Specialized Language (in Sports Science & Physical Education)

Vocabulary:

Sports science: علوم ورزشی

Physical education: تربیت بدنی

Journal: مجله

Article: مقاله

Abstract: چکیده

Introduction: مقدمه

Method: روش / متد

Statistical Analysis: تجزیه و تحلیل آماری

Results: نتیجه / هدف

Discussion: بحث / گفتگو

Practical Applications: کاربردهای عملی

References: منابع

Key words: کلمات کلیدی

Training: تمرین (synonyms: exercise-working out)

Physical test: آزمون آمادگی جسمانی

Upper/Lower body: پایین/بالا تنه

Abdominal muscles: عضلات شکمی

Lower Back: کمر

Abdominal: شکمی

Strength: قدرت

Endurance: استقامت

Speed: سرعت

Power: توان

Agility: چابکی

Flexibility: انعطاف پذیری

Coordination: هماهنگی

Acceleration: شتاب

Running: دویدن

Stretching: کشش

Active: فعال

Passive: غیر فعال

Combined Method: روش ترکیبی

PNF (Proprioceptive Neuromuscular Facilitation): تسهیل گیرنده های عمقی عصبی-عضلانی

Journal of Strength and Conditioning Research, 2005, 19(4)

Neuromuscular Responses to Two Whole Body Vibration Modalities During Dynamic Squats

W.E. Amonette, A.F.J. Abercromby, M. Hinman, C.S. Layne, W.H. Paloski, Astronaut Strength Conditioning and Rehabilitation Facility, Wyle Laboratories, Houston, TX.

Whole body vibration (WBV) is a method used to stimulate skeletal muscle reflexes and has been shown to elicit training responses in muscle strength and power. **Purpose**: The purpose of this study was to determine the acute neuromuscular response of the vastus lateralis (VL), biceps femoris (BF), gastrocnemius (GS), and tibialis anterior (TA) during two different modalities of WBV compared to baseline. **Methods**: Ten males and six females performed squats with a stance width of 21.6cm from 10–40deg of knee flexion. Subjects squatted at a cadence of 4s down and 4s up without vibration (BL) and on two different WBV platforms. The first platform (VV) vibrated vertically with 4mm of vertical displacement at 30Hz. The second platform (RV) rotated about an axis with a vertical displacement of 4mm at 30Hz. The order of WBV modes was balanced, and a BL squat was performed immediately before each WBV trial. Simultaneously with knee angles (optoelectronic motion capture), surface EMG data were collected from the right VL, BF, GS, and TA during the squats. The data were filtered using band stop filters at 25–35Hz and 55–65Hz to remove artifact associated with vibration, and the root mean square of the filtered data were calculated using a 100ms time constant over each trial. A 2 3 2 Repeated Measures (RM) MANOVA followed by RM univariate ANOVAS and t-tests (Sidak adjustment) to evaluate main effects of vibration (VB), and modality (M) and their interactions for each muscle were used. RE- SULTS: These data show a significant (p , 0.05) multivariate VB and VB 3M interaction effect. Follow-up tests showed EMG activity of the GS (d 5.431), VL (.286), and TA (.415) but not BF were significantly greater (p , 0.05) during RV vibration compared to BL. VV increased

EMGrms above BL in GS (d ⊃ .341), VL (.238), and TA (.604) but not BF. CONCLUSION: These data suggest that WBV enhances muscle activation in the lower and upper leg during dynamic squats. RV elicits a greater response in the GS while VV elicits larger responses in the TA, possibly due to the effects of anteroposterior VV platform instability.

Practical application: WBV may enhance responses to lower-body strength training, possibly through the mechanism of increased motoneuron activation.

Homework Assignment

What is the required structure for an abstract?

