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# Efficacy of Plyometric Warm Up Exercise on Aerobic Capacity and Anaerobic Capacity in Palestrato Population: A Protocol Development Study

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## Abstract

**Background:** Plyometric exercises involve rapid muscle stretching followed by quick contractions, utilizing the stretch-shortening cycle for maximum force in minimal time. While historically considered risky for the youth, recent findings from the National Strength and Conditioning Association challenge the need for a specific strength level before engaging in plyometric training, highlighting a lack of support from current research or observations of daily activities. Recognizing that various activities and sports involve diverse energy systems (aerobic and anaerobic), it is recommended to conduct an energy systems analysis before adding any activity to a training program.

**Methodology:** To assess the aerobic and anaerobic capacities of regular gym-goers through pre and post evaluations, incorporating the 20m shuttle run test, abdomen curls, squat thrust, and push-up tests. After an initial evaluation, participants undergo a 4-week plyometric protocol based on athlete type, foot contacts, and the amortization phase. Post-evaluations are then conducted, and the gathered data will be analyzed to identify significant changes in aerobic and anaerobic capacities among the 30 participants aged 18 to 25 in good health. Exclusion criteria apply to those with abnormal BMI or musculoskeletal/cardiovascular issues.

**Discussion:** Recent studies have explored its impact on VO<sub>2</sub>max and aerobic capacities, but a comprehensive understanding of the relationship between plyometric exercise and activities combining both aerobic and anaerobic elements is absent in previous research. This research seeks to bridge this gap by thoroughly examining the effectiveness of plyometrics across these capacities, offering valuable insights into overlooked aspects of plyometric effects on strength athletes.

**Keywords:** Plyometric, Body mass index, Aerobic capacity, Oxygen consumption.