The Impact of Endurance Training vs. Non-Endurance Training on Blood Lactate Levels Post Seven-on-Seven Maximal Capacity Test (SSMCT)

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Competitive swimming involves repeated maximal-effort races, which require the body to have a superior buffering system and rate of recuperation. A buildup of lactate can hinder the body's ability to perform during subsequent races. However, proper training may enhance the body's buffering system and recuperation. This study aimed to discover: (1) the impact of endurance vs. non-endurance training on blood lactate levels post-SSMCT; (2) whether the swimmers' training regimens improved sprint times. Participants in this study included 37 collegiate swimmers. Body composition and resting measurements were collected at the beginning of a practice pre-/mid-/post-season. Blood lactate samples and 100-yard sprint times were recorded at these practices after completing the SSMCT. Data were analyzed using student t-tests. Results indicated that non-endurance training initially reduced blood lactate accumulation, while endurance training continually reduced accumulation throughout the season. Swim times during the SSMCT decreased among both groups of swimmers from pre- to post-season. There were no significant differences between the effect of the two regiments on blood lactate levels post-SSMCT and average performance times. Both regimens increased the body's ability to buffer lactate and perform anaerobically. This suggested that the current training programs are sufficient at reducing blood lactate accumulation and enhancing subsequent performances.

Information about the Author:
As an exercise science major, Rebecca Pietrzak is interested in how exercise physiologically affects the body. Also, as a former high school athlete, optimizing seasonal training programs interests her. The Valparaiso University swim coach wanted to know if he had an effective training regimen for his athletes, and asked Rebecca to collect and analyze the data for his team.

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