Vocabulary

Muscle: ماهیچه Tissue: بافت Human body: بدن انسان Excitability: قابلیت تحریک

Irritability: تحریک پذیری Contractability: قابلیت انقباض Extensibility: قابلیت انبساط

Elasticity: قابلیت ارتجاع

Please read the following passages carefully and then answer the question.

لطفا متن های زیر را با دقت بخوانید و سپس به سوالات پاسخ دهید.

Muscle tissue which constitutes 40 to 50 percent of the adult human body, is one of the most interesting tissues of creation.

بافت ماهیچه ای که ۴۰ تا ۵۰ درصد بدن انسان بالغ را تشکیل می دهد، یکی از جالب ترین بافت های آفرینش است.

Its special characteristics are excitability (irritability), contractability, extensibility, and elasticity.

ویژگیهای خاص آن قابلیت تحریک (تحریک پذیری)، قابلیت انقباض، قابلیت انبساط و قابلیت ارتجاع است.

Excitability means that it is able to receive and respond to stimulus. Contractability means that the muscle changes shape as a result of stimuli. Usually becoming shorter and thicker.

تحریک پذیری، یعنی قادر به دریافت و پاسخ به تحریک است . انقباض پذیری، یعنی ماهیچه در نتیجه تحریک تغییر شکل میدهد. معمولا کوتاهتر و ضخیم تر می شوند.

Extensibility means that the muscle can be stretched (extended) beyond its normal length.

انبساط پذیری یعنی ماهیچه می تواند فرای طول عادی خود کش بیابد (گسترش یابد).

And elasticity means that it readily returns to its normal length when the stretching force is eliminated.

ارتجاع پذیری یعنی پس از آنکه عامل کشش حذف شود، سریع به طول عادی خود بر می گردد.

According to the passage the characteristic of muscle tissue are:

با توجه به متن ویژگیهای بافت ماهیچه ای چنین است:

1) Excitability, contractability, irritability, elasticity.

قابلیت تحریک، انقباض پذیری، تحریک پذیری، ارتجاع پذیری.

2) Contractability, extensibility, excitability, irritability.

انقباض پذیری، انبساط پذیری، قابلیت تحریک، تحریک پذیری.

3) Elasticity, excitability, extensibility, and irritability.

ارتجاع پذیری، قابلیت تحریک، انبساط پذیری، و تحریک پذیری.

4) Irritability, contractability, extensibility, and elasticity.

تحریک پذیری، انقباض پذیری، انبساط پذیری، و ارتجاع پذیری.

According to the passage excitability means that:

با توجه به متن، قابلیت تحریک یعنی:

1) The muscle is able to react to stimuli.

ماهیچه قادر به پاسخ به تحریک است.

2) The muscle can returns to its normal length.

ماهیچه می تواند به طول عادی خود بر گردد.

3) The muscle changes shape as a result of impulses.

ماهیچه در نتیجه پیام عصبی (ضربه) تغییر شکل می دهد.

4) The muscle can be stretched more than its normal length.

ماهیچه می تواند بیش از طول واقعی خود کش یابد.

Please read the following passages carefully and then answer the question.

لطفا متن های زیر را با دقت بخوانید و سپس به سوالات پاسخ دهید.

Carbohydrate (CHO) is the most important nutrient for high intensity performance. Energy release from CHO is up to three times as fast as from fat.

انرزی آزاد شده از CHO سه برابرسریع تر از چربی می باشد. کربوهیدرات (CHO) مهمترین ماده غذایی برای عملکرد / کارآیی با شدت بالاست.

However CHO stores in the body is small which limits the time perform high intensity exercise.

هرچند، CHO ذخیره شده در بدن کم است که خود باعث محدودیت در زمان انجام تمرینات با شدت بالا می شود.

Apart from decreasing perform, CHO depletion induces an increased utilization of protein for energy production, which may enhance fatigue.

جدای از محدودیت در اجرا، تخلیه CHO شامل (باعث) افزایش مصرف پروتیین برای تولید انرژی می شود، که ممکن است خستگی را افزایش دهد.

