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Physical exercise and L-arginine supplementation on cardiovascular and macrophage activity in SHR

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The purpose of this study is to investigate the combined effect of L-arginine supplementation and regular physical exercise on HR, BP, eNOS and Macrophage activation using SHR. To examine the differences among HR, BP, eNOS, and Macrophage activity levels, normotensive Wistar-Kyoto rats were used as a control.

Thirty two male rats (six weeks old) were divided into four groups; eight WKY control (WKYC), eight SHR control (SHRC), eight SHR supplemented with L-arginine (SHRA), and eight SHR trained and supplemented with L-arginine (SHRTA).

Obtained results were as follows:

In the heart and blood pressure, there was significant differences among the four groups ($p<.05$) compare to SHRC. In the eNOS levels, there was significant differences among the four groups ($p<.05$) compare to SHRC. In the macrophage activity, there was significant differences among the four groups ($p<.05$) compare to SHRC. In conclusion, For the SHRC group, the level of eNOS is higher than that of WKYC, and we can expect tissue damage caused by toxic free radical. However, this can be stabilized by the L-arginine supplementation and regular physical training. we can also conclude regular aerobic training decrease cardiovascular stress caused by stabled macrophage activity. Therefore, we can trace it is the effect of training in SHR.