

addition, resistance training has been found, among the elderly population, could prove the ability to perform functional tasks and reducing the risk for chronic disease and mortality. as the health industry provides a variety of options for resistance training, some techniques have received more attention than others. In 2003 the United States patent was issued to a Russian inventor created a new apparatus and method for weight training exercise. Known as the Anatoly gravitational system, proponents have suggested that participants can using these techniques lift weights far in excess of those using other methods and can gain strength faster than in any other system. this case study review the authors experience with this new weight training system. Beginning at weights in excess of lifetime personal bests (over 500 pounds for leg lifts, and over 200 pounds for bench press), the leg and arm exercise program provided dramatic weekly gains with no ill effects.

#### PO-1531

##### **TENNIS OR TAEKWONDO IS BETTER FOR MY KID? – DIFFERENTIAL SENSORY ORGANIZATION OF BALANCE CONTROL IN YOUNG TENNIS PLAYERS AND TAEKWONDO PRACTITIONERS**

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**Objective:** To compare the sensory organization and standing balance control of adolescent tennis players, taekwondo (TKD) practitioners, and healthy control participants. **Method:** Sixty participants including 12 tennis players (mean age: 14.0±2.1 years; 9 males and 3 females), 21 TKD practitioners (mean age: 13.1±1.0 years; 13 males and 8 females), and 27 healthy control participants (mean age: 12.8±1.8 years; 18 males and 9 females) were tested. All of the participants underwent the Sensory Organization Test (SOT) and the Unilateral Stance Test (UST) on a Smart Equitest® system. One-way analysis of variance (ANOVA) was used to compare all the outcome variables among groups. Significant results were further analyzed with post hoc Bonferroni multiple comparisons. **Results:** Results revealed that tennis players had higher SOT visual ratios than the control participants ( $p=0.005$ ), and TKD practitioners swayed more slowly in the UST than the control participants ( $p=0.039$ ). No differences ( $p>0.05$ ) were found in the SOT composite score, somatosensory ratio, or vestibular ratio between the groups. To summarize, tennis players relied more heavily on visual input to balance, whereas TKD practitioners were more stable when standing on one leg. **Implications:** Parents may consider these sports as recreational activities for their children to develop specific balance abilities.

#### PO-1532

##### **THE FIFA 11+ WARM UP PROGRAMME TO PREVENT INJURIES IN FOOTBALL WHERE WE ARE TODAY**

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**Objective:** The objective of this study is to review the FIFA 11+ warm up programme to prevent injuries in football. **Method:** In this research, a systematic review was made using database of MD Consult, UpToDate, Pub-Med and Science direct. The expression “the 11+ warm up programme prevent injuries” was searched and 59 articles were found. **Results:** The “11+” is a complete warm-up programme to reduce injuries among male and female football players aged 14 years and older. It has three parts with a total of 15 exercises, which should be performed in the specified sequence at

the start of each training session. Part 1 consists in running exercises at a slow speed combined with active stretching and controlled partner contacts. Part 2 includes six sets of exercises focusing on core and leg strength, balance and plyometrics/ agility, each with three levels of increasing difficulty. Part 3 also includes running exercises, but at moderate/high speed combined with planting/cutting movements. The programme should be performed, as a standard warm-up, at the start of each training session at least twice a week, and it takes around 20 min to complete. Prior to matches, only the running exercises (parts 1 and 3) should be performed. Correct performance is very important in all exercises. **Implications/Impact on Rehabilitation:** The 11+ warm up programme to prevent injuries in football have some scientific evidence in reducing the risk of injuries in football if correctly done.

#### PO-1533

##### **ART, SPORTS OF STUDENTS PHYSICAL EDUCATION IN THE INVESTIGATION AND ANALYSIS OF THE SPORTS INJURY AND REHABILITATION**

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**Objective:** To survey and analysis of students' physical education arts, sports sports injury reason and rehabilitation methods. **Methods:** questionnaire investigation method to Hebei Institute of Media, Beijing institute of fashion technology, He Zhou institute, guangdong zhaoqing university different professional college students' sports injury of questionnaire survey. Issuing questionnaires, 213 valid questionnaires were received, recovery of 95.9%. **Results:** A total of 137 patients with sports injury occurred, the total incidence was 64.3%, among which the boy for 83 cases (60.5%), the girl is 54 cases (39.4%), hebei institute of media and Beijing institute of clothing technology art college students sports injuries happened in 91 cases (56.2%), He Zhou colleges and guangdong zhaoqing university students' sports injury happened for 46 cases (76.7%). **Conclusion:** The boy is obviously higher than that of the girl. The reason is that the boy to participate in sports more intense; The boy to participate in sports activities time more than girls. Sports class students happen the proportion of sports injury is obviously higher than that of the art students, the reason of which lies in the sports class the student to participate in the fierce antagonism project is art, intense degree is higher, and in the course of the events, and follow the rules of discipline than art students; Sports class students to participate in sports activities for a long time, especially extracurricular activities than art.

#### PO-1534

##### **EFFECT OF TRAINING ON DIASTOLIC FUNCTION OF THE HEART IN MALE VOLLEYBALL PLAYERS**

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**Background:** Long-term athletic training is associated with cardiac changes including increased left ventricular cavity dimension and wall thickness; these changes have been described as ‘athlete’s heart’ (1). **Objectives:** The aim of this investigation was to study the ability of diastolic function measured by echocardiography to reflect changes in endurance as assessed by maximal oxygen consumption (VO2 max) in response to combined strengthening and endurance training in male volleyball players. **Materials and Methods:** This study was conducted on 30 apparently healthy male volleyball players at the beginning of the training cycle. After routine history taking and a general examination, echocardiography was