CHO ingestion during exercise allows sparing of the body's CHO stores, decreasing of protein utilization and ammonia production, and a delay of fatigue/improvement of performance.

گرفتن CHO در حین تمرین باعث صرفه جویی در ذخایر CHO بدن، کاهش مصرف پروتیین و تولید آمونیاک، و تاخیر در خستگی و/یا بهبود کارآیی می شود.

Adequate CHO ingestion between training sessions/days or intense performance is of utmost importance to avoid progressive fatigue development overtraining.

گرفتن مقدار کافی CHO در حین جلسه ها / روزهای تمرین یا تمرینات شدید مهمترین مورد برای جلوگیری از خستگی زیاد است که باعث بیش تمرینی می شود.

According to the passage CHO ingestion causes:

با توجه به متن، گرفتن CHO باعث:

1) An increase in fatigue.

افزایش خستگی می شود.

2) To produce ammonia.

تولید آمونیاک می شود.

3) To produce overtraining.

ایجاد بیش تمرینی می شود.

4) An increase utilization of protein.

افزایش مصرف پروتیین می شود.

According to the passage:

با توجه به متن:

1) CHO depletion induces an increase in performance.

تقلیل CHO باعث افزایش کارآیی می شود.

2) Adequate CHO ingestion is important to postponed fatigue.

گرفتن مقدار کافی CHO ، برای به تاخیر انداختن خستگی مهم است.

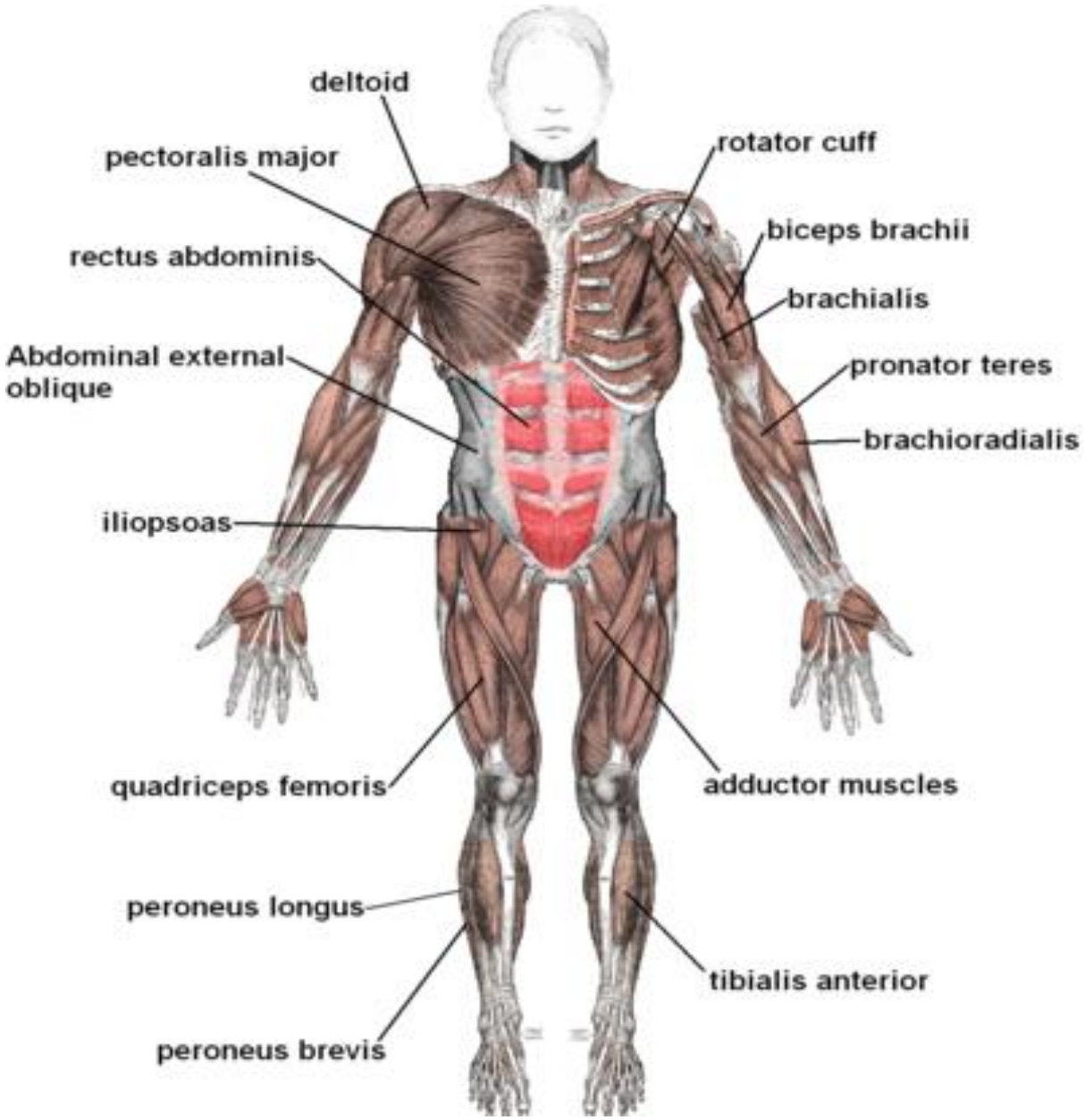
3) CHO ingestion during exercise allows sparing of body's CHO stores.

