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Short Communication

Obesity's Importance to *Equidae* and its Consequences

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Obesity is defined by Word Health Organization as an abnormal or excessive accumulation of adipose tissue in the body [1]. According to Body Condition Score (BCS) developed by Henneke., et al. (1983), horses and ponies with BCS 7 can be considered overweight and BCS 8 or 9 are considered obese [2].

With the effect of being characterized an issue to equine creation getting worse by the fact that a lot of owners consider, until a certain point, obesity normal, acceptable or even desirable. In some competitions, the animal is rated by its physical characteristics, on these conditions, if the animal presents a certain degree of obesity, it can be considered as a physical beauty feature [3].

In developed countries, prevalence of obesity can be estimated around 19 to 40% in a equine's population [4,5]. To demonstrate how obesity is a common situation on this specie, a study assessing 300 adult animals, found out the rate of 19% obese animals (BCS between 8 and 9) and 32% presented overweight (BCS between 6.5 and 7.5) [6]. Was stressed in another study where a population of 319 animals randomly selected, it was found that 45% of these animals were considered obese or very obese, in South West region of Goias, located in Brazil was found a total 12.16% of equines with BCS above 7 [7,8].

Obesity induction occurs with supply of diets in grains and forage (grass and hay) with high contents of non-structural carbohydrates, becoming therefore a consequence of over-supply, providing excess of metabolic exigences to its physical activity level [3,9].

When adipocytes reach its maximum storage capacity, changes such as energy inefficiency, inflammatory processes and cell stress begins. Even hypoxia cases can happen in adipose tissues. This occurs due to excess of fat accumulation inside adipose tissues, that therefore, expand, compromising oxygen transport through compression of adjacent capillaries. Along this situation, these endothelium capillaries may not respond to nitric oxide, decreasing its vasodilation. These adipocytes hypoxia cases will compromise mitochondrial action and therefore end up stimulating inflammatory process, releasing cytokines and macrophages chemotactic proteins [10].

It's important to highlight that adipose tissue can no longer be considered as an organ that just stores energy, but also as an endocrine organ with paracrine and autocrine action. This tissue is responsible for producing hormones such as adipokines, that are released from adipocytes and other resident cells on adipose tissue. Adipocytes can excrete leptin, resistin, adiponectin, vistafin and apelin. Other than that, releases inflammatory cytokines such as a tumor necrosis factor-alpha (TNF-α), interleukins 1 (IL-1) and 6 (IL-6), macrophages chemotactic protein (MCP-1), macrophage inhibition factor (MIF), besides inflammatory proteins such as haptoglobin, inhibitor of plasminogen activator 1(PAI-1) serum amyloid protein A (SAA) [11-15].

In response to obesity, animals present cases of exercise intolerance, thermoregulatory inefficiency, abnormal reproductive development, and probability increase in mesenteric lipomas development [16-19].

Thereby, the issue about overweight in horses must be remembered by veterinarians and professionals that work with equine production, being necessary heightened attention about its harmful effects and consequences on these animals' life quality.

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