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# Adverse Food Reactions in Humans and Pets: A New Perspective of their Onset

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Adverse food reactions (AFR) can be divided into non-immune-mediated (food intolerance) and immune-mediated (food hypersensitivity) [1]. In fact while the first involve non-immunologic adverse reactions to food and include conditions such as lactase deficiency, dietary protein-induced enterocolitis syndromes and eosinophilic gastrointestinal disease, the second are considered adverse health effects arising from a specific immune response that occurs on exposure to a given food [2]. In fact, food intolerance can occur with diarrhea or vomiting and do not create a typical allergic response. Loss of tolerance to foods leads to induction of type I hypersensitivity reactions, which in turn are influenced by several factors including genetic susceptibility, the nature of antigen, which initiates the disease and challenge with infections and bacteria [3]. Although adverse foods reactions may occur after ingestion of any kind of food, potentially allergenic food ingredients are limited in veterinary medicine [1,4]. Unfortunately most of these are often untraceable due to their mixing with other compounds during pet food production [1]. For instance, *in vivo* studies have interestingly pointed out that foods responsible for cutaneous adverse food reactions onset in pets are beef, dairy products, wheat, lamb, soy, and fish [5,6]. Conversely, cutaneous adverse food reactions due to food additives such as dyes and preservatives has been established only in few cases either in humans and pets [7,8]. Despite frequent updates and strategies to overwhelm adverse food reactions, the only recognized approach remains the deprivation diet [9]. In addition, the growing and worrying presence of antibiotics (oxytetracycline, tetracycline and chloramphenicol) and their residues in meat used for human and pet food, might be responsible for raising hypersensitivity reactions phenomena [10,11]. As to veterinary counterpart, antibiotics are widely used as feed additives to guarantee a better and well growth of farm animals, like chickens and pigs and to prevent the development of various diseases that affect also livestock breeding. However, recent researches revealed the *in vitro* pro-apoptotic and pro-inflammatory (i.e interferon-γ release from peripheral blood mononuclear cells cultures) effect of intensive farming-derived bone meal [10,12,13]. Thus a chronic intake of contaminated food would induce a chronic inflammatory status in healthy animals paving the way for secondary infections or disturbs [14-18].

In light of these observations, both human and animal nutrition would really benefit for a prolonged and heavy intake of intensive farming-derived meat and meat by-products [10,11]. The bioavailability of this antibiotic, administered accordingly to the international health protocols, might enclose, in the long run schedule, a final storage in the animals bone, fat and muscles that theoretically might be transferred to the final consumer inducing specific allergies to antibiotic residues in foods [19]. Although Food and Drug Administration and World Health Organization have established maximum antibiotic residue limits, high concentrations of these residues can occur in human and pet food [11]. Moreover, Empedrad., *et al*. have also observed that, for instance, a 100-fold dilution of ciprofloxacin elicited a markedly positive intradermal skin test response in 25 healthy adults with no history of drug allergy [19].

Based on these observations, we can now open the debate about indirect consequences of long-term exposure to this antibiotic molecule both in pets and humans.

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