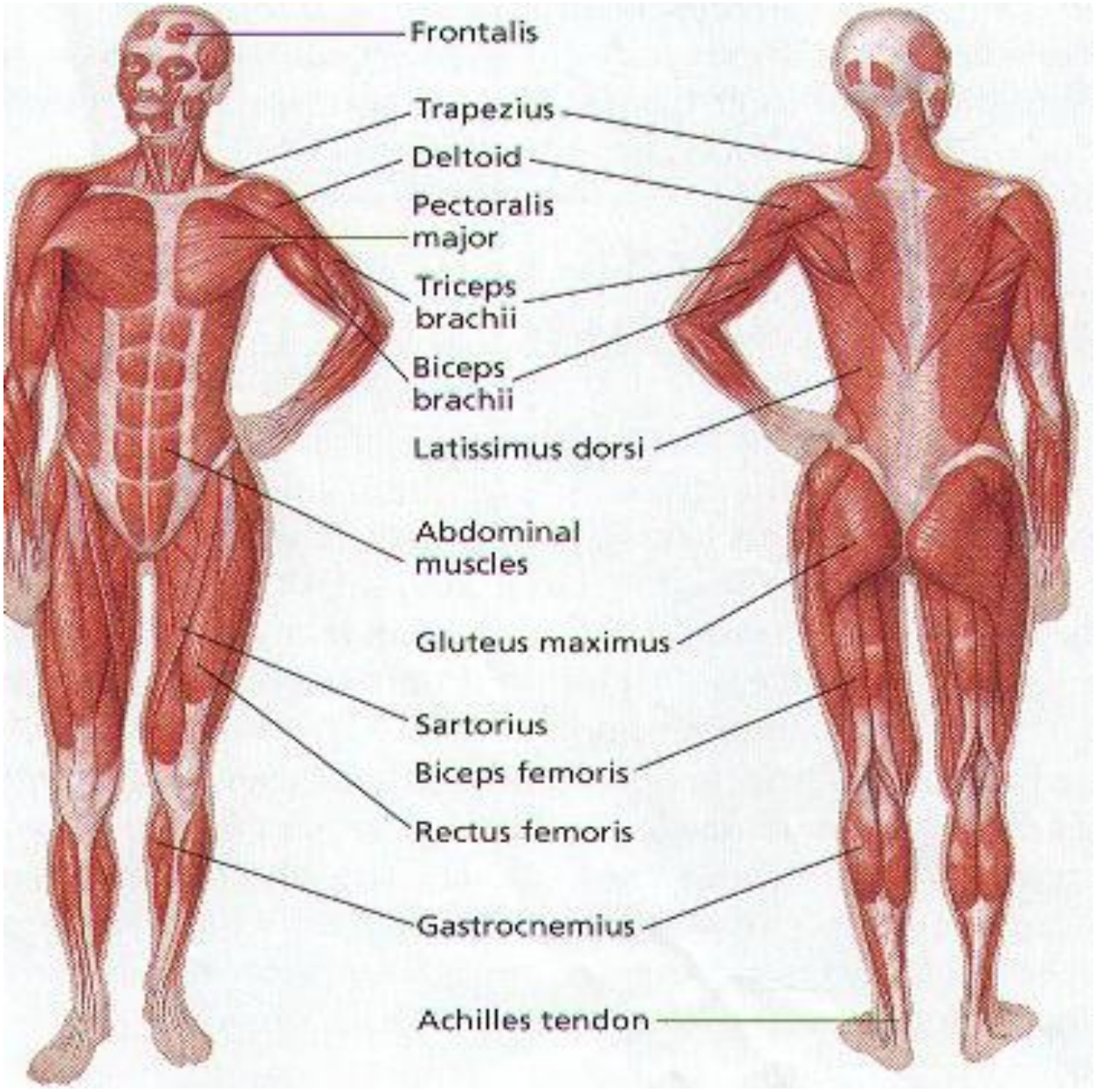
گرفتن CHO در حین تمرین باعث صرفه جویی در ذخایر CHO بدن می شود.

