The purpose of this study was to determine if compression sleeves help reduce the amount of blood lactate that accumulates in the arm during exercise.

Methods

The subject arrived at the Cardiovascular Research Laboratory on two designated testing days. Each subject participated in the test twice, with one of the tests being completed with the use of compression sleeves. On arrival, each subject signed the necessary consent forms that allowed participation in the test. The purpose of this study was to determine if compression sleeves help reduce the amount of blood lactate that accumulates in the arm during exercise.

Results

10 male subjects participated in this study with an average age of 19.7 ± 1.15 years old. Each subject had prior training in resistance exercise. There was a significant difference found in the blood lactate readings between the use of compression sleeves and non-use of compression sleeves with a value of p=0.02. The blood lactate reading without use of compression sleeves was 10.9 ± 2.44 mmol/L and with compression sleeves was 9.97 ± 2.46 mmol/L. There was no significant difference in HR, Time, and RPE. Heart rate with compression was 173.6 ± 16.45 bt/min and without compression was 178.00 ± 14.16 (p=0.31). RPE with compression was 17.50 ± 2.22 and without compression was 17.70 ± 2.31 (p=0.50).

Although the values of HR, Time, and RPE were not significantly different with the use of compression sleeves, the values of blood lactate did show a significant difference. Thus, the use of compression sleeves appeared to delay the onset of muscle fatigue by reducing the amount of blood lactate that accumulated in the arm.

Conclusions

The duration of each test conducted, including preparation and recovery time, lasted between 20 and 30 minutes. On testing days each subject was asked to eat a light meal, avoid highly caffeinated beverages, strenuous exercise and to wear athletic clothing where a short-sleeved shirt was required. A heart rate (HR) monitor was then placed on the subjects chest that transmits a signal to a digital watch that reads heart rate in beats per minute (bpm). The subject then took the test, which initiated the first stage of the test and the timer began. The first stage began to paddle, which initiated the first stage of the test and the timer began. After the last stage was completed an immediate RPE was recorded followed by a 5-minute recovery/cool down stage while final data was being collected. If the subject did not endure the entire test the was recorded waiting the current into a 5-minute recovery/cool down stage. Data for HR, RPE, Blood Lactate, and Time of exercise was collected and analyzed using SPSS 16.

Results (cont’d)

Figure 1: Heart Rate In Non-Compression vs. Compression

Figure 2: Rate of Perceived Exertion In Non-Compression vs. Compression

Figure 3: Blood Lactate In Non-Compression vs. Compression