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Poster session III: Physical activity, exercise, nutrition and body composition

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P27

Research on Correlation between Physical Activity Level and Physical Fitness of Adolescents

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Objective: In order to provide theoretical basis for physical fitness lever, we did research on correlation between physical activity level and physical fitness.
Methods: Physical activity was assessed using questionnaire in 1378 adolescents, we also measured BMI, vital capacity and cardiopulmonary function.
Results: Energy expenditure of moderate intensity physical activity was 819.67-1236.32 kcal/week (male) and 921.46-1306.98 kcal/week (female); Energy expenditure of vigorous intensity physical activity was 814.14-1847.08 kcal/w (male) and 445.1-1349.05 kcal/w (female). The differences between males and females in sedentary activities during leisure time ≥2 h overweight and the obese formation rate was higher than that sedentary activities during leisure time <2 h. Moderate intensity physical activity (MPA) had significant correlations with BMI. There was no correlation among VPA , vital capacity, and cardiopulmonary function.
Conclusion: Currently the Shanghai adolescent physical activity reached international recommended levels of physical activity patterns, there are gender differences; the longer sedentary activities during leisure time was, the more possible obesity occurred; There is a dose-response relationship between different intensity of physical activity and fitness.

P28

Effects of Aerobic Exercise on Adult Female's Body Composition

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Objective: The aim of this study is to investigate the effect of aerobic training on adult female' body composition.
Methods: A total of 32 overweight adult female (BMI≥23) were included in our study. Subjects performed 1 hour moderate strength aerobic exercise 3 times per week during 10 weeks. Biological impedance (BIA) was used to study the changes of their body composition before and after intervention.
Results: After 10 weeks' exercise, the average weight (kg) reduced from 56.38 ±8.27 to 53.13±5.41, body fat percentage (%) reduced from 28.06±5.15 to 24.13±4.69; the fat-free mass (kg) increased from 38.51±6.73 to 41.22±5.38 and waist-to-hip ratio WHR declined from 0.88±0.14 to 0.85±0.07.
Conclusion: Long-term aerobic exercise can effectively control body weight, decrease body fatty tissue accumulated, increase lean mass.

P29

Resistance Exercise Combined with Restriction of Blood Flow improves Body Composition and Insulin Sensitivity in Obese Subjects

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Objective: This study investigated the effect of resistance exercise combined with restriction of blood flow in exercising muscles on the body composition and insulin sensitivity in obese subjects.
Methods: A total of 32 male obese subjects were randomly divided into 3 groups: resistance exercise group (EG, n=10), resistance exercise plus blood restriction group (ERG, n=12), and control group (CG, n=10). Resistance exercise in EG and ERG was performed 3 times/week for 18 weeks with intensity around 20% of one-repetition maximum. Pressure of 120 mmHg was externally applied to restrict the blood flow of exercising muscle.
Results: percent body fat decreased significantly in ERG compare to the baseline (28.45±1.63% VS 25.79±2.11%, $p<0.05$); There was a significant decrease in glucose levels following exercise in EG and ERG ($p<0.05$), while the insulin level significantly decreased only in ERG ($p<0.01$); insulin resistance index decreased significantly in both EG (1.96±0.34 VS 1.83±0.28, $p<0.05$) and ERG (2.05±0.36 VS 1.76±0.35, $p<0.05$); Positive correlation was found between the insulin resistance index and percent body fat (r=0.424, p=0.004).
Conclusion: Resistance exercise combined with restriction of blood flow in exercising muscles could effectively improve body composition and insulin sensitivity, and decreased percent body fat may contribute to the improvement of insulin sensitivity in obese subjects.

P30

Resistance Exercise Improves Bone Density, Body Composition and Insulin Sensitivity in Obese Male College Students

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Objective: The aim of this study was to assess the effect of resistance training (RT) on bone density, body composition and insulin sensitivity in obese male college students.
Methods: Twenty-two obese male college students were randomly assigned into 2 groups: an exercise group (EG; n=12) and a control group (CG; n=10). RT was held 3 times/week for 18 weeks and included 8 exercises (3 series of 10 repetitions) with intensity around 65% of 1 repetition maximum. Bone density, body compositions, plasma insulin and glucose were measured 18 weeks later. Differences in parameters among groups were compared by using one-way ANOVA test.

Results: After intervention, EG showed a significant increase in bone density and muscle mass (0.58±0.13 g/cm^3 VS 0.65±0.11 g/cm^3, $p<0.05$), reduction in percent body fat (28.12±1.02% VS 26.23±2.14%, $p<0.01$), and decreases in insulin resistance index (2.02±0.13 VS 1.93±0.21, $p<0.05$) compare to pre-exercise. A positive correlation was found between bone density and muscle mass (r=0.37, p=0.04). Furthermore, the percent body fat has shown a negative correlation with the bone density (r=0.32, p=0.03). Insulin resistance index was statistically correlated with bone density (r=0.29, p=0.02) and muscle mass (r=0.42, p=0.02).
Conclusion: RT can improve insulin sensitivity in obese male college students. Some of these RT effects may be attributable to improved bone density and body composition.

P31
Effect of Sports Input on the Body Composition in the Elderly
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Objective: To discuss the effect of sports input on the body composition in the elderly of different gender.
Methods: 72 elderly subjects were assigned to three groups: high-input group, medium-input group and low-input group based on their sports input levels. Body composition was tested with BIA.
Results: The male elderly's average height, weight, lean body mass, muscle mass, body fluid mass, intracellular fluid mass, extracellular fluid mass, protein mass, WHR were significantly higher than the female elderly (168.14 cm, 73.74 kg, 51.94 kg, 47.68 kg, 37.11 kg, 25.08 kg, 12.23 kg, 10.35 kg, and 1.02 in males; 158.27 cm, 66.67 kg, 42.64 kg, 38.76 kg, 30.71 kg, 20.82 kg, 9.88 kg, 8.42 kg, and 0.90 in females). While BF% and obesity percentage were 35.8% and 25.8% in females, and 29.4% and 18.2% in males. Above 80% elderly's BMI, BF%, WHR, obesity rate were all higher than the standard of normal adults. No significant difference of these obesity indices were found among the three different sports input groups.
Conclusion: The body composition of the elderly was unsatisfactory, and no significant effect of sports input was found on body composition.

P32
Effect of Roller Skating on the Balance of College Students
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Objective: To analyze effect of skating on the university students' static and dynamic balance, proprioception, vestibular function and muscle strength of lower limbs.
Methods: Fifty students were randomly selected from North China Institute in 2009. Subjects were classified into two groups: experiment group included 25 subjects who selected skating course, and control group included 25 subjects who didn't. All subjects were tested on the week of 0, 9, 18. Static balance, dynamic balance were tested by Tetrax (balance and stability test system), Biodex (Balance System detector) respectively. Proprioception and lower limb muscle strength were tested BIODEX III AP (the multi joint isokinetic testing).
Results: The falling index decreased and one leg standing with eye closed was approximately on the average of 4 seconds. There was an average reduction of 0.02 seconds on muscle reaction time and an increase of 0.7 cm and 1.3 cm on the circumference of the calf muscle and four-headed thigh, respectively.
Conclusion: Roller skating can improve the student's ability of static balance and dynamic balance, ankle, knee and hip proprioceptive ability and lower limb muscle strength.