4) Adequate CHO ingestion is of utmost importance to avoid progressive performance.

گرفتن مقدار کافی CHO ، مهمترین عامل برای پرهیز از بهبود کارآیی است.

Homework Assignment




Frontalis
Trapezius
Deltoid
Pectoralis major
Triceps brachii
Biceps brachii
Latissimus dorsi
Abdominal muscles
Gluteus maximus
Sartorius
Biceps femoris
Rectus femoris
Gastrocnemius
Achilles tendon

International society of sports nutrition position stand: caffeine and performance

Abstract

Position statement: The position of The Society regarding caffeine supplementation and sport performance is summarized by the following seven points:

1) Caffeine is effective for enhancing sport performance in trained athletes when consumed in low-to-moderate dosages (~ 3-6 mg/kg) and overall does not result in further enhancement in performance when consumed in higher dosages (≥ 9mg/kg).

2) Caffeine exerts a greater ergogenic effect when consumed in an anhydrous state as compared to coffee.

3) It has been shown that caffeine can enhance vigilance during bouts of extended exhaustive exercise, as well as periods of sustained sleep deprivation.

4) Caffeine is ergogenic for sustained maximal endurance exercise, and has been shown to be highly effective for time-trial performance.

5) Caffeine supplementation is beneficial for high-intensity exercise, including team sports such as soccer and rugby, both of which are categorized by intermittent activity within a period of prolonged duration.

6) The literature is equivocal when considering the effects of caffeine supplementation on strength-power performance, and additional research in this area is warranted.

7) The scientific literature does not support caffeine-induced diuresis during exercise, or any harmful change in fluid balance that would negatively affect performance.

Combined strength and endurance training in competitive swimmers

Abstract

A combined intervention of strength and endurance training is common practice in elite swimming training, but the scientific evidence is scarce. The influences between strength and endurance training have been investigated in other sports but the finding are scattered. Some state the interventions are negative to each other, some state there is no negative relationship and some find bisected and supplementary benefits from the combination when training is applied appropriately. The aim of this study was to investigate the impact of combined intervention among competitive swimmers.

