestive health, cholesterol reduction, and blood sugar regulation, are being integrated into various meat products to offer a balanced approach to nutrition. In addition to health benefits, fibres contribute to improved texture, moisture retention, and extended shelf life, addressing consumer demand for healthier and more functional food options. This abstract outlines the potential of dietary fibres as a vital component in the evolution of meat products, highlighting their role in promoting overall well-being while maintaining the sensory qualities that consumers expect.

INTRODUCTION

In today's fast-paced world, the demand for healthier food options is on the rise. As consumers become more conscious of what they eat, the food industry is innovating to meet these needs. One of the exciting developments in this space is the integration of dietary fibres into meat products. This trend not only enhances the nutritional value of these foods but also offers significant benefits for human health. The meat we eat is an integral component in our diet. In the food pyramid, they are considered as protein food along with other food category like poultry, fish and eggs. Undoubtedly, meat is a major source of food proteins with high biological value in many countries. Additionally, meat is a great source of soluble vitamins, minerals, and some vital fats, each of which has a distinct purpose for our bodies. Functional meat products have lower levels of unhealthy substances like fat and cholesterol or contain nutritious components that enhance health (Yue, 2001; Diplock et al., 1999). These products are typically made by reformulating meat with components that are good for you,

such as protein, antioxidants, polyunsaturated fatty acids (PUFA), and a variety of fibers. Meat products with dietary fibers make ideal meat alternatives because of their nutritional benefits and intrinsic functions.



WHY ADD DIETARY FIBRES TO MEAT PRODUCTS?

Due to its ability to retain water, reduce cooking loss, and have a neutral flavour, fiber is a good ingredient to use while preparing meat items. The solubility, viscosity, gel-forming ability, water-binding capacity, oil adsorption capacity, and mineral and

organic molecule binding capacity of dietary fibers that are extracted from different plants influence the qualities and attributes of the final product. In recent years, much attention has been paid to physiological functions of foods due to increasing concerns for health. While little is known about the physiological roles of meat until recently, research has been done on a number of appealing meat-based bioactive substances, including conjugated linoleic acid, carnosine, anserine, and L-carnitine (Arihara et al., 2006). For meat, legume flours offer a possible non-meat protein alternative (Serdaroğlu et al., 2005). High-soluble fibers and low-viscosity substances like gums, inulins, and oligosaccharides are typically added to meat products to change their texture, control water migration, and increase their marketability. The main structural components of plant cell walls are polysaccharides. The globular and non-globular protein matrix contains cellulose, pectin, and the linking structure between hemicelluloses, which make up the cell wall polymers. Given its structural and functional characteristics, pectin is likely among the most intriguing cell wall polymers due to its availability, solubility, chemical reaction responsiveness, and wide range of industrial uses (van Buren, 1979). Meat products have long been associated with high protein content, yet they frequently lack dietary fiber. But because it has so many advantages, adding fiber to meat products is becoming more and more common.

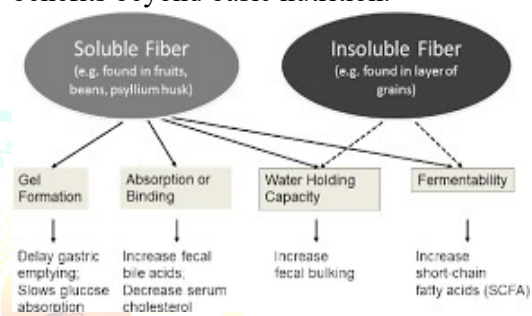
Health Benefits: Adding dietary fibres to meat products can improve digestion, support weight management, and reduce the risk of heart disease. The fibres help in regulating blood sugar levels and lowering cholesterol, making meat products not just a source of protein but also a heart-healthy option.

Improved Texture and Taste: Dietary fibres can enhance the texture of meat products, making them juicier and more palatable. This is particularly beneficial in low-fat meat products, where the reduction in fat can sometimes lead to a drier texture. Fibres can

help maintain moisture, giving a satisfying eating experience.

Extended Shelf Life: Fibres can also act as natural preservatives, extending the shelf life of meat products. They help in retaining water, reducing oxidation, and preventing the growth of harmful bacteria.

Meeting Consumer Demand: As more people look for foods that support their health goals, meat products enriched with dietary fibres offer an attractive option. These products cater to the growing trend of functional foods—foods that provide health benefits beyond basic nutrition.