P33
Correlative Study of College Student's Quality of Life with the Factors of Exercise in China
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Objective: Discuss the correlations between college student's quality of life and the factors of exercise.
Methods: About 5800 students (3278 men, 2612 women) of arts and sciences from. 45 universities in 23 provinces are required to complete the questionnaire of the WHO's health scale and attitude towards physical exercise scale.
Results: As the research shows, college student's quality of life is significantly associated with the factors of exercises. The factors of exercises were closely related to the college students' quality of life. By analyzing the variance and covariance further, the score is different between different aspects in different majors, which is associated with the factors of physical exercise. Behavior habits, behavior control and behavior intention are the main factors that influence the student's quality of life.
Conclusion: Physical education should be emphasized to improve student's quality of life.

P34
Effect of Endurance Training on Body Composition Index in College Students
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Objective: To explore the effect of endurance training on body composition in college students.
Methods: To test their body composition with BIA and analyze the differences in indexes, 120 college students were categorized into three groups: group-1 included 10 one-level national long-distance runners; group-2 had 50 long-distance running P.E. major students, 60 average college students without any training as control group.
Results: The results showed that BF%, obesity percentage, intracellular and extracellular fluid mass ratio in females were higher than males (each data of males was 19.29%, 3.80%, 1.80; each data of females was 24.17%, 0.89%, 0.90), while other indexes were opposite. The body composition indexes weren't different between group-1 and control group, especially in females. The group-2 students' lean body mass, muscle mass, body fluid mass, intracellular fluid mass, extracellular fluid mass, protein mass were much higher than other two groups, especially in males. Other indexes had an increased trend, without statistical significance, maybe because of stopping endurance training and unhealthy life style.
Conclusion: Long-term endurance training seemed no significantly better effect on body composition in college students, and all body composition indexes had an increasing trend after stopping endurance training.

P35

Experimental Research on the Changes of Skeletal Muscle Ultrastructural After Repetitive Motion

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Objective: This paper aims to examine the changes of skeletal muscle ultrastructure after repetitive motion.
Methods: 72 male Wistar rats were randomly divided into two groups: one econcentric exercise group, which means repetitive exercise group, performed a down- hill run exercise once. Biopsies were taken from the quadriceps femoris separately right after the econcentric exercise and at 24th, 48th, 72rd, 120th, and 148th hour, and right after the final repeat exercise on the seventh day.
Results: The microscopic damage to quadriceps muscle ultrastructure evolved aggravation right after the one time econcentric exercise, and at 24th and 48th hour. It recovered to the pre-exercise level 168th hour after the exercise. The damage to the quadriceps muscle ultrastructure showed the same pattern right after seven times econcentric exercise at 24th h. However, it did not completely recover to the pre-exercise level 168th h after the exercise. The damage to the quadriceps muscle ultrastructure in the one-week-repeat-exercise group was more serious than the one time econcentric exercise group at each time interval.
Conclusion: There was a delay phenomenon in the skeletal muscle damage caused by repetitive motion. Skeletal muscle damage was not serious immediately after a single econcentric exercise, but the damage became apparent 24th h after exercise, and reached peak at 48th h. The damage recovered seven days after the exercise. Continuous repetitive exercise leads to cumulative-effect damage to skeletal muscle fibers.

P36

The Effect of Aerobic Dance on the Changes of Body Composition in Female College Students

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Objective: This research analyzed the changes in body composition index and body appearance before and after experiment through aerobic dance and nutrition control.
Methods: Thirty female students (18–22 years, average height 161.8 cm), who are not majored in PE (Physical Education), were selected from Beijing Normal University. After health exam and body composition index examination using Biospace InBody 3.0, they were pursing 8-weeks aerobic dance exercise (70-80% VO_{2max}), and the nutrition control were conducted. Changes in height, body weight, body mass index (BMI), and lean body mass etc were compared before and after experiment.
Results: After 8-weeks aerobic dance exercise the students' body weight decreased, but lean body mass (37.68±7.36 kg) increased (40.33±7.95 kg). Body mass index (62.33±2.36 kg) reduced after experiment (56.56±3.38 kg) ($p<0.05$). FFT increased, but BMI (24.32±2.37 kg/m^2) reduced after training (22.35±3.21 kg/m^2) ($p<0.05$).
Conclusion: Aerobic dance exercise can help maintain the bodybuilding in female students.

P37

Exercise Prescription Intervention on College Students' Physical Health Impact Study

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Objective: Explore the different exercise prescription intervention for college students, enhance the effect of physical exercise and provide certain theoretical guidance and help for college students.
Methods: A total of 90 students were equally divided into three groups: control group, experimental group One and Two. No intervention was adopted in the control group. Experimental group one primarily adopted ball games, 4~5 times per week, 90 min/times, the highest heart rate athletic intensity is 60%~80%. Experimental group Two adopted jog, 6~7 times per week, 60 min/times, the highest heart rate athletic intensity is 50%~70%. Experimental period lasted for four months. Stamina diathesis, power quality, vital capacity, weight, height were collected. SPSS 17.0 was used for data analysis.
Results: Before and after the experiment indices, there were significant difference ($p<0.01$) in experimental group One, Two and control group.
Conclusion: Exercise can effectively improve students' physique.

P38

A Study on the Recovery of Acute Skeletal Muscle Blunt Injured Rats Using Basic Fibroblast Growth Factor Modified with Magnetic Nanoparticles

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Objective: To study the effect of magnetic nanoparticles modified with BFGF (Basic Fibroblast Growth Factor) on the recovery of acute skeletal muscle blunt injury of Wistar rats.
Methods: Immunochemical coupling technologies were used to make magnetic nanoparticles modified with BFGF. The acute skeletal muscle blunt injury model was established. Muscular contractility and stress relaxation were measured and calculated. Real-time fluorescence spectrometry quantitative polymerase chain reaction (PCR) was adopted to determine the MHC-IIb mRNA expression of the rats' gastronomies.
Results: At day 17 and 24, BFGF obviously elevated the muscular contractility of the skeletal muscle blunt injure in Wistar rats. The magnetic nanoparticles modified with BFGF made the stress relaxation restore close to normal muscle level 2 days after the injury. The magnetic nanoparticles modified with BFGF elevated the muscular contractility more obviously ($p<0.05$, at day 17). The expression of MHC-IIb mRNA between the magnetic nanoparticles modified with BFGF group and other groups is significantly different ($p<0.05$) 2-10 days after the injury.
Conclusion: The magnetic nanoparticles modified with BFGF can obviously ameliorate the muscular contractility and stress relaxation after the skeletal muscle contusion, improve the MHC-IIb mRNA expression of injured muscle and promote better recovery of the injured muscle.

P39
Body Mass Index and Physical Fitness Evaluation of the Aged
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Objective: To investigate the effect of BMI on the physical fitness evaluation of the elderly people and the BMI grouping criteria.
Methods: 170 workers aged 55-81 years old in Wuhan City in China were analyzed. Variables collected included height, weight, waist circumference, blood pressure, and skinfold-thickness measurement.
Results: 1. BMI was highly correlated to body fat percentage and lean body mass. Significant difference were found in body fat, body fat percent, lean body mass, in different degree of obesity group ($p<0.01$). Compared with non-obese subjects, Obese men and women had higher waist circumference ($p<0.001$). Obese subjects had significantly higher systolic and diastolic blood pressure than normal weight subjects.
Conclusion: BMI is appropriate to define obesity.