20 subjects assigned to a training intervention group (n=11) or a control group (n=9) from two different teams completed the study. Anthropometrical data, tethered swimming force, land strength, performance in 50m, 100m and 400m, work economy, peak oxygen uptake, stroke length and stroke rate were investigated in all subjects at pre- and post-test. A combined intervention of maximal strength and high aerobic intensity interval endurance training 2 sessions per week over 11 weeks in addition to regular training were used, while the control group continued regular practice with their respective teams.

The intervention group improved land strength, tethered swimming force and 400m freestyle performance more than the control group. The improvement of the 400m was correlated with the improvement of tethered swimming force in the female part of the intervention group. No change occurred in stroke length, stoke rate, performance in 50m or 100m, swimming economy or peak oxygen uptake during swimming. Two weekly dry-land strength training sessions for 11 weeks increased tethered swimming force in competitive swimmers. This increment further improves middle distance swimming performance. 2 weekly sessions of high-intensity interval training does not improve peak oxygen uptake compared with other competitive swimmers.

This part consists of an incomplete sentence. Below the sentence are four choices, marked (1), (2), (3), and (4). You should find the one choice which best completes the sentence.

1- Which groups combine to form a basic carbohydrate molecule?

1) Atoms of carbon, hydrogen & nitrogen

2) Atoms of carbon, oxygen & hydrogen

3) Atoms of carbon & glycogen

4) Atoms of carbon & hydrogen

2- Primarily serve as an energy fuel

1) Sugars 2) Glucose 3) Carbohydrates 4) Fibers

3- Which one has an important role in tissue maintenance?

1) Carbohydrate 2) Protein 3) Glycogen 4) Vitamin D

4- Muscle glycogen provides energy without

1) Oxygen 2) Pressure 3) Vitamins 4) Carbon

5- …… is the basis for all movement & exercise.

1) Muscle's size 2) Bone's size 3) Muscle contraction 4) None

6- In which exercises muscles are contracting without moving the body?

1) Isometric 2) Static 3) Dynamic 4) 1 & 2

7- Recovery time:

1) is 1 week 2) is at least 2 weeks 3) is various 4) is near one month

8- Co-ordination is believed to be at its peak between the ages of …..&….. .

1) 8-20 2) 8-14 3) 14-20 4) 15-20

9- Which is symptom of a serious injury?

1) Loss of sensation & paralysis
2) intense pain on back and neck
3) Long pain on back & neck
4) intense & long pain on back & neck

10- What is lumbago?

1) Intense back pain
2) Upper back pain
3) Low back pain
4) Low back contraction

11- Lumbago symptoms often appear

1) Between lifting a heavy object & lifting a light object
2) After long lifting a light object
3) After lifting a light object
4) After lifting a heavy object

12- ……. Syndrome occurs when the nerve root adjacent the disc between 3rd & the 4th lumbar vertebrae is damaged.

1) L5 2) L4 3) S1 4) none

13- Which is not a treatment for narrowing of the vertebral canal?

1) Prescribe physiotherapy
2) Prescribe a belt
3) Prescribe a corset
4) Remove causes of narrowing

Plyometric Drills

Lower Body

Jump in Place
Two-foot ankle hop
Squat jump
Jump and reach
Double-leg tuck jump
Split squat jump
Cycled split squat jump
Single-leg tuck jump
Pike jump

Standing Jump
Double-leg vertical jump
Jump over barrier
Single-leg vertical jump

Multiple Hops and Jumps
Double-leg hop
Double-leg zigzag hop
Single-leg hop
Front barrier hop
Lateral barrier hop

Box Drills
Single-leg push-off
Alternate-leg push-off
Lateral push-off
Side-to-side push-off
Jump to box
Squat box jump
Lateral box jump
Jump from box

Depth Jumps
Depth jump
Depth jump to second box
Squat depth jump
Depth jump with lateral movement
Depth jump with standing long jump
Single-leg depth jump

Upper Body

Throws
Chest press
Two-hand overhead throw
Two-hand side to side throw
Single-arm throw
Power drop

Plyometric Push-Ups
Depth push-up

Trunk

45° Sit-up

Homework

Caffeine is effective for improving strength and power in trained athletes.