EFFECT OF DIETARY FIBRES IN CONVENIENCE MEAT PRODUCTS

Fibers are a valuable element in the creation of a variety of meat products due to their inherent functional properties and health-promoting effects. However, consuming more fiber in the diet is never an easy task. Obesity, hypertension, cardiovascular illness, and coronary heart disease have all been linked to diets high in animal fat, particularly saturated fat and cholesterol (Oezvural, E. B. and Vural, 2008; Vural, H. and Javidipour, I., 2002).



Because of this, the fiber that is typically added to food products should not only deliver fiber but also improve its functional qualities, making high-fiber foods taste better and promoting continuous high-

fiber consumption. A number of meat products, including patties, sausages, and bologna, have been formulated with dietary fibers derived from oats, sugar beets, soy, peas, apples, and wheat (Backers and Noll, 2001; Mansour and Khalil, 1997). These dietary fibers frequently produce valuable technological qualities in addition to their advantageous physiological impacts, which counteract the fat-loss effect.

NUTRITIONAL VALUE AND PHYSIOLOGICAL EFFECT OF SOME DIETARY FIBRES

Giving exacting information about the nutritional value and physiological effects of each type of fiber is quite challenging. Once more, these values are subject to change based on factors such as fiber types and forms, adding methods, processing circumstances, etc. Fruit and vegetable fibers' antioxidant content, which includes flavonoids, phenolic acids, carotene, glutathione, vitamin C, and E, among other unknown substances, has typically been linked to their protective properties (Eberhardt et al., 2000). More than 4000 polyphenolics known as flavonoids are produced by plant metabolism and naturally occurring polyphenolics found in fruit and vegetables. They are essential components of the human diet (Hollman et al., 1997). Consuming meat, which is high in dietary components, can increase stool size and improve laxation while reducing plasma and LDL cholesterol and attenuating the insulin and glycemic response (Schneeman, 1999). Furthermore, dietary fiber consumption has decreased the risk of the majority of major dietary issues, including obesity, diabetes, heart disease, and gastrointestinal disorders like constipation and inflammatory bowel diseases like diverticulitis and ulcerative colitis, as well as colon cancer, through its physiological responses (Jones, 2001).

RECOMMENDATIONS FOR TOTAL DIETARY FIBER (TDF) INTAKES

The techniques used to determine their nutritional intake determine how

much TDF is consumed. Therefore, there isn't much difference in the TDF intake recommendations made by different governmental and non-governmental authorities and organizations. This diversity is mostly related to the types of dietary fibers, the analytical methods used to determine them, and the particular requirements. For instance, the National Cancer Institute (NCI) advised adults to consume 20 to 30 g of fiber daily, but not more than 35 g, as this amount may have some protective effects against cancers of the colon and rectal tract.

Real-World Applications

The food industry has already begun to embrace this trend. For example, sausages, burgers, and deli meats are being fortified with dietary fibres from sources like oats, peas, and chicory root. These products not only deliver the familiar taste and texture consumers love but also pack a nutritional punch. Imagine enjoying a delicious burger that not only satisfies your cravings but also contributes to your daily fiber intake. This is the future of food—where indulgence meets health.

The Future of Meat Products

The incorporation of dietary fibres into meat products is more than just a trend; it's a step towards a healthier future. As research continues to uncover the benefits of fibres, we can expect to see more innovative products on the market that cater to health-conscious consumers.

CONCLUSION

In conclusion, dietary fibres are proving to be a game-changer in the world of meat products. By enhancing nutritional value, improving texture, and supporting health, they are transforming how we think about meat. So, the next time you reach for your favourite meat product, consider choosing one that's fortified with dietary fibres—you'll be doing your health a favour. The integration of dietary fibres into meat products represents a significant advancement in food innovation, bridging

the gap between indulgence and health. As consumers increasingly seek foods that support their well-being, fiber-enriched meat products offer a practical solution that enhances nutrition without compromising on taste. With benefits ranging from improved digestion and heart health to

better texture and longer shelf life, dietary fibres are poised to play a crucial role in the future of meat products. Embracing these fiber-fortified options allows us to enjoy our favourite meats while contributing to a healthier lifestyle.

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Cite this article:

Shilviya Bhat. (2026). The role of dietary fibers in enhancing meat products and promoting human health. *Vet Farm Frontier*, 03(06), 1–4.
<https://doi.org/10.5281/zenodo.20792018>