A STUDY ON THE SPECIAL CHARACTERISTICS OF AEROBIC GYMNASTICS ATHLETES AND THE MOVEMENT OF BLOOD LACTATE
Sasaki Hiroko, Kikuchi Haruhi
(Hokusho University, Japan)

Aerobic Gymnastics is an expressive and competitive sport performed within 1 minute and 45+/-.5 seconds. Athletes must perform continuous complex and high intensity aerobic movement patterns to music incorporating difficult elements throughout the routine. Performances are graded by artistry, execution and level of difficulty.

In this study, we tried to discover the characteristics for anaerobic power, aerobic capacity, and HR movement during the routine in the Aerobic Gymnastics World Champions (2 male: W1, W2) and Japanese representative athletes (2 male: J1, J2). We also endeavored to learn about the movement of blood lactate after the Wingate test, a gradual increase loading test and the routine. The anaerobic power varied widely in the four athletes, but the values were close to those of a middle distance athlete. VO2max were close to those of an artistic gymnastics athlete, but they didn’t have any special abilities like those of a long distance athlete. During the routine, average HR and maximal HR were 161.0+/-.30.7, 182beat/min(W1), 169.3+/-.24.9 and 191beat/min(J2). They performed at over 90% HRmax during the later 2/3 of the routine. Maximum blood lactate after their routine were 9.78(W1), 13.77(W2), 12.01(J1), 14.36(J2)mmol/l. The time for their peak values of blood lactate were 6 minutes (W1, W2) and 9 minutes (W1, W2) after the anaerobic test and 1 minute (W1, J2) and 3 minutes (W2, J1) after their routine. Aerobic Gymnastics is a graded sport. As such, it is different from track and field and swimming in which events the physical ability can be ranked directly to the resulting record. Aerobic Gymnastics on the other hand requires the athlete to sustain high intensity with high ability during the event. If the athlete does not have a high physical capacity, they will perform the aerobic difficult elements with poor or unacceptable execution resulting in a lower score. To achieve a higher score, athletes must expand their high physical capacity and execute polished movements perfectly. We can suggest from this study, that in order to perform perfect execution throughout the routine, athletes must decrease their rising blood lactate. Anaerobic training and lactic training are effective tools for aerobic Gymnastics. These results provide significant data for the coaching and training of Aerobic Gymnastics athletes.

Keywords: Lactate