Lumbago symptoms often appear after lifting a heavy object, and it means low back pain.

In isometric or static exercises muscles are contracting without moving the body.

Recovery time after combined strength and power training session is at least 24 hours.

Muscle contraction……..... Various ……

Intense and long pain on back……. Control group ……

هماهنگی بین سنین ۸ و ۱۴ سال در اوج خواهد بود

تستهای قبل و بعد از تمرین در گروه شاهد

ترکیب تمرینات سرعت و توان در بسکتبال

تمرینات شدت بالا:..... شنا: ..... درد عضلانی: .....

استقامت: ..... دویدن: ..... شکر: .....

اوج اکسیژن مصرفی: ..... تمرینات قدرتی: .....

بهبود/ افزایش کارآیی : ..... ورزشکار حرفه ای: .....

Vocabulary

Male: مذکر	Cardiac output: برون ده قلبی	Female: مونث
Average: میانگین	Oxygen consumption: اکسیژن مصرفی	Blood: خون
Perform: اجرا کردن	Counterpart: رونوشت، همتا	

Reading comprehension

The changes in cardiac output described above for males are similar to those for females. However, it should be mentioned that in comparison with males, females tend to have slightly higher cardiac output when performing work at the same level of oxygen consumption. This difference amounts to about 1.5 liters per minute, in other words, the cardiac output will be about 1.5 liter per minute higher on the average in females than in males for a given oxygen consumption. The reason for this is probably due to the females lower oxygen carrying capacity of blood, resulting from their lower levels of hemoglobin. Also the maximal cardiac output of both trained and untrained females in generally lower than that of their male counterparts.

According to the passage:

1) The maximal cardiac output of trained:

a) male is 1.5 liters per minute.

b) female is 1.5 liter per minute.

c) female is lower than their male counterparts.

d) male is lower than their female counterparts.

2) Females tend to have higher cardiac output than males because females have:

a) more hemoglobin.

b) more oxygen consumption.

c) lower oxygen-carrying capacity of blood.

d) higher oxygen-carrying capacity of blood.

3) Females tend to have slightly higher cardiac output than males when performing work at the ……. oxygen consumption.

a) level of high

b) level of low

c) same level of

d) level slightly higher

Reading comprehension – short sentences

Read the following sentences and decide which of the following words best fits each blank.

.....: the force exerted by muscle groups during a single maximal muscle contraction.

.....: the capacity to sustain movement or effort over a period of time. Local muscle endurance is the ability of the muscles to repeat movements without undue fatigue. Cardiovascular endurance is the ability of the cardiovascular system to transport oxygen to muscles during sustained exercise.

.....: the maximum rate at which a person is able to move his/her body over a specific distance. In physical performance terms, it refers to the speed of co-ordinate joint actions and whole body movements.

.....: a combination of strength and speed previously described as a component of physical fitness.

.....: the physical ability which enables a person to rapidly change body position and direction in a precise manner.

…….: the range of movement possible at a joint. It is affected by the type of joint and muscle attachment.

…….: the ability to perform smooth and accurate motor tasks often involving the use of the senses and a series of correlated muscular contractions, affecting a range of joints and therefore limb and body position.

…….: the ability to retain the center of mass of the body above the base of support. It is the awareness of the body position in space and depends upon co-ordination between earn, brain, skeleton and muscles. Dynamic balance is the ability to maintain balance under changing conditions of body movement, shape and orientation.