P40
Experimental Research of Physical Exercise Homework on Reducing BMI in Middle School Students
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Objective: To research the effects of Physical Exercise (PE) homework on reducing body weight in obese middle school students.
Methods: 300 students (150 boys and 150 girls) from five high schools at Chang Zhou, Jiang Su Province are tested. All subjects are in good health condition without pre-existing diseases or hereditary diseases. The 300 subjects are divided into experimental and control group with equal number of 150. The PE homework mainly comprises of physical exercises such as jogging, rope skipping, leg rise in situ, etc. The subjects were required to complete two of the items above within ten minutes, and to fill in the cards of PE homework every time. No experimental stimulus is applied to the control group.
Results: The mean BMI of the students in the experimental group is significantly reduced and the change in the BMI of boys is of significance ($p<0.05$) and that of girls is of great significance ($p<0.01$). There is no significant change ($p>0.05$) in the BMI of students in the control group.
Conclusion: BMI of obese students significantly reduces, and the weight of obese middle school students is effectively controlled through PE homework.

P41
Investigation of Physical Exercise and Psychological Health in University Students
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Objective: To examine the relationships between physical exercise and psychological health in university students.
Methods: We conducted survey in 8 universities in Zhejiang Province for the situation of physical exercise and psychological health by using the symptom checklist (SCL-90), emotion stability scale (ESS v 3.0) and physical activity rating scale-3 (PARS-3), then applied statistical methods to analyze the data.
Results: From 892 questionnaires obtained (female: 47.2%), we find that students show high prevalence of psychological health problems. Significant differences exist in different gender ($p<0.05$) and grade ($p<0.01$). The psychological health status, e.g. depression and anxiety, of females are worse than males. The health level decreases for seniors as compared to freshman. 53.0% of the respondents have moderate ($20\leq$PARS-$3\leq42$) and high (≥43) physical activity, and they show significant difference ($p<0.01$) in mental health as compared to students with less exercise (≤19). The strong correlation suggests that physical exercise can indeed improve psychological health. We find that the attitude and adherence are important for physical exercises, which could enhance social activities and lead to further improvement of psychological health status.
Conclusion: Physical exercise is an effective way to improve the psychological health. Persistence in physical exercise in daily life has a positive and important regulatory role on psychological health.

P42
Study of Physical Exercise, Lifestyle and Health Status in University Teachers
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Objective: To investigate the health status, physical exercise and lifestyle among college teachers.
Methods: We did questionnaire survey in eighty colleges and universities in East China. Statistics method was applied to analyze the data and compared to literature.
Results: A total of 80 questionnaires were collected (46% females and 54% males). Age ranged from 26 to 57 years old (19% less than 30 years old, 34% between 30 and 40, 31% between 40 and 50, and 16% greater than 50). The survey showed that they understood the positive effect of physical exercise on health. However, their physical practice was limited by physical and mental fatigue induced by heavy workload. We found that lack of physical exercise and incorrect lifestyle are the main factors leading to poor health.
Conclusion: College teachers should enhance their physical activity based on individual features.

P43
The Correlation among Dietary Habits, Unidentified Complaints and the Knowledge of Nutrition in Elementary School Children
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Objective: The present study aims to clarify the correlation among dietary habits, unidentified complaints and the knowledge of nutrition in elementary school children.
Methods: A questionnaire survey was carried out at two elementary schools in 2004. A total of 458 males and 443 females were included in our analyses. A chi-square test and cumulative logistic regression analysis was applied for data analysis.
Results: Lifestyle was significantly correlated with unidentified complaints. Compared with children who had breakfast every day, the odds ratio for not having breakfast was 2.9 in males, and 4.2 in females. In addition, the scores of children who had regular dietary habits were higher than those who had irregular habits. Children who had breakfast everyday had higher scores on the knowledge of nutrition compared with those who skipping breakfast (odds ratio=3.70).

Conclusion: We concluded that dietary habits are imported parts of the lifestyle among children and it is possible to reduce unidentified complaints through modifying disordered dietary habits. Furthermore, it was suggested that the knowledge of nutrition could facilitate the improvement of the dietary habits.

P44

Influence of Physical Exercises on Body Composition in Obese People

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Objective: To investigate whether physical exercise influences trunk girths and body skinfolds of obese people.
Methods: Stratified cluster and random sampling was taken in residents of 33 provinces in China in 2005. Information of physical exercises and data of anthropometry were obtained through questionnaire and anthropometric measurement. Data from 8246 obese people (age: 20-49 y, BMI: 28-42 kg/m^2) was divided into two groups. One group was those who have physical exercises and the other group was that lack of physical exercises (less than once a week). Independent samples group *t* test using SPSS 15.0 software package was used to analyze their chest girth, waist girth, gluteal girth, triceps skinfold, subscapular skinfold, abdominal skinfold and BMI.
Results: Chest girth, gluteal girth, triceps skinfold, subscapular skinfold, abdominal skinfold and BMI had no significant differences in both groups. However, the waist girth in the physical exercise group reduced significantly, which were 0.7 cm in men ($p<0.001$) and 1.2 cm in women ($p<0.001$).
Conclusion: Physical exercises have a positive effect on distribution of body composition but not simply consume fat. Physical exercises can control the central obesity to a certain extent.

P45

Effect of Tai Chi Fan Exercise on Cardiovascular Function in Older Women

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Objective: To study the effect of Tai Chi Fan activities on physical and cardiovascular system in elderly women.
Methods: 30 elderly females (age: 50-60 y, Tai Chi Fan exercise for more than 3 years) and 20 matched female controls (age: 50-60 y, perennial irregular exercise) served as participants. Heart function, atherosclerosis index in the rest and after the quantitative load were tested between two groups.
Results: During the rest time, Stroke Volume (SV), Stroke Index (SI), Acceleration Index (ACI) of the experimental group were significantly greater than those of control group ($p<0.01$); The end of the first minute and the end of the sixth-minute after the quantitative load, the recovery of all indicators in the experimental group were significant ($p<0.01$); However, the recovery of SV, SI, Systemic Vascular Resistance (SVR), Systemic Vascular Resistance Index (SVRI) were not significant in the control group ($p>0.05$). In the rest state, Right- brachial-ankle Pusle Wave Velocity (R-baPWV) and Left- brachial-ankle Pusle Wave Velocity (L-baPWV) of the experimental group were significantly less than those of the control group ($p<0.05$).
Conclusion: Long-standing practicing Tai Chi Fan could enhance the heart function and improve the elasticity of blood vessels in older women. Tai Chi Fan exercise may play an important role in enhancing cardiovascular function in the elderly.

