

## **VITAMIN D SUPPLEMENTATION DECREASES THE BODY FAT STORES AND PLASMA OXIDATIVE STRESS OF OBESE RATS**

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The study aimed to verify the effects of vitamin D3 (cholecalciferol) supplementation on the body fat composition and plasmatic oxidative stress of obese rats. The 21 days old male Wistar rats were acclimatized in the sectorial animal breed until they were 30 days old (CEUA nº 5866200720). Then the obesity induction was initiated using the cafeteria diet (Western Diet; WD). The animals were divided into 2 groups: CTL, rats fed a normal diet; WD, animals fed a WD. After 90 days old, they were subdivided into two other groups: CTL-VD and WD-VD, which received vitamin D3 during 40 days (5.600 UI/week by gavage). At 130 days old, blood was collected and the plasma separated for the oxidative stress assays. After, body fat deposits were collected, separated and weighed. The adiposity index of WD rats were higher than CTL and WD-VD animals. The epididymal, retroperitoneal and mesenteric fat deposits of WD were respectively 30%, 46% and 50% higher in WD rats when compared to WD-VD rats. Body weight gain and abdominal fat were also decreased in animals supplemented with vitamin D3. Regarding the oxidative stress parameters in the plasma, the levels of carbonyl protein groups were lower, and protein thiol groups and total antioxidant capacity (TAC) were higher in WD rats when compared to the CTL and WD-VD groups. In conclusion, treatment with VD3 was able to reduce both fat stores and the levels of oxidative stress markers in the plasma of rats with cafeteria diet-induced obesity.

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