The effect of menstrual cycle on substrate metabolism and performance during exhaustive incremental exercise in female students

Neda Badri[1], Mohmmad Reza Hamedi Nia[2*] , Amir Hossein Haghighi[3]

1. *MSc, Exercise Physiology, Faculty of Physical Education and Sport Sciences, Hakim Sabzevari University, Sabzevar, Iran.*
2. *Professor, Exercise Physiology, Faculty of Physical Education and Sport Sciences, Hakim Sabzevari University, Sabzevar, Iran.*
3. *Associate Professor, Exercise Physiology, Faculty of Physical Education and Sport Sciences, Hakim Sabzevari University, Sabzevar, Iran.*

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Abstract

The purpose of the present study was to examine, the effect of menstrual cycle on substrate metabolism during exhaustive incremental exercise in girl students. Materials and Methods: This study was done on 15 girls students (age=21.17±1.47 year, BMI=20.55±1.71kg/m^2) who participated volunteerily. It has a crossover design and that is adjusted in three stages: bleeding, follicular and the late luteal of the menstrual cycle. Protocol exercise was increamental until exhaustion stage. Subject gas respiration was measured 30 minutes before exercise in lying position, during exhaustion incremental protocol and an hour after exercise which the last time measure was used as EPOC. Fat and carbohydrate oxidation and energy expenditure was measured by indirect calorimetery. To analyze data ANOVA with repeated measure and descriptive statistics were done. The result showed no significant differences in energy expenditure, performance, fat and carbohydrate oxidation in different stages of the menstrual cycle (bleeding, follicular and luteal) during exhaustive incremental exercise. An increamental exersiae, calories and carbs and fat oxidation in the bleeding stage, early follicular and late luteal probably due to the large no difference between the hormones estrogen and progesterone concentrations are not significantly different in young girls.

Keywords: exhaustive incremental exercise, menstrual cycle, substrate metabolism, young girls.

* Corresponding Author: Tel: +98 571 4004405, Email: mrhamedi1350@Gmail.com

Cold water immersion after damaging exercise postpone the peak expression of HSP25 during recovery period

Abbasali Gaeini[1], Rana Fayazmilani[2*], Neda Khaledi[3], Mohammadreza Kordi[4], Mehdi Hedayati[5], Golnoosh Sedgh Roohi[6]

1. *Professor, Faculty of Physical Education & Sport Sciences, University of Tehran, Tehran, Iran.*
2. *Assistance Professor, Faculty of Physical Education & Sport Sciences, Shahid Beheshti University, Tehran, Iran.*
3. *Assistance Professor, Faculty of Physical Education & Sport Sciences, Kharazmi University, Tehran, Iran.*
4. *Associate Professor, Faculty of Physical Education & Sport Sciences, University of Tehran, Tehran, Iran.*
5. *Associate Professor, Shahid Beheshti University of Medical Sciences, Tehran, Iran.*
6. *PhD Candidate, Exercise physiology, Faculty of Physical Education & Sport Sciences, University of Tehran, Tehran, Iran.*

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Abstract

It's generally believed that delayed onset muscle soreness (DOMS) induced by unaccustomed exercise session causes myofibrillar damage. In recent years, the use of cold water immersion (CWI) following heavy training sessions has become common among athletes aiming to reduce soreness, although there isn't any strong scientific rational behind this method. The question is raised in this regard that if this method really accelerates recovery. **Purpose:** HSP25 as one of the stress proteins that have been shown to play an important role after damage and following remodeling process in skeletal muscle have been discussed in this study. The purpose of this study was to investigate the expression of HSP25 after damaging exercise followed by cold water immersion in different recovery time courses. **Methods:** male Wistar rats (n=96; W= 290±10gr) were divided into two groups of exercise (Ex) and exercise followed by cold water immersion (Ex+CWI). Each group divided to seven subgroups for seven time-courses (0, 0.5, 24, 48, 72, and 168 h after exercise). **Results:** we observed that the level of HSP25 in exercised muscles was increased significantly in all time courses except 168 hour after exercise ($P<0.05$). The increment pattern was the same in both groups: a gradual significant increase during the time points, reaching to peak level at late recovery periods, and returning to near basal level after one week. In Ex group, HSP25 level reach to its peak level 48 hours post exercise, while the peak time course for Ex+CWI group was 72 hours post exercise. **Conclusion:** the most important finding of this study is that using CWI after exercise session causes delay in expression of HSP25 in recovery period. Also, the level of expression after CWI is higher. These findings indirectly indicate that using cold water immersion after exercise session may increase the response of muscle to exercise-induced muscle damage and delay the recovery period.

