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The Effects of Passive and Active Recoveries on Responses of Platelet Indices and Hemodynamic Variables to Resistance Exercise

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Abstract : The exercise recovery is an important variable in designing resistance exercise training. This study determined the effects of passive and active recoveries on responses of platelet indices and hemodynamic variables to resistance exercise. Twelve healthy subjects (six men and six women, age, 25.4 ±2.5 yrs) performed two types of resistance exercise protocols (six exercises including upper- and lower-body parts) at two separate sessions with one-week intervening. First resistance protocol included three sets of six repetitions at 80% of 1RM with 2 min passive rest between sets and exercises; while, the second protocol included three sets of six repetitions at 60% of 1RM followed by active recovery included six repetitions of the same exercise at 20% of 1RM. The exercise volume was equalized. Three blood samples were taken before exercise, immediately after exercise and after 1-hour recovery, and analyzed for fibrinogen and platelet indices. Blood pressure (BP), heart rate (HR) and rate pressure product (RPP), were measured before, immediately after exercise and every 5 minutes during recovery. Data analyzes showed a significant increase in SBP (systolic blood pressure), HR, rate of pressure product (RPP) and PLT in response to resistance exercise ($P<0.05$) and that changes for HR and RPP were significantly different between two protocols ($P<0.05$). Furthermore, MPV and P_LCR did not change in response to resistance exercise, though significant reductions were observed after 1h recovery compared to before and after exercise ($P<0.05$). No significant changes in fibrinogen and PDW following two types of resistance exercise protocols were observed ($P>0.05$). On the other hand, no significant differences in platelet indices were found between the two protocols ($P>0.05$). Resistance exercise induces changes in platelet indices and hemodynamic variables, and that these changes are not related to the type of recovery and returned to normal levels after 1h recovery.

Keywords : hemodynamic variables, platelet indices, resistance exercise, recovery intensity
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