

Promoting Health and Well-Being: The Vital Role of Veterinary Medicine

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Abstract

Dry food is a commonly fed diet to dogs worldwide. However, recent studies have suggested that it may have an impact on their oxidative/antioxidant profile. This article explores the research on how dry food affects the oxidative/antioxidant profile of dogs and discusses ways to mitigate any negative effects. Dry food contains a variety of ingredients that can affect the oxidative/antioxidant profile of dogs. For example, the processing of dry food can lead to the formation of advanced glycation end-products (AGEs), which can cause oxidative stress. Additionally, some dry foods may be low in antioxidants such as vitamins C and E, which can further exacerbate oxidative damage. Understanding the impact of dry food on the oxidative/antioxidant profile of dogs is important for maintaining their health and preventing chronic diseases.

Keywords: Dry food • Oxidative stress • Antioxidants • Glycation end-products • Vitamins • Dogs

Introduction

Dry food is one of the most commonly fed diets to dogs worldwide. However, recent studies have suggested that it may have an impact on their oxidative/antioxidant profile. Oxidative stress occurs when there is an imbalance between the production of reactive oxygen species (ROS) and the antioxidant defense system, leading to damage to cells and tissues. Antioxidants help to neutralize ROS and prevent oxidative damage. Dry food contains a variety of ingredients that can affect the oxidative/antioxidant profile of dogs. For example, the processing of dry food can lead to the formation of advanced glycation end-products (AGEs), which can cause oxidative stress. Additionally, some dry foods may be low in antioxidants such as vitamins C and E, which can further exacerbate oxidative damage. Understanding the impact of dry food on the oxidative/antioxidant profile of dogs is important for maintaining their health and preventing chronic diseases. In this article, we will explore the research on how dry food affects the oxidative/antioxidant profile of dogs and discuss ways to mitigate any negative effects [1].

Literature Review

Dry food can have a significant impact on the oxidative and antioxidant profile of dogs. Oxidative stress occurs when the production of free radicals in the body exceeds the ability of the body's natural antioxidant defense system to neutralize them. Free radicals are unstable molecules that can cause damage to cells and tissues, leading to a range of health problems. Dry dog food contains a variety of ingredients, including carbohydrates, proteins, and fats, which can affect the oxidative and antioxidant status of dogs. Some dry dog foods contain high levels of pro-oxidants, such as certain types of fats or preservatives, which can increase oxidative stress in dogs [2].

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Received: 31 December 2023, Manuscript No. jvst-23-94759; **Editor Assigned:** 03 January 2023, PreQC No. P-94759; **Reviewed:** 17 January 2023, QC No. Q-94759; **Revised:** 23 January 2023, Manuscript No. R-94759; **Published:** 31 January 2023, DOI:10.37421/2157-7579.2023.14.166

On the other hand, some dry dog foods contain antioxidants such as vitamins E and C, carotenoids, and polyphenols, which can help to reduce oxidative stress by neutralizing free radicals. These antioxidants are typically added to the food during manufacturing or can be naturally occurring in the ingredients used. The balance between pro-oxidants and antioxidants in dry dog food can have a significant impact on a dog's overall oxidative and antioxidant profile. Therefore, it is important to choose high-quality dry dog foods that contain a balanced ratio of pro-oxidants and antioxidants to maintain a healthy oxidative and antioxidant status in dogs [3].

Description

Furthermore, the processing and storage of dry dog food can also affect its antioxidant content. For instance, some antioxidants, such as vitamin C, are highly sensitive to heat and can degrade during the manufacturing process. Therefore, it is essential to choose dry dog food that is processed at lower temperatures and stored in appropriate conditions to preserve its antioxidant content. Several studies have shown that the long-term consumption of dry dog food can affect a dog's oxidative and antioxidant status. For example, a study conducted on sled dogs showed that those fed with a high-fat dry diet had higher levels of oxidative stress compared to those fed with a lower-fat diet. Another study found that the addition of antioxidants to dry dog food improved the antioxidant status of dogs with liver disease [4].

Additionally, studies have shown that the age, breed, and health status of dogs can also affect their oxidative and antioxidant status. Older dogs, for example, may have a reduced ability to neutralize free radicals, making them more susceptible to oxidative stress. Likewise, certain breeds may have a genetic predisposition to oxidative stress-related diseases, such as cancer or arthritis [5].

Furthermore, the use of synthetic preservatives in dry dog food, such as BHA and BHT, has been shown to increase oxidative stress in dogs. These preservatives can react with fats in the food, leading to the production of free radicals and oxidative damage. Therefore, choosing dry dog food that uses natural preservatives or no preservatives at all may help reduce oxidative stress in dogs. It is worth noting that the effects of dry food on a dog's oxidative and antioxidant profile may not be immediately noticeable. Long-term consumption of imbalanced or low-quality dry dog food may gradually increase oxidative stress levels, leading to chronic health problems over time. Therefore, it is crucial to provide dogs with a well-balanced and high-quality diet to maintain their overall health and well-being [6].

Conclusion

In conclusion, dry dog food can significantly affect a dog's oxidative and antioxidant profile. Therefore, it is crucial to choose high-quality dry dog food that contains a balanced ratio of pro-oxidants and antioxidants, processed at lower temperatures, and stored appropriately to maintain a healthy oxidative and antioxidant status in dogs.

Acknowledgement

None.

Conflict of Interest

None.

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How to cite this article: Rojano, Alexandra. "Promoting Health and Well-Being: The Vital Role of Veterinary Medicine." *J Vet Sci Techno* 14 (2023): 166.