

ABSTRACT

This research purpose to study and comparing the 30%, 50% and 70% warming up effect of maximal heart rate reserve on take up time of 400 meters run. This research was field experiment by using "Randomized pre test- post test group design".

The sample was 30 students that was taken randomly from 120 students of semester the third of Sports Science Faculty of Makasar State University that ordinarily doing exercise, with range of age 20-21 years old. From 30 students was divided into three groups, namely the first group doing warming up for 30% maximal heart rate reserve, group the second doing warming up for 50% maximal heart rate reseve and group the third doing warming up for 70% maximal heart rate reseve.

Each group was given treatment 400 meters run before warming up and after warming up. The treatment of 30% maximal heart rate reseve warming up for the first group was with up and down of a chair during 15 minutes with frequency rhythm 84 metronom rhythm. The treatment of the second group was given 50% maximal heart rate reseve warming up, with up and down of a chair during 15 minutes with frequency rhythm 120 metronom rhythm. The treatment of group III was given 70% maximal heart rate warming up, with go up and go down of a chair during 15 minutes with frequency rhythm 138 metronom rhythm. This treatment was given to know the decreasing of take up time of 400 meters run before and after warming up.

This research result indicated that the warming up of 30%, 50% and 70% of maximal hearth rate reserve have significant influence for decreasing of take up time of 400 meters run namely in the 30% warming up has decreasing take up time value by 1.80 ($p < 0.05$), 50% warming up has decreasing take up time value by 4.10 ($p < 0.05$), and 70% warming up has decreasing take up time value by 2.50 ($p < 0.05$).

The conclusion for this research was 30%, 50% and 70% maximal heart rate reserve gave influence on decreasing take up time of 400 meters run. The 50% warming up of maximal heart rate gave more influence on decreasing take up time of 400 meters run.

Keywords: warming up, maximal heart rate reserve, energy system.