



## The effect of four methods of training on the expression of TGFB1 and TSP-1 genes in left ventricle tissue of Wistar rats

Oral Presentation

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### Abstract

**Introduction:** Regular exercise is an effective non-pharmacological approach to preventing cardiovascular diseases. Determining the type of activity and its intensity and duration to present an appropriate model can greatly help prevent cardiovascular diseases.

**Methods:** 48 eight-month-old Wistar rats with an average weight of 237±33g were kept under controlled conditions and were randomly placed in 6 eight-member groups. Training programs were designed for a period of 8 weeks, each including 3 sessions, with specified intensities and durations. MIT consisted of 47 minutes of running with an intensity of VO<sub>2</sub> MAX 65% on the treadmill. HIT was comprised of running at a speed of 2 meters per minute with an increasing slope for 40 minutes on the moving belt. HIIT included 4 intense interval sets of running for 4 minutes with an intensity of 90 to 100% VO<sub>2</sub>MAX and 4 low-intensity interval sets for 3 minutes with an intensity of 50 to 60% VO<sub>2</sub> MAX, and the swimming training (MIST) was done for 30 minutes in each session with moderate intensity. After 8 weeks of training and 24 hours after the last session, and after 12 hours of fasting. Normal distribution of data was checked by the Shapiro-Wilk test, and intragroup and intergroup changes were analyzed by the one-way analysis of variance and post hoc at the significance level of P=0/05.

**Results:** There is a significant difference in the weight variable between the control and the eight-week control groups (p≤001). Results indicate that HIIT (001/0≥p), HIT (001/0≥p), MIT (001/0≥p) caused a significant increase in the expression of the TGB1 gene compared to the control group, with the most changes pertaining to HIT training, but there was no significant difference between the MIST training group and eight-week control group. Results show that HIIT (002/0≥p), HIT (001/0≥p), MIT (005/0≥p), and MIST (P≤001/0) led to a significant decrease in the expression of the TSP-1 gene compared to the control group, with the most changes pertaining to HIT training.

**Conclusion:** It seems that regular and long-term training has a potential impact on the increase of heart hypertrophy as a result of training with the increase of TGFB1 and the decrease of TSP-1 in Wistar rats. These factors can be proposed as possible factors in the hypertrophy of heart muscle resulting from doing exercise.

### Keywords

Exercise Training; Male Wistar Rats ;TGFB1; TSP-1

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