P46

Effect of Regular and Reformed Physical Education on Obesity Prevention among Teenagers – A Prospective Study

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Objective: This study aims to investigate the effects of regular physical education and the reformed physical education on obesity prevention among teenagers at school.
Methods: Experimental research was applied. Obese teenagers were divided into the experimental group and the control group. Each group has 35 teenagers. Teenagers in experimental group followed the traditional ways of doing sports under the previous school physical education mode. The latter adopted the altered or reformed ways which comprised the change of intensity, pace and the subject feeling. After 3 months, weight, height, lung vital capacity and step exponent were measured. Data analysis was performed through SPSS 17.0.
Results: There was a great difference between the teenagers in experimental group and control group in terms of indexes weight, lung vital capacity and step exponent, except for only a slight difference in height. The total weight in 35 teenagers in experimental group reduced 16.7%, vital capacity improved 9.37% and steps index scores increased 12.3%.
Conclusion: Proper and scientific sports activities can help obese teenagers built healthy body and mind. So the reform of school physical education should strive for well designed sports program that will change the traditional sports mode (sports event, time period and intensity) to effectively improve the physique of teenagers.

P47

Research on Effects of the Sports and Nutrition on University Students' Physical Fitness

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Objective: As there are more and more overweight university students, studying the effect of sports and nutrition on their physical fitness will promote the students' health.
Methods: Empirical study, 80 overweight university students adopted specific ways of doing sports, nutrition and diet plan (sorts of foods, amounts and sorts of foods per week, schedule of diet and eating satisfaction) for 20 weeks (4-5 times/week, 90 min/time, the highest cardiac rate 60%-80%).
Results: The total weight of obesity college student decreased 16.4% and BMI decreased 5.5%. They become more nimble and can better control the body, which further improves their flexibility and endurance.
Conclusion: It is proper for overweight students to adopt varied sports activities with middle or high intensity. At the same time, scientific nutrition and diet plan is also necessary. In the early stage, the plan should concentrate on reducing fat and weight, aiming for increasing the flexibility and endurance. In the following days, more training on improving the power of muscle and speed will be needed to promote the overall physical fitness.

P48

Cardiorespiratory Fitness and Moderate-to-vigorous Objectively Measured Physical Activity are Associated with Overweight and Obesity in Children

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Objective: Our purpose was to examine the relationship between Cardiorespiratory fitness (CRF) and objectively measured moderate-to-vigorous physical activity (MVPA) with overweight/obesity in children.
Methods: A total of 46 boys and 71 girls (9-11 years) were assessed for body mass index (BMI) and dichotomized into normal or overweight/obese according to Cole age-gender specific cut-offs. MVPA was assessed using objective data with accelerometers (Actigraph-GT1M). CRF was indirectly determined using a maximal ergometer cycle test. Binary logistic regression was used.
Results: Mean BMI was 22.2±4.2 kg/m^2 (boys) and 20.2±3.7 kg/m^2 (girls). Prevalence of overweight/obesity was 67.4% (boys) and 43.7% (girls). Logistic regression showed that OR of overweight/obesity decreased 21.2 % with each unit (ml/kg/min) of CRF (p<0.001). Another logistic analysis demonstrated that, OR of overweight/obesity reduced 3.0% with each minute of MVPA. When MVPA and CRF were included in the same model, CRF was the only significant predictor of overweight/obesity, the risk reduced 19.9% with each unit (ml/kg/min) (p<0.001). All models were adjusted for gender.
Conclusion: Independently of time spent in MVPA, higher CRF is associated with a lower risk for overweight/obesity highlighting the importance of physical fitness promotion in school-aged children.

P49

Cardiorespiratory Fitness Changes Predict Waist Circumference Changes in 10 to 17 Years old Girls and Boys

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Objective: To examine the role of physical activity (PA) and cardiorespiratory fitness (CRF) on waist circumference (WC) and metabolic cluster (MC) changes over a 7-year follow-up in a paediatric population.
Methods: A cohort of 131 children (70 girls, 61 boys) at age 10 (9.8±0.3) completed a baseline and follow-up evaluation at age 17 (17.0±0.4). CRF was assessed during an incremental multistage bicycle test to exhaustion and PA was measured directly with accelerometers. Mean arterial pressure (MAP), high-density lipoprotein cholesterol (HDL-C), triglyceride (TG), and fasting glucose were analysed. MC was constructed as the Z-score average of WC, MAP, fasting glucose, HDL-C *(-1), and TG. Comparison of means and linear regression analysis were used for data analysis.
Results: CRF explained 41% of the total variance in WC changes (p<0.01). Adjusting for PA, gender and maturation changes, CRF remained a significant predictor of WC changes (β=-0.385, p<0.01). No significant correlations were found between CRF and blood lipids, glucose, and MAP. In a multivariate analysis including both, PA and CRF, PA changes was not related to WC changes.
Conclusion: CRF but not physical activity is a good predictor of abdominal fatness, from childhood to adolescence, though not for other biochemical and MAP risk markers.

P50

Comparison of Body Composition Difference between Physical Education Major and Non-Physical Education Major Students

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Objective: To examine the effects of physical activity on students' body composition.
Methods: Comparative analysis of body composition between physical education (PE) major and non-PE major students using Bioelectrical Impedance.
Results: Weight, body fat, body fat percentage, BMI and fatness degree in male students with PE majors are significantly higher than those of non-PE major students (p<0.05). The weight, BMI in female students with PE majors are significantly higher than those of non-PE major students (p<0.05), however, body fat, body fat percentage, and fatness degree are not different (p>0.05).
Conclusion: The long-time involvements in physical exercise can reduce the students' weight and BMI, and improve body non-fat composition.

P51

Correlations between Height, BMI and Physical Self Satisfaction in College Students

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Objective: To investigate the relationships between heights, body mass index (BMI) and physical self-satisfaction among College students through the study on college students' height and BMI.
Methods: The physical self-scale was used to measure 528 College students' height and weight.
Results: Boys' overweight, prevalence rate of obesity, height, weight satisfaction are higher than Girls'; there are significantly positive correlations between height and height satisfaction, movement and body shape (p<0.01); there were significant differences in height satisfaction, movement and body shape between the shorter students and the taller students (p<0.01); there were significantly negative correlations between BIM and height satisfaction and body shape (p<0.01); there were significant differences in weight satisfaction, movement, body shape among normal, overweight, and obese students (p<0.05).
Conclusion: Height and BMI have an effect on the self-satisfaction in College students. Strengthening health education and physical activity are a good way to improve self-satisfaction and personality among students.

P52

The Effects of Rational Diet and Physical Exercise on Body Composition and the Constitution of College Students

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Objective: Lack of essential nutrients and physical exercise over a prolonged period might greatly impair the body composition and the growth and development of college students.
Methods: Documentation: Questionnaire: 800 male college students were investigated and 768 questionnaires were valid, the ratio of callback valid is 97.34%. Conformity with principles of questionnaire designs, and filtered with Delphi method. The reliability and validity are 0.86 and 0.77; Tracking investigation: recorded Daily Dietary Nutrition of 160 male college students selected randomly from Shaanxi

Normal University for a week; Mathematical statistics and logic analysis: Analyzed the Physical Fitness of 160 samplings with state standard in 50 meter dash,1000 meter race, sit-and-reach, meanwhile recorded their Daily Dietary, and calculated the intake nutrients. Finally this study comprehensively evaluated the results.
Results: Based on the criteria for sports population of china in 1996, then counted the students met the criterion. The ratio was only 34.25%, which even lower than 2002 national sports population, which was 35%. The results also showed that the dietary intake of college students in our university generally doesn't reach the nutrition supply standard recommended. Fe and VB1 are sufficient for needs. In other words, the intake of protein, vitamin A, vitamin B2, vitamin C, and Ca is in severe deficiency. Students' energy generated from absorb nourishment are 2145.97 Kcal, a little bit more than 1609.67 Kcal, the amount of energy required to maintain the essential or minimal life activities.
Conclusion: A life style of "sports plus nutrition" is one of the most effective way to improve the body composition and then to enhance the students' physical constitution.

