

# EFFECTS OF RESISTANCE TRAINING ON OXIDATIVE STRESS: DATA FROM AN ANIMAL MODEL OF MAMMARY CANCER

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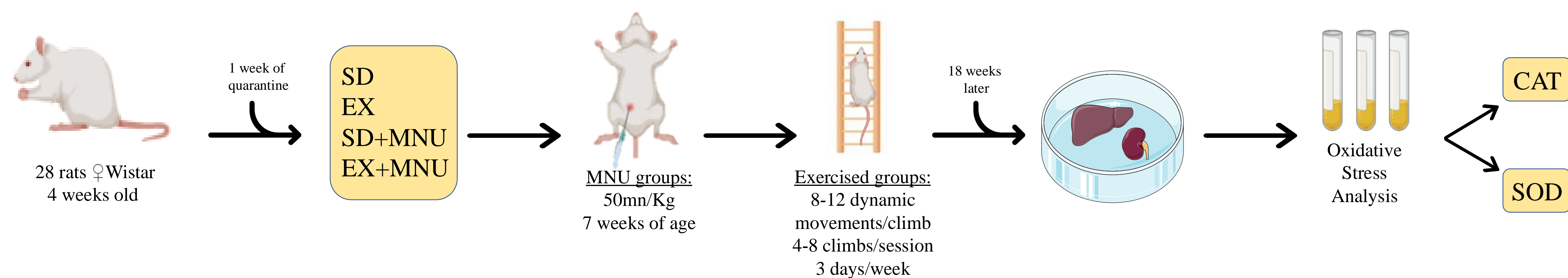
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## Introduction

Mammary cancer is one of the most diagnosed cancers among women. Tumour growth factors, like hormones, enhance the production of reactive oxygen species. Several studies suggest that regular exercise strengthens the body's antioxidant defences, reduces the age-related rise in cellular reactive oxygen species, and protects from illnesses. This work addressed the effects of resistance training in the hepatic and renal oxidative stress of a rat model of mammary cancer chemically induced.

## Materials and Methods

The institutional ethical committee approved all procedures. Twenty-eight female rats were divided into eight groups (n=7): Sedentary (SD); SD+N-methyl-N-nitrosourea (MNU); Exercised (EX); EX+MNU. Animals from MNU groups received an intraperitoneal injection of the carcinogen MNU (50 mg/kg) at seven weeks of age. Exercised animals climbed a 1-meter-high homemade ladder, 8-12 dynamic movements/climb, and 4-8 climbs/session, 3 days/week for 18 weeks. At necropsy, liver and kidney were collected and processed for oxidative stress analysis, and catalase (CAT) and superoxide dismutase (SOD) activities were assessed. Data were analyzed using SPSS 27, and values were considered statistically significant at  $p < 0.05$ .



## Results

Although the differences did not reach statistical significance, some changes in SOD and CAT activity in the liver and kidney were observed among groups ( $p > 0.05$ ). In non-exposed groups, the SOD and CAT activity in the liver and kidney was lower in the EX group when compared with the SD group. Concerning the MNU-exposed groups, the activity of SOD and CAT in the liver was slightly higher in EX+MNU when compared with the MNU group. The opposite was observed in the kidney, with the exercise decreasing the activity of these enzymes in this organ ( $p > 0.05$ ).

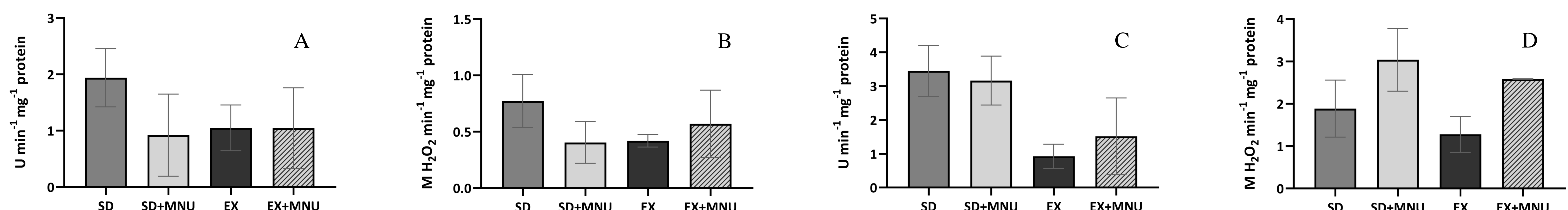


Fig. 2 – SOD (2A, 2C) and CAT (2B, 2D) activity in liver and kidney respectively in SD, EX, SD+MNU and EX+MNU groups. Error bars represent SEM for n=7. No statistical significance was achieved ( $p > 0.05$ ).

## Conclusions

Our results suggest that resistance training did not reverse the hepatic oxidative stress promoted by the MNU exposure but positively impacted the kidney oxidative stress.

## Acknowledgments

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