ABSTRACT

Relationship of Superficial Skin Temperature of the Dorsal Forearm to Dosed Exercise and Subjective Perception of Fatigue

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Purpose

The purpose of this study was two-fold: first to determine the relationship between changes in skin temperature over the dorsal forearm and wrist extension exercises dosed on the basis of the Holten curve; and second, to determine the relationship between changes in skin temperature and subjective perceptions of fatigue.

Methodology

The research design chosen for this study was a single group experimental design with repeated measures, in which the dominant arm was used as the experimental arm and the non-dominant arm was used as the control. Readings on liquid crystal temperature strips, heart rate monitors, and respiration measures, plus responses to a subjective pain questionnaire were the repeated measures.

Twelve healthy subjects, who were found to be compatible with the inclusion/exclusion criteria, were utilized for the study.

Data analysis techniques included the Wilcoxon signed-ranks test, which was used with the first four hypotheses, and the Spearman Rank Order Correlation, which was used with the fifth hypothesis.

Findings

Skin temperatures after 60% RM exercise were significantly higher for the experimental arms, but not the control arms; heart rate increases were significantly higher for both 60% RM and 90% RM; respiration increases were significantly higher; but the relationship between skin temperature and perceived fatigue was not significant.

Conclusions

Findings in the current study were in agreement with the findings of other studies cited by the researcher. Recommendations for further research included conducting studies of other isolated muscle groups, other subject populations, other subjects with musculoskeletal injuries, and considering alternative measures for the variables.