Keywords: CWI, damaging exercise, HSP25, recovery.

[*] Corresponding Author: Tel: +98 9122391092, Email: r_milani@sbu.ac.ir

Comparison of effects of an acute bout of reverse vs. compound supersets on plasma CK, IGF-I, GH responses in trained men

Hossein Soleimani[1*], Reza Gharakhanlu[2], Hamid Rajabi[3]

1. *MSc. student, Faculty of Physical Education & Sport Sciences, University of Tarbiat modares, Tehran, Iran.*
2. *Associate Professor, Faculty of Humanities, University of Tarbiat modares, Tehran, Iran.*
3. *Associate Professor, Faculty of Physical Education & Sport Sciences, Kharazmi University, Tehran, Iran.*

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Abstract

Superset exercise is a mode of strength training characterized by limited rest intervals between sets. Our Study aims to investigate plasma CK, IGF-I, and GH responses to reverse and compound supersets. Fourteen trained men (BMI= 23.25±2.59; Age= 24±2.32) participated in our study. Subjects were designated to two groups of 7 each, and a cross design was used in exercise performance. Exercises were performed in two modes of compound and reverse supersets (including consecutively exercising agonists in compound mode, and exercising agonists and antagonists in reverse mode, for both upper and lower body) at 10-RM and blood samples were obtained immediately. Independent t test was used for data analysis and it was found that only CK values were significantly different (P = 0.006) between two modes (compound>reverse). There was no significant difference between two groups in GH (P= 0.191), IGF-I (P=0.256) responses. Hence, compound and reverse superset resistance training may elicit similar growth responses; however, compound supersets might elicit more muscular damage compare to reverse supersets.

Keywords: 10-RM, compound superset, resistance exercise, reverse superset.

* Corresponding Author: Tel: +98 9151502605, Email :tt8666@yahoo.com

Interactive effects of resistance training and creatine supplementation on strength, arm flexed biceps female students

Masoumeh Seyf[1], Mohammad Ali Samavati Sharif[2*], Alireza Khadem[3]

1. *PhD Candidate, Exersice Physiology of Physical Education and Sports Science, Bu-Ali Sina University, Hamedan, Iran.*
2. *Assistant Professor, Department of Physical Education and Sport Sciences, Bu Ali Sina University, Hamedan, Iran.*
3. *MSc., Department of Physical Education and Sport Sciences of Nahavand University, Nahavand, Iran.*

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Abstract

The purpose of this Semi-empirical study was to examine the using of creatine and resistance training on Biceps Brachii flexion strength and surrounding in last semester physical education students. Therefore all of volunteer last semester physical education students were examined, and finally 30 students who had no history of any illness and were homogeneous by Beck physical activity questionnaire, were selected for study. The subjects were randomized divided into three groups: the experimental group1, experimental group 2 and control group. From three groups, was given strength test by dynamometer, and the organ surrounding by a tape before and after the selected program. The subjects were randomly divided into three groups of 10 each: (experiment 1 Age: 19.8±1.4, weight: 53.9± 4.4 kg, height: 162 ± 4.4 cm) (experiment 2 age: 19.6 ± 1.3, weight: 51.2 ± 7.5 kg, height: 162.8 ± 5.2 cm) and (controlling for age: 19.8 ± 1 years, weight: 59 ± 3.9 kg, height: 162 ± 4.9 cm) divided. Experimental groups 1 and 2participated in the 6-week McQueen resistance training program. The control group did not participate in any training intervention and did not use any supplements and placebo. In the experimental group1, the biceps muscle flexion strength increased significantly (P=0.004). In the Experimental group 2 (placebo) were observed no significant differences (P=0.242). In the control group Strength was significantly decreased (P=0.000) . Spss software for data analysis and statistical method ANOVA (One Way Anova) was used. In general, we can conclude that the use of creatine supplementation and resistance training to increase strength to do better, especially sporting events can be beneficial.

