O1 **Arthroscopic Stabilization for Recurrent Shoulder Dislocation in Patients with a Bankart Lesion**

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AIM: The common anatomic pathology responsible for the recurrent dislocation of the shoulder is in younger patients a trauma causes the Bankart lesion. The aim of this study is to present the results of the arthroscopic anterior labral reattachment in combination with the technical difficults and the problems with the postoperative rehabilitation program.

METHOD: from December 1999 to June 2003, 34 patients, 19 males and 15 female, 17 to 36 years of age, with traumatic recurrent anterior shoulder instability were treated with arthroscopic reattachment of the anteroinferior aspect of the labrum. Selection criteria were patients with recurrent anterior shoulder dislocation and a classic Bankart lesion without multidirectional instability, bony Bankart lesion, Rotator Cuff tears or a Hill Shacks lesion > 30%. In these cases we prefer an open procedure.

Arthroscopy was performed under general anesthesia in the beach chair position in 19 patients and in typical laying position with traction applied on upper extremity in 15 patients. We used the standard posterior and anterior portals and also a third supplementary anterior portal. We used metallic and also bioabsorbable anchors with nonabsorbable sutures. The arthroscopic technique included the placement of a minimum 3 anchors and a routine capsular plication and proximal shift of the inferior capsule. In most of the cases we performed also a stringage of the posterior capsule with a suture or by thermal capsulorhaphy. Closure of the rotator interval was performed in same cases. After surgery the limb was placed in a sling. Passive mobilization was started on the first postoperative day.

RESULTS: The average follow up was 20 months (6-32). The results were assessed according to UCLA score. There were 20 excellent, 8 good and 6 poor. In 2 of the patients redislocation occurred. In one of them the failure resulted from a traumatic reinjury during participation in a contact sport. 4 patients presented a significant limitation of global shoulder motion. In 2 of them we performed manipulation under general anesthesia. 8 patients presented a loss of external rotation more than 5 degrees and the results considered to be good. We noted a slight greater restriction in external rotation in the patients that we performed a closure of the rotator interval.

CONCLUSIONS: arthroscopic capsulolabral stabilization with the described technique is a successful and effective method for treatment of recurrent anteroinferior shoulder instability in a carefully selected patient population. In contrast to other reports our greater postoperative problem was the restriction of shoulder motion and not the redislocations. A careful and accelerated postoperative rehabilitation program seems to promote functional recovery and to reduce the restriction of shoulder motion.

O2 **Arthroscopic Repair of Superior Labrum Detachment Anterior and Posterior of the Shoulder**

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AIM: The detachment of superior glenoid labrum extending anterior and posterior (SLAP) is a traumatic condition which is just recently recognized as an important

source of shoulder pain and dysfunction. This lesion can occur isolated or in association with other pathologic entities such as: impingement syndrome, rotator cuff ruptures and instability. The diagnosis with clinical examination, simple x-rays and MRI is difficult and it can be established only arthroscopicaly. The aim of this study is to present the technique and the results of the arthroscopic labral reattachment and also to point out the necessity of treatment especially in the coexistence with other pathologies.

METHOD: 7 patients with SLAP type II were arthroscopicaly operated. There were 6 males and 1 female aged from 31 to 52 years. 4 patients had an associated rotator cuff partial rupture and 2, had a Bankart lesion with anterior instability. Arthroscopy was performed under general anesthesia with the patients in the beach chair position. We used the standard posterior and anterior portals and also a third superior-anterior. We used VAPR and shaver for preparation and slight decortication of superior glenoid. With a special curved needle we passed a suture PDS NoI from the superior anterior labrum then through a Mitek GII anchor which we place after predriling at the superior glenoid. The Ethibon suture of the anchor was passed through the posterior superior labrum. We used arthroscopic knots to tie down the sutures. Finally the superior labrum is stabilized with 2 sutures in V configuration through a singular Mitek GII anchor anterior and posterior the anchor of biceps. Postoperative care depended on coexisting lesions. Most of the patients had their shoulder immobilized for 3 weeks in a sling.

RESULTS: The average follow up was 18 months (12-22). All patients had complete resolution of the preoperative pain. 5 patients had full range of movements and no functional restriction. The remaining 2 patients had a slight restriction of movements mainly in internal rotation. All patients had normal muscle strength and all had constant score above 80.

CONCLUSION: Stabilization of the superior labrum with the described technique is successful and effective for type II SLAP lesion treatment. We believe that arthroscopic examination of the shoulder should be done even before an open shoulder surgery for other pathologies. Arthroscopy is the only way to detect a coexisting SLAP lesion and repair it, otherwise it may negatively influence the success of the operation.

O3 **Injuries Associated with Inline Skating in Korea**

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In Korea, inline skating is one of the trend activities of recent years particularly among middle aged, not to mention younger. However, this new trend has led "trendy" types of orthopaedic injuries in both upper and lower extremities. The purpose of this study is to gain greater awareness and understanding of the circumstances leading to injuries associated with inline skating and to provide treatment regimens and preventive measures. 58 patients(38 males, 20 females) were included in this study from January 2001 to May 2003. The average age of the patients was 9 years 9 months (6-44 years old). Injuries consisted of 51 fractures, 4 contusion or sprain, 1 meniscal tear, and 2 medial collateral ligament rupture. Fracture locations varied as: 33 cases in distal radius and ulnar, 5 in elbow, 3 in diaphysis of humerus, 2 in proximal portion of humerus, 1 in AC-CC, 1 in second interphalangeal

