

## Effects of resistance training in the development of mammary tumors MNU-induced in Wistar rats

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Mammary cancer is the most common cancer among women. Rats have been frequently used as animal models to study cancer. Physical activity may be a non-pharmacological approach for mammary cancer prevention or treatment. This study aimed to assess the effects of resistance training in the development of mammary tumors MNU-induced in Wistar rats. Twenty-five female Wistar rats were divided into four groups (n=7): Sedentary (SED); SED+N-methyl-N-nitrosourea (MNU); Exercised (EX); and EX+MNU. SED+MNU and EX+MNU animals received an intraperitoneal injection of the carcinogen MNU (50mg/Kg), at 7 weeks of age. Exercised animals were trained 3 days/week for 18 weeks, by climbing a 1m-high homemade ladder, 8-12 dynamic movements/climb and 4-8 climbs/session. The latency period, total number of tumors per group, mean number of tumors per animal, mean volume and weight of tumors per group were registered. All experiments were approved by the Ethics Committee. Data were analyzed using Microsoft Excel. Two from SED+MNU and one from EX+MNU

groups were sacrificed before the end of the experiment. Animals from groups SED and EX did not develop any mammary tumor. The first mammary tumor was detected in SED+MNU group at the 10<sup>th</sup> week after MNU administration. Two weeks later was detected the first mammary tumor in the EX+MNU group. At the end of the experiment were detected 4 tumors in group SED+MNU (0.831.17 tumors/animal) and 10 tumors in group EX+MNU (1.6732.87 tumors/animal). The mean tumor volume was slightly higher in group SED+MNU when compared with group EX+MNU. Inversely, the average tumor weight was higher in EX+MNU group when compared with group SED+MNU.

The data suggest that resistance training delays the appearance of mammary tumors, increasing the latency period. The higher number of tumors per animal and their weight in EX+MNU group can be explained by the enhancement of blood perfusion caused by exercise. The disparity in the volume and weight of the tumors may be related with their histological type, which is being currently analyzed.