Keywords: biceps flexion strength, creatine supplementation, placebo, resistance training.

* Corresponding Author: Tel: +98 9188124456, Email: ali.samavati@gmail.com

Effect of plyometeric, strengthens and complex training on agility of young free style wrestler in Ilam County

Aliasghar Ravasi[1], Abbasali Gaeini[1], Majid Tasmeh[2*], Hadi Abdi[3], Amir Abdolmohammadi[4]

1. *Professor, Faculty of Physical Education & Sport Sciences, University of Tehran, Tehran, Iran.*
2. *MSc., Payam Noor University of Tehran, Tehran, Iran.*
3. *Ph.D. Candidate, Exercise physiology, Department of Physical Education, University of Shahrekord, Shahrekord, Iran & Department of Physical Education, Payam Noor University, Tehran, Iran.*
4. *MSc., Education of Ilam, Ilam, Iran.*

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Abstract

Purpose: The purpose of present study is review of effect of 8 week plyometeric, strengthens and complex (plyometeric- strengthens) exercise on agility of young free style wrestler in Ilam county. **Methodology:** This is semi-experiment research and its statistical community was 328 free style wrestler of Ilam County. We selected a 40 from them randomly and adminstered them by Illinois test as pre-test randomly assigned, then classified in to 4 groups, each had 10 person that: strengthens groups, plyometeric, Complex, and control. Then they performed protocol for 8 week and finally we Illinois test get them a post-test. For data analyzing, we used from dependence T-test, unilaterally variance analysis and LSD following test, and p value < 0.05 was considered significant. **Results**: The results show that, the 8 week strengthens, plyometeric and complex exercise have significant effect on time reduction in agility test ($P<0.05$). About group differences, the results of unilaterally variance analysis test show that, there is no significant difference between persons in agility test in each research groups ($f=856, P=0.655$). But, after 8 week exercising interference, there is no significant difference between them ($f=4.48, P=0.009$), the results of LSD following test show that, this had most of effect first pertaining to on complex exercise, then plyometeric and finally on strengthens exercise. Of course, there is no significant difference between complex and plyometric group and strengthens and control groups. **Discussion and conclusion:** with results of present study we can conclude that, for improvement of agility of wrestlers, plyometeric exercise, particularly complex exercise (plyometeric and strengthens) is more useful than the only strengthens exercise. So we suggest this kind of exercising with regard to research samples characters and entrance criterion and exit of samples in present research.

Keywords: agility, freestyle wrestler, plyometeric exercise, strengthens exercise.

* Corresponding Author: Tel: +98 9188421973, Email: majid.tasmeh.47@gmail.com

Acute effects of two resistance exercise protocols with moderate intensity, equal volume and slow and fast movements on some anabolic and catabolic hormones

Seyed Alireza Hosseini-Kakhak[1*], Mohammad Jaberi Shahraki[2], Mohammadreza Hamedinia[3]

1. *Associate Professor, Exercise Physiology, Faculty of Physical Education & Sport Sciences, Hakim Sabzevari University, Sabzevar, Iran.*
2. *MSc., Exersice Physiologhy, Faculty of Physical Education & Sport Sciences, Hakim Sabzevari University, Sabzevar, Iran.*
3. *Full Professor, Exercise Physiology, Faculty of Physical Education & Sport Sciences, Hakim Sabzevari University, Sabzevar, Iran.*

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Abstract

The purpose of this study was to investigate the acute effects of two resistance exercise protocols with slow and fast movements on some anabolic and catabolic hormones. Hence, in a randomized crossover design, 10 healthy young men (age: 23.3±1.76 yr) divided into 3 groups: control (Con), resistance exercise with slow movement (SM), and resistance exercise with fast movement (FM). Subjects performed 6 exercises in 4 sets at 60 – 65% of 1RM. Blood sampling were taken before, immediately and 30 min after exercise. The results showed that both SM and FM significantly increased GH immediately after exercise (250 and 200 percent, respectively), but there was not any differences between SM and FM. In SM group, testosterone significantly increased immediately after exercise. SM and FM had no effect on cortisol, insulin, and glucose. It can be concluded that SM relative to FM probably has more effect on testosterone secretion.