Endurance - Strength - Flexibility - Co-ordination – Balance – Power – Speed - Agility

Homework -Reading

People who exercise regularly, whether walking, jogging, swimming, cycling or playing team sports, are more likely to be able to carry on exhausting work for longer periods of time than sedentary people. This is due to adaptive responses made by the body as a result of regular exercise. On the other hand, modern day living with its sedentary life styles and increased leisure time has brought modern day illnesses such as obesity-a severe overweight condition of the body, defined when a person has an excessive accumulation of body fat which is more than 20 percent above the norm of his/her height and build.

Carbohydrates and fats are the fuels needed for energy production. The major cause of obesity is that energy intake (eating carbohydrate and fat) is forgetter than energy output. In other words, there is a lack of energy expenditure, so the obese person will continue to gain weight. This concept is known as a positive energy balance and be expressed as:

Energy Input > Energy Output

The physical Effects of Obesity on the body

Because of the increase in body size, the cardio-respiratory system has to work much harder since more energy is used in just moving the body mass.

In addition, an increase in adipose tissue (fat under the skin) and a decrease in sweat gland density make it much harder for the vascular system to remove waste heat energy, produced as part of the process of conversion of food fuel into useful work or energy in the body s muscles and organs. This heat energy has to leave the body from the skin surface, and therefore a thick insulating layer under the skin will tend to restrict flow of heat outwards. This means that the heart has to work harder to pomp blood faster round the circulatory system, so that heat energy, carried by the blood, can be released more rapidly near the skin surface.

Also, a relatively poor circulatory system within adipose tissue, means that the blood (and therfore heat energy) cannot reach the skin surface in large enough quantities to release its heat as effectively as it would in a thin person. All these factors result in heart overload and increased respiratory functioning, to keep pace with at he increases in total metabolic functioning.

Below the sentence are four choices, marked (1), (2), (3), and (4). You should find the one choice which best completes the sentence.

Measurement of heart-rate, oxygen uptake and flexibility:

1) indicate physical fitness of a person
2) indicate mental fitness of a person
3) indicate general fitness of a person
4) indicate motor fitness of a person

Barbells, dumbbells & other types of free weights are used for ……..

1) Power exercises
2) Aerobic exercises
3) Anaerobic exercises
4) Resistance exercises

Aerobic training is designed in a:

1) short duration and less strenuous exercise
2) long duration and more strenuous exercise
3) long duration and strenuous exercise
4) long duration and less strenuous exercise

Nutrition is the study of:

1) the amount of food intake
2) the amount of mineral intake
3) what the food we eat does to us
4) the amount of liquid intake

Man is capable of learning an almost limitless number of skills. It is now time to consider how much improvement is possible in particular skills as a result of practice. Let us present the general answer to this question first, and then the evidence.

There are definite limits to the level of proficiency that an individual may reach in the performance of any particular skilled activity, and the prediction of these limits is of major interest to human-performance theory. However, actual performance approaches these limits so a slowly that it is seldom possible to say that a particular individual has reached the limits of his capacity in a particular activity. Either aging processes begin to lower the ceiling or a gradual change in motivation occurs so that effort to improve the skill ceases. Moreover, people seldom work up to the theoretical limits which their capacities impose.

The evidence that skills can be improved almost indefinitely comes from learning curves, where performance is considered a function of days or months of practice under favorable conditions.

1- The level of proficiency in performing skilled activities

1) is limitless 2) can be improved throughout life as the same rate

3) has definite limits 4) may be improved only in some younger individuals

2- Man reaches the limits to the levels of his proficiency

1) too slowly 2) in no way

3) very quickly 4) very seldom

3- The improvement of a certain skill may cease

1) as a result of aging processes 2) through bad practice

3) when there is a change of motivation 4) both 1 and 2

4- Learning curves show that

1) we can improve our skills almost indefinitely

2) the improvement of the skills ceases after a few months of practice

3) we never reach the limits of our capacity

4) practice is useful under any conditions

5- The passage above emphasizes most

1) the importance of practice 2) the necessity of motivation

3) favorable conditions 4) both 1 and 2

GOOD LUCK