P53
Establishing Equation of Oxygen Consumption for Obese Adolescents' Physical Activity
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Objective: Establishing prediction equation of oxygen consumption of physical action in obese children and adolescents.
Methods: Subjects were 60 obese children (referring to national BMI reference norm for the overweight and obesity in Chinese children and adolescents) and adolescents aged 11-16 years and randomly divided into the formula group (n=40; male: 169.82±56.49 cm, 88.22±19.07 kg; female: 156.46±5.01 cm, 74.19±15.55 kg) and back substitution verification group (n=20) (equal, male and female). Subjects exercised in treadmill with the speed of 2 km/h, 6 km/h, 8 km/h and 0 gradient. Each load increased after 5 minutes exercise. Meanwhile we measured gaseous metabolism parameter and heart rate (HR), then set up multiple linear regression equation of oxygen consumption and make back substitution verification.
Results: Males' R^2 is 0.803 and females' R^2 is 0.761 in regression equation; oxygen consumption has a linear relationship ($P < 0.001$) with HR and body weight (BW); Variation coefficient and constants are significant, the regression equation for male: oxygen consumption (ml/min)=19.465×HR (bmp)+23.237×BW (kg)-2847.835; Female: oxygen consumption (ml/min)=19.903×HR (bmp)+25.654×BW (kg)-2596.486. The predictive value of oxygen consumption of the average relative error is 7.32%~8.98% in males, and 7.15%~9.02% in females.
Conclusion: Taking HR and BW as independent variables to establish the multiple regression equation of oxygen consumption can be applied to calculate the oxygen consumption of obese adolescents' physical activity.

P54
The Effect of Long-term Taijiquan Practice on the Lipid Metabolism and Hormone Levels among Obese University Students
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Objective: To explore the effects of long-term Taijiquan practice on the lipid metabolism and hormone levels of obese university students, and provide a theoretical basis for reducing weight and WuShu fitness.
Methods: 40 obese university students were randomly divided into experiment group (EG) and control group (CG), each had 10 males and 10 females. Obesity was defined as BMI≥30 according to the world health organization (WHO). EG practiced Taijiquan with appropriate intensity, 30 min/day for 20 weeks, the other group CG did nothing. Body components, blood-lipid, insulin and leptin were measured before and after experiment. Body fat was measured by Biospace Inbody3.0 Body Composition Analyzer made in South Korean.
Results: 1) Weight (76.53±6.17 kg vs. 71.30±5.76 kg, $p<0.01$) and body fat (31.47±1.69 kg vs. 28.9±1.56 kg, $p<0.01$) reduced significantly among women in EG, and the results were similar in men (weight: 87.77±8.24 vs. 80.52±6.63, $p<0.01$; body fat 32.85±1.31 kg vs. 28.9±1.18 kg, $p<0.01$). 2) The concentration of total cholesterol, triglyceride, low-density lipoprotein reduced significantly ($p<0.01$), the concentration of high-density lipoprotein increased significantly ($p<0.05$) in EG group. 3) Blood-insulin and leptin reduced significantly ($p<0.05$) in EG group.
Conclusion: Long-term Taijiquan practice improves the components of blood-lipid, promotes the fat catabolism, adjusts the endocrine, and is helpful for health, fitness and losing weight.

P55
The Effects of Aerobic-exercise on the Rat's Plasma during the Development of Atherosclerosis
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Objective: To explore the effects of aerobic-exercise (swimming) on Carbon Monoxide (CO) and Cyclic Guanosine Monophosphate (cGMP) of the rat's plasma during the development of atherosclerosis (AS); To investigate the changes and correlations of CO-cGMP for looking for the possible mechanisms that CO works, thus to provide a theoretical basis for aerobic-exercise preventing atherosclerosis development.
Methods: 30 Sprague-dawley healthy male rats were randomly divided into 3×10 groups for 8 weeks experiment, one is the control group (CG), one is the atherosclerosis group (ASG) with high-fat diet, another one is the aerobic-exercise group (AEG) that the rats swum 60 min everyday with high-fat diet. The content of CO and cGMP of the plasma were measured before and after the experiments.
Results: 1) The content of CO and cGMP of the ASG significantly increased ($p<0.05$); 2) The content of CO and cGMP of the AEG lowered significantly than the ASG ($p<0.05$); 3) The changes of CO in the plasma were positively correlated with the changes of cGMP (correlation coefficient, r=0.84).
Conclusion: The content of CO and cGMP in plasma increase during the development of atherosclerosis; Aerobic-exercise may reduce the content of CO and Cgmp;

CO-cGMP pattern may be one of the mechanisms that CO works

P56
The Effects of Aerobic-exercise on the Cardiovascular System of Senior and Middle-aged People
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Objective: To explore the effects of Aerobic-exercise on the functions of cardiovascular system in senior and middle-aged subjects, and to provide a theoretical basis for Seniors and Middle-aged participating in Aerobic-exercise for health.
Methods: 30 healthy people (aged 50-75 years) were selected to participate in Aerobic-exercise for 8 weeks, 5 days every week, 45 min every day, before and after experiment some indicators of heart, blood and lipid were measured to be compared and analyzed using statistical methods.
Results: 1) Pulse rate, pulse pressure, systolic pressure, diastolic pressure, heart oxygen volume, left heart effective pump decreased, but no significance ($p>0.05$). while the cardiac output, stroke volume, stroke index, cardiac index increased significantly ($p<0.01$); 2) No significant difference in the change of blood indicators blood restore viscosity, fibrinogen, plasma viscosity, mico-cycle stagnation time, erythrocyte aggregation index, thrombus forming coefficient, while the hematocrit and blood viscosity increased significantly ($p<0.01$); 3) The concentration of triglyceride and cholesterol lower significantly than before experiment ($p<0.01$), the concentration of high-density fatty protein higher significantly than before experiment ($p<0.01$).
Conclusion: Aerobic-exercise improves the function of cardiovascular system in seniors and middle-aged people. Aerobic-exercise improves the blood viscosity to prevent the hyperviscosity syndrome in seniors and middle-aged people.

P57
Experimental Research on the Influence of Aerobics on the Body Compositions in the Elderly
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Objective: The health of the aged goes worse as they get older and older. A harmonious society needs healthy old people, and the aged should have athletic sports, in particular aerobics, to get healthy.
Methods: 120 old persons that often do morning or evening exercise are selected for experimental research in two groups, including 64 men and 56 women. The average BMI is 26.3; the average weight of the men is 70.6 kg, and the average weight of the women is 65.2 kg. The test stimulus is fitness walking and shadow boxing. During the experiment, the subjects are instructed to walk for fitness and perform shadow boxing correctly. Subjects are advised to exercise strictly according to the experimental requirements.
Results: According to the results, there is a significant variance in weight between the two groups ($p<0.05$); There is a highly significant variance in body fat mass and body fat percentage between the two groups ($p<0.01$); There is no significant variance in BMI between the two groups.
Conclusion: Aerobics is the best for the aged because it may reduce the body fat mass and the body fat percentage.