joint, 1 in lateral malleolar of ankle, 1 in lumbar spine, 1 in femur neck, 1 in distal femur, 1 in distal tibia and one case in skull. Common fracture sites were mostly in upper extremities and 43 of 58 patients underwent operation. One patient was suspected of meniscus tear and was performed an arthroscopic examination after MRI scan. And another two patients were diagnosed as medial collateral ligament rupture and underwent conservative treatment. Most of inline skaters chose the narrow streets or riding ground within their apartment complex. Only five patients admitted that any means of protection were used. Majority of injuries from inline skating is in some forms of fracture developed in the upper extremity (74%) and most frequent location was distal radio-ulnar and elbow. Injury seems to take place where safety lacks and when skaters disregard protective gear. We would strongly like to stress the importance of using sufficient protections and of choosing area where it is safe to ride, in order to reduce the risk of accidents. In addition, prior education from nearby physicians may be in order before riding the inline s

O4 **Musculosceletal Injuries and the Parameters that Contribute to their Appearance in Professional Athletes or in Athletes of High Level**

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Aim: Musculoskeletal injuries that appear during practice or games to professional athletes or to athletes of high level constitute an important issue in this specific area and because of lack of legislative consolidation, they are dealt separately, according to the case and the sport. Within the framework of a descriptive study for musculoskeletal injuries as well as for the parameters that contribute to their appearance, there has also been a research on the 'work' conditions of athletes, which determine the measures of improvement for an accident prevention planning in the field of professional athletism.

Methodology: The collection of evidence has been made with the help of a questionnaire completed in spring 2003 by athletes members of the national team of artistic and rhythmic gymnastic, weight lifting, track and field as well as by professionals basketball players of A1 and A2 category. The questionnaire included demographic data, professional and medical history (of the year 2003) and recorded the injuries, their number, the parameters that contributed to these injuries as well as a personal evaluation of the athletes regarding their injuries. The statistic analysis of the data was made by the packet SP 55,8 and the use of x2 control and t-test.

Results-Conclusions: The athletes that participated in the research were 48 women and 52 men,their average age is 21,7 (SD 5,65) and the majority (42%) has a third degree education. The average occupation with professional athletism is 7,8 years (SD 3,8) including 6,2 hours (SD 2,0) average daily practice during sport season and 5,4 hours (SD 2,3) during non-sport season. 58% of the athletes consider their free time insufficient and the schedule binding. For that reason their social activity is limited (56%) and is based mostly to friendly meetings, while resting, music, sleep and reading are the means of their relaxation.
93% of the athletes were injured last year during practice and 42% during the games at least once. The injuries caused in the games are strongly related statistically to the

sport itself (P<0,01) and they are observed in athletes who have a higher average on practicing with the sport in a professional level (P=0,028). The main causes of injuring regard accident, overwork or insufficient warming up, while the most frequent injuries are in the knee(29%), the foot(24%), the shoulder and the hip(21%) and the lumbus(20%).
Regarding the conditions of practicing, a significant number of athletes believe that they are not ideal. So 21% considers the lightening intense, 23% the airing insufficient, 41% the temperature low at winter and 43% high at summer and 31% the humidity high. All these factors influence significantly the athletes of gymnasiums and are responsible directly or indirectly for these injuries.
To sum up, regarding the proposals of the athletes, it is very important the right warming up, the way of re- entrance after absence as well as the sensibility of coaches in order to understand when their athletes are beginning to get tired.

O5 **Hamstring Muscle Injuries: Clinical and Echographic Criteria for Classification**

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Purpose: To propose a new classification scheme, which we believe has greater benefits with regard to the treatment of choice.
Methods: The original study was based on 112 male and female Greek athletes (38 female, 74 male) of average age 20 yrs (SD = 3.77). These athletes suffered 163 acute hamstring injuries and visited the Greek athletics federation (SEGAS) medical center from January 1996 to December 1999. All athletes were examined in the immediate 48 hours period post injury. Classification was based, originally, on clinical criteria. In addition we measured knee active range of motion (AROM both for healthy and involved limb, and estimated the difference between sides) and the dimensions of the rupture (width and length) using an ultrasound scan of the muscle. We used one way ANOVA & discriminant analysis, for statistical analysis with p<0.01 (SPSS 8.0 for Windows).
Results: We diagnosed 88 grade I, 59 grade II and 16 grade III muscle strains. Mean AROM difference for grade I was 3.7 degrees (sd=5.3), for grade II 11.6 (sd=4.4) and for grade III 22.6 (sd=5.1). Statistical differences were found when comparing grades (p<0.001).
Our echo graphic findings were as follows:

	Width	Length
I	1.06cm (sd=0.46)	1.61cm (sd=0.76)
II	1.79cm (sd=0.96cm)	2.27cm (sd=0.76)
III	2.75cm (sd=0.46cm)	3.59cm (sd=0.32)
Stat. Sign.	P < 0.001	P < 0.001

Discriminant analysis revealed an equation which can predict classification in 3 grades, based on difference of AROM and strain's dimensions, in 84.7% of cases.
Conclusion: The proposed classification scheme makes grading more objective, can assist clinicians to design the rehabilitation program and it is of value in predicting the time required for the injured athlete to return to full training loads. We propose the following criteria to be used for more accurate classification of those injuries.
GRADE Decreased ROM (degrees) Rupture dimensions (ECHO)

I	5- 10	< 1.0cm X 2cm
II	10 - 15	1.0cm X 2cm
III	>15	2.3cm X 3.2cm

O6 **Patellar Tendinopathy in Elite Track and field Athletes: Correlation of Classification, Imaging and Treatment