Keywords: fast movement, GH, resistance exercise, slow movement, testosterone.

* Corresponding Author: Tel: +98 9125497209, Email:hosseini18@yahoo.com

The effects of moderate rate of music on perceived exertion and different intensity of heart rate in endurance training in young athletic men

Zahra Soori[1*], Ali Heirani[2], Amirabbas Monazami[2]

1. *PhD Candidate, Motor Behavior, Alborzcampus, University of Tehran, Iran.*
2. *Assistant Professor, Faculty of Physical Education, Razi University, University of Tehran, Iran.*

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Abstract

The purpose of this study was to the effects of moderate rhythm of music on perceived exertion and heart rate during different intensities of endurance training in young male athletes. 10 healthy male athletes (21.6±2.60 years), were voluntary selected and randomly divided in two groups. Data analysis showed, there was no significant difference between two stages in the warm up phase. The perceived exertion and heart rate of 60 and 70% of maximal Heart Rate under the condition of listening to music had significant decrease as compared to the condition without music ($P<0.05$). The perceived exertion and heart rate during exercise with the highest intensity (80% Vo_{2max}) showed little reduction but was not significant. Finally, moderate tempo music can affect on the perceived exertion rate of training with low and moderate intensities, but it has no significant effect in the high intensity training.

Keywords: heart rate, physical activity, rate of music, rate of perceived exertion.

[*] Corresponding Author: Email :soori.zahra2000@gmail.com Tel: +98 9188505875

Effects of 12 weeks of circuit resistance training on C-reactive protein and lipid profiles in inactive women

Mogharnasi Mehdi[1*] , Bagheri Mitra[2]

1. *Associate Professor, Department of Physical Education & Sport Sciences, University of Sistan & Baluchestan, Zahedan, Iran.*
2. *MSc., Exercise Physiology, Department of Physical Education & Sport Sciences, Islamic Azad University Fars Science and Reserch branch, Shiraz, Iran.*

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Abstract

Increasing of c-reactive protein inflammatory indicator and lipid profiles cause to increase of probability cardiovascular disease. The influence of resistance exercise on cardiovascular diseases among females is unknown. **Purpose:** The aim of the project was the effects of 12 weeks of circuit exercise on c-reactive protein and lipid profiles in inactive women. **Methods:** 24 young inactive women, with the average of 26±3.5 years old,160±2.5cm height and 62±6.93 kg weight were selected voluntarily and divided randomly into two 12 people groups (a group as control and the other as experimental). exercise program included 12 weeks of circuit resistance exercise, 3 sessions a week with 20 to 60 minutes duration and each session on 8 stations with the 65% to 80% intensity of repetition maximum (1RM). Blood sampling was done after 14 hours of being fast just before at the beginning of the project and also after 48 hours after the last exercise session. Data were analyzed with the kolmogrov-Smirnov test (K-S test) by both dependant and independent "t-test" and the P-value of $\alpha \leq 0.05$. **Results:**After 12 weeks of circuit resistance exercise in the xperimental group the amount of CRP, TG, TC, LDL-C, VLDL-C changed significantly ($P \leq 0.05$), while HDL-C did not change noticeably ($P \geq 0.05$). **Conclusion:** Finally, by decreasing of dangerous factors, the method of circuit resistance exercise can be considered & suggested as an effective and valuable method for preventing of cardiovascular diseases among women and improving their health.

Keywords: cardiovascular diseases, circuit resistance training, CRP, lipid profile.

[*] Corresponding Author: Tel: +98 9153412696, Email: mogharnasi@ped.usb.ac.ir