P58
Study on the Effect of Yoga Exercise on Weight Loss in Obese College Students
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Objective: To investigate the effect of yoga on obese college students.
Methods: Twenty obese students from Jianghan University were enrolled in this study (10 boys and 10 girls; BMI range: 27~35). Individually adjusted Yoga was taught among students for a semester (three times a week, 90 minutes every time), and psychological assistance was applied at the same time. BMI was examined during the semester.
Results: The effect of weight loss on girls was better than in boys. BMI decreased to range 23.5~27.3 from baseline 30.1~34.5 after yoga exercise in boys. In girls, BMI decreased to range 22.3~25 from baseline 25.8~30.2. By the psychologically assisted teaching, the psychological limit carrying capacity of the students was strengthened so that their reduced BMI maintained well.
Conclusion: Yoga exercise could improve the figure of obese students and help to lose weight. To maintain their BMI, continuous mental adjustment and control should be applied as an assisted method.

P60
Research on Relationship between Diet and Physical Exercise for Youth's Sub-health
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Objective: A balanced diet and regularly physical exercise are the keys to prevent and recover youth from sub-health conditions.
Methods: From March to August, 2010, 597 male and 603 female subjects aged 25-39 years old were randomly recruited in 9 Urban District of Xi'an. They were interviewed and investigated by questionnaire on the issues involved health condition, daily diet and physical exercise. The response rate was 100%. Mathematical statistics and logic analysis were performed to analyze and evaluate the valid questionnaires.
Results: This research has revealed that 942 youth are under sub-health condition, accounting for 78.50% of the total samplings; only 243 persons maintain a balanced diet, just occupies 20.25% of investigation number. According to the criterion of standard sports population (≥30 minutes of moderated-intensity physical activity on ≥3 days/week), 45 persons are up to the standard, only in 1.8% of all samplings, much lower than 35%, the proportion of 2002 national sports population. Genetic transmission, environmental pollution, overworked, mental stress and poor health habit are very much to blame for sub-health. But in this research, the result shows that 95.32% respondents take lack of exercise and 89.53% consider unbalanced diet as the principal causes affecting their health.
Conclusion: This study proves that unbalanced diet and lack of exercise are the vital contributors to our health.

P61
Body Composition and External Motivation for Causality of Exercise
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Objective: To determine the impact of body composition assessment as a potential motivational tool and determine if withholding initial body composition assessment scores could impact body fat and perceived motivation for exercise.
Methods: One hundred and twenty four health education students (age: 19-32 y) were measured by air displacement plethysmography BOD POD® at the beginning of a semester long, lecture based course. Group 1 received initial body fat scores (IPF) and Group 2 did not (NPF). All were informed of the 16 week post-assessment. Lastly, subjects completed a locus of causality for exercise (LCE) to determine perceived exercise causality and estimate internal motivation.
Results: IPF group revealed a pre-score of 25.56% and a post of 25.39% and the NPF group had a pre-score of 26.98% and a post of 26.01%. Both groups revealed a slight reduction in body fat (p=0.17), but no significant difference between groups (p=0.21). LCE for the non-informed group (5.42±0.71) was greater, albeit not significant (p=0.09) than LCE values for the informed group (4.75±0.86).
Conclusion: The body composition assessment may have acted as an external motivator. The LCE indicates that all were motivated to exercise and the NPF group scored higher with internal motivation, albeit not significantly higher.

P62
Effect of Tai Chi Chuan Exercise of Chen Style Xin Yi Hun Yuan on Cardiovascular Function for Middle-aged People
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Objective: This study was to test cardiovascular function for the middle-aged people who had practiced Chen Style Xin Yi Hun Yuan Tai Chi Chuan (XYHYTCC) and to provide scientific basis for preventing cardiovascular diseases by exercise.
Methods: Ten subjects aged 54±6 years old had practiced XYHYTCC with exercise intensity ranged 45-55% of maximum heart rate. They exercised 5 times each week at least and about 50 min each day. Their cardiovascular function was analyzed before and after practicing XYHYTCC for one year.
Results: After practicing their vital capacities were much larger than before. There were significant decreases in their heart rate, blood pressure, cardiac index, weight index number and body fat%. The concentrations of cholesterol, triglyceride and low density lipoprotein cholesterol in plasma were decreased and the level of high density lipoprotein cholesterol was increased markedly.
Conclusion: Practicing XYHYTCC can significantly improve cardiovascular function and body composition, and prevent cardiovascular disease for the middle-aged people.

P63
Effect of the Diabolo Exercise on Aged Women
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Objective: The Diabolo refers to a kind of toy that hums when spins. Diabolo exercise is a traditional form of Han folk acrobatics found especially in the north of china. This study is to observe the effect of Diabolo exercise for 6 months on aged women's constitution, and provide scientific basis for aged woman to select the effective exercise.
Methods: Sixty-three female aged 47-69 years old were recruited. This study selects 32 aged women of their own accord to join Diabolo exercise as experiment object, 31 aged women who participated in the exercise not in regular as the contrast group. It use experiment contrast method. The study tests waist circumference, body fat percentage, vital capacity, blood pressure, body ante flexion when sitting and single leg standing when closing eyes. The body fat percent was tested by domestic ohm dragon HBF-301; other body composition indices were collected according to "the standard of National Physique Examination".
Results: After 6 months, the experimental group' waist circumference decreased from 88.1±8.5 cm to 85.6±6.89 cm; and their vital capacity increased from 2286±199 ml to 2732±206 ml. The exponent of strength of grasp and single stand with eyes closed increased from 31.0±4.9 kg to 34.4±4.1 kg and 17.3±4.6 to 21.6±4.2, respectively. There were no significant difference of other index between the experimental and control group.
Conclusion: Diabolo exercise has a good effect on reducing obesity and improving the function of the cardiovascular system for aged women.

P64
The Effect of Shadowboxing Exercise on Lipid Metabolism of Middle-aged and Elderly Women
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Objective: To observe the effects of shadowboxing exercise on lipid metabolism and antioxidation among middle-aged and elderly women.
Methods: After physical examination, 48 women between fifty and sixty in Qinhuangdao are chosen and randomly separated into shadowboxing exercise group (group S) and the control group (group C). Group C takes no exercise; group S takes 10 months' 42-type shadowboxing exercise, 40-60 minutes/time, 5-7times/week. During the experiment, their diet and other living habits have no obvious change. Before and after the experiment, blood is drawn in the morning to measure the concentration of TC, TG, HDL-C, LDL-C and LPO, and compare the change of SOD activity and SOD/LPO ratio content in the erythrocyte.
Results: Compared with group C, in group S: (1) TC, TG, and LDL-C level respectively decrease by 8.1%, 20.6% and 14.7%, which has significant difference (p<0.05); HDL-C level rises by 18.3%, which has significant difference (p<0.05). (2) SOD activity rises by 20.5%, which has significant difference (p<0.01); SOD/LPO ratio rises by 41.7%, which has significant difference (p<0.05).
Conclusion: Long-time regular shadowboxing exercise can decrease TC, TG and LDL-C level in serum, raise HDL-C

content and improve SOD activity, which has significance in decreasing blood lipid and antioxidation.

P65
Effect of Aerobic Exercise on Endothelin-1 Release and Blood Lipids in Senile Hypercholestrolemia
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Objective: To examine the effects of aerobic exercise on Endothelin-1 (ET-1) and Blood lipids in senile hypercholesterolemia.
Methods: Thirty subjects aged 60±6 years old were divided 3 groups: normal control group without hypercholestrolemia (NC); atherogenic diet group with hypercholestrolemia (AS); atherogenic diet with hypercholesterolemia, 1 hour swimming and lasted for 8 weeks (HE). Blood lipid profiles (TC, TG, HDL and LDL) were measured. Serum ET-1 was measured with radioimmunossay method.
Results: (1) In AS group, TG, TC, LDL were increased ($p<0.05$), but HDL were decreased compared with NC group. In HE group, TC, TG and LDL were decreased ($p<0.05$) whereas HDL was increased compared with AS group. (2) Endothelin-1 was increased in the serum of AS compared with NC group ($p<0.05$) whereas endothelin-1 were decreased in HE group compared with AS ($p<0.05$). (3) ET-1 and LDL was significantly associated.
Conclusion: Aerobic exercise might effectively reduce the level and influence the metabolism of lipid profile. Exercise training can decrease the concentration of ET-1 significantly through LDL.

P66
Effect of Aerobic Exercise under Different Intensity on Blood Lipids in Senile Hypercholestrolemia
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Objective: To examine the effects of aerobic exercise under different intensity on blood lipids in senile atherosclerosis rats.
Methods: Fifty rats aged 12 months were divided into five groups equally: normal control group (NC), hypercholestrolemia group (AS), hypercholestrolemia with 1 hour swimming (S1), 1.5 hour swimming (S1.5), 2 hour swimming (S2), lasted for 8 weeks. Blood lipids (TC, TG, HDL, and LDL) were measured.
Results: Compared with NC group, TG, TC, LDL in AS group were increased whereas HDL were decreased ($p<0.05$). Compared with AS group, TG and LDL were decreased and HDL increased in S1.0 group ($p<0.05$). There was no significant difference of TC between S1 and AS group. In S1.5 group, TC, LDL and TG were dramatically decreased ($p<0.05$), whereas HDL increased ($p<0.05$). In S1.5 group, TC and LDL were decreased ($p<0.01$) and HDL increased ($p<0.05$). However, there was no significant difference of TG between S2.0 and AS group.
Conclusion: Aerobic exercise might effectively reduce the level of lipid and influence the metabolism of lipid. Especially, aerobic exercise of moderate-intensity can be beneficial to for the prevention of hypercholesterolemia.

P67
The Relationships between Back Strength, Body Mass Index and Waist Circumference
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Objective: To determine the relationship between body mass index (BMI), waist circumference (WC) and back strength.
Methods: A total of 232 healthy ethnic Han men aged 30±5 y were randomly selected. BMI and WC, back strength, and physical fitness variables were collected by anthropometry, back dynamometer and questionnaire, respectively. Multivariable linear regression analysis was used to assess the associations.
Results: In BMI<25 kg/m^2 subjects (n=173), BMI was significantly positively associated with back strength ($p=0.008$), and WC was related to the strength in a borderline significant manner ($p=0.071$); furthermore, the associations were similar (standardization regression coefficient=0.21, $p=0.008$ for BMI and standardization regression coefficient=0.15, $p=0.056$ for WC) after adjustment for age and physical fitness. In BMI≥25 kg/m^2 (n=59), no associations were observed after controlling confounding factors ($p=0.33$ for BMI and $p=0.42$ for WC).
Conclusion: Our results suggest the positive effects of BMI and WC on back strength in normal BMI men. Although increased BMI and WC reflect increased body fat and high body fat has adverse influence on strength, the appropriate increase in BMI and WC may be beneficial to strength.

P68
Analysis of Blood Biochemistry of Lion-Dance Athletes in Various Training Stages for Game
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Objective: Scientific and rational training is a key for the Lion-Dance athletes to ensure their high quality of physical and skills. In this study, we aimed to test and analyze blood biochemistry traits of the Lion-Dance athletes in the various training stages, which can provide theoretical and practical references to the training and competition.
Methods: The nine Lion-Dance athletes' (male, age 20.2±1.1, height 168.8±4.8 cm, weight 63.2±3.8 kg) blood parameters, such as haemoglobin (Hb), RBC, serum testosterone (T), serum cortisol (C), BUN, creatine kinase (CK), were tested respectively in preparation (I), large amount of exercise (II) and high-intensity (III) stages. All statistical analyses were performed by SPSS10.0.
Results: The significant decrease in Hb and RBC in stage I was observed with comparison to the ones in stage II. Although Hb and RBC still decrease in stage III, the ratio of decreasing amount becomes weak. T, C and CK keep increase during the whole stages. BUN increases from stage I to stage II, while it turns to decrease from stage II to stage III.
Conclusion: Typical change in blood biochemistry traits of the Lion-Dance athletes, such as Hb, RBC, T, C, BUN and CK, can be observed. By the test and analysis of these sensitive and key parameters, the important information can be obtained to improve the Lion-Dance athletes' training levels, evaluate their physical status and prevent the corresponding sport injuries.

P69

The Relation of Body Fat Parameters with Maximal O_2 Pulse

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Objective: O_2 pulse during maximal exercise is an important parameter that reflects exercise energy consumption. Obesity individuals have lower athletic ability and are more susceptible to fatigue than normal those during exercise. The study investigated whether body fat parameters have effects on maximal O_2 pulse.
Methods: Cross-sectional study. 176 ethnic Han healthy men aged 30±5 y. Body fat parameters (by anthropometry), maximal O_2 pulse measured through maximal treadmill tests (by computerized metabolic measurement cart), and confounding factors (by questionnaire).
Results: Body mass index (BMI), waist circumference (WC), and abdomen skinfold thicknesses (AST) were all strongly associated with maximal O_2 pulse (r=0.42, p=0.005; r=0.51, p<0.001; and r=0.41, p=0.005, respectively) in subjects with BMI≥25 kg/m^2, independently of age, physical activity, and smoking. In BMI<25 kg/m^2 subjects, the positive associations of BMI and WC with O2 pulse were significantly attenuated (r=0.14, p=0.11 for BMI and r=0.17, p=0.05 for WC), while no association was found in AST (p=0.49).
Conclusion: Increased body fat may markedly increase O_2 pulse during maximal exercise in overweight men, which suggests more exercise energy consumption and attenuated athletic performance.

P70

Study on Physical Exercises Situation of the Overweight and Obese Middle Aged People in Their Spare Time

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Objective: To explore the effect of physical exercises situation on overweight and obese middle aged people in their spare time.
Methods: According to Chinese obesity association, 24≤BMI≤27.9 kg/m^2 is defined as overweight, BMI≥28 kg/m^2 is obesity. 3000 middle-aged subjects were randomly sampled from four cities of Henan Province from June to August in 2008, among whom 1683 are overweight or obese. Height and weight were measured. Body mass index (BMI) was defined as weight in kilogram divided by height in meter squared.
Results: After research on physical exercises situation of the 1683 overweight and obese middle aged people in their spare time, various physical exercises are taken by the subjects, the frequency (%) from high to low is as following: housework 56.37, listening and watching 48.10, play card and chess 35.78, sleep 25.59, tour 23.31, others 21.68, party 21.17, and sport exercise ranges the last one 16.78. Research on physical exercises situation of the overweight and obese middle aged people in their spare time (%) (n=1683, rate (%)/order): Sport exercise 16.76%/8, play card, chess 35.87%/3, tour 23.13%/5, party 21.17%/7, videos and audios 48.10%/2, housework 56.37%/1, sleep 25.59%/4, others 21.68%/6.
Conclusion: Overweight and obese people are seriously lack of sport exercises.

P71

The Effect of Oxygen Striking Exercise on Body Composition among Female College Students

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Objective: To examine the effect of oxygen striking exercise on body composition in female college students.
Methods: Eighteen female college students were recruited and did oxygen striking exercise three times per week for 12 weeks. Body weight, fat percentage, skinfold thickness, and body fat were measured. The effect of oxygen striking exercise on invisible adiposity among female college was analyzed.
Results: After 12-week exercise, weight, body mass, body fat percentage, body fat mass as well as skinfold thickness of shoulder scapulars decreased. The body lean mass increased. TG and TC did not change, whereas LDL decreased significantly (p<0.05) and HDL increased significantly (p<0.05).
Conclusion: Oxygen striking exercise might have effects on stimulating the body fat metabolism, reducing the blood lipid and improving body shape in college female students.

P72

The Effect of Orange Peel Flavonoids and Vitamin C on the Body Components of Exercise Mice

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Objective: To investigate the effect of orange peel flavonoids and vitamin C on body components and antioxidation function of exercise mice.
Methods: A total of 32 female aged 6 weeks, healthy ICR mice with weight of 14~16 g were selected. All mice were fed with liquid of flavanoid and vitamin C. A swimming exercise mode was created. SOD (Superoxide Dismutase), MDA (malondialdehyde), and SOD/MDA were tested in liver, brain, kidney and muscle.
Results: Compared with normal saline (NS) control group, SOD/MDA index of orange peel flavonoids group, vitamin group and orange peel flavonoids+vitamin C group in heart, liver, kidney, muscle of mice extremely decreased (p<0.05). SOD/MDA index of orange peel flavonoids + vitamin C group is extremely lower than orange peel flavonoids group and vitamine C group (p<0.01).
Conclusion: Our study indicates that sports training, taking orange peel flavonoids and vitamin C might have effects on mice body components. It may improve the aerobic work ability, fatigue tolerance of mice and delay fatigue happening. Furthermore, it can also reduce fatigue after sports significantly.

P73

The Effect of Propolis and Vitamin C Mixture on the Improvement of Motor Function of Mice

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Objective: To establish an animal mode and then study the anti-fatigue effect of propolis and vitamin C mixture on sports training mice.
Methods: Thirty two healthy, male mice, aged 8 weeks with weight of 18~22 g were divide into T, T1, T2, TM. The irrigation experiment was conducted. 3 weeks later, weight, the time exhausting in swimming, the concentration of blood sugar, blood lactic acid, blood urea nitrogen content, the content of hepatic glycogen of mice were determined and analyzed to examine the effect of propolis and vitamin C mixture on the improvement of motor function of mice.
Results: After 3 weeks, the weight of mice increases significantly, among which the propolis + vitamin C mixture group

(TM) increases most. However, during experiment time, the weight of mice doesn't change significantly ($p>0.05$). Compare with T1 and T2 groups which takes propolis and vitamin C respectively, the concentration of blood sugar and liver glycogen in TM group increased significantly ($p<0.05$) while the concentration of blood lactic acid and blood urea nitrogen decreased ($p<0.05$).
Conclusion: Propolis and vitamin C mixture of nutrition might be superior to single supplement propolis or vitamin C on the improvement of motor function of mice.

P74
The Effect of Neil Female Understated and Aerobic Exercise on the Bone Metabolism and Osteoporosis of Mice

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Objective: To examine the effect of Neil female understated and aerobic exercise on the bone metabolism.
Methods: A total of 32 female mice, aged 10 months were selected. With ovaries removed, they were divided them into 4 groups. Group I was fed with Normal Saline. Group II, III and IV were fed one times a week, with the dosage of 1 ml/100 g, 0.1 ml/100 g and 0.1 ml/100 g Nylestriol with the dosage of for 1, 2 and 3 months, respectively. Group IV mice additionally swam three times a week. After the experiment, blood samples were collected in the left ventricular of phosphatase. Bone density (four bridging bone and vertebrae bone) were tested.
Results: (1) Serum calcium and phosphorus ions of mice in group II, III, IV reduced significantly, compared with I group ($p<0.05$), while the content of alkaline phosphatase content obviously increased. Compare with group III, Serum calcium and phosphorus ions of mice in group IV reduced significantly ($p<0.05$), alkaline phosphatase is obviously increased. (2) Compare with group I, the density of four bridging bone and vertebrae bone of group II, III, IV are significantly increased, among which, bone density of Group IV increased the most.
Conclusion: Neil female understated and aerobic exercise has various influences on bone metabolism of female mice whose ovaries have been removed which can delay and prevent osteoporosis.

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Investigation of the Risk Factors for Hypertension among Sport College Students in Jiangxi Province

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Objective: To investigate the risk factors of hypertension in sports college students in Jiangxi Province.
Methods: Using questionnaire survey and blood pressure test 3200 sports college students from14 provincial undergraduate colleges in Jiangxi Province were included. Logistic regression was performed to examine the risk factors of hypertension after adjusting potential confounding variables.
Results: The incidence of hypertension is 4.16%, and the rate of awareness is 11.28%, which is not significantly different between boys and girls. Prevalence of hypertension is significantly higher in senior students compared to freshman and sophomore ($p<0.05$). Although the immediate blood pressure after a dynamic movement with a greater intensity increases 30.5 mmHg for boys and 24.6 mmHg for girls, there is no significant difference between them. The logistic multiple regression analysis showed that the risk factors are family history of hypertension, high salt diet, smoking and drinking.
Conclusion: Family history of hypertension, high salt diet, smoking and drinking were the risk factor for having hypertension in sport college students.

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The Investigation of Body Fat Status in Chinese Women Water Polo Players

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Objective: To investigate characteristics of body fat levels in Chinese women water polo players, to provided data for scientific training.
Methods: Subjects consisting of 64 Chinese women water polo players (age: 18.2±2.3 yr) were divided into three groups according to sports grade: Master Sportsman (MS, n=32), First Grade Sportsman (FG, n=24) and Second Grade Sportsman (SG, n=8). Body weight, height, body mass index (BMI), body fat percentage (%BF), fat mass, and fat free mass were examined. Body composition was analyzed by the Whole-body Air-displacement Plethysmography method (BOD POD). Data were analyzed for each dependent variable by one-way ANOVA and Pearson's correlation.
Results: (1) There was no significant difference of %BF among groups FG, FG and SG 24.0±5.4, 23.6±4.1, 27.2±4.9%. In addition, no significant difference of BMI 22.3±2.4, 21.2±1.7, and 22.4±2.2 kg/m^2 was observed. (2) There was a moderate correlation between BMI and %BF (r=0.44) in all subjects. Correlation coefficients in groups MS, FG and SG between BMI and %BF were 0.52, 0.39 and 0.05, respectively.
Conclusion: BF% might more reliably and truly reflect the obesity status than BMI in women water polo players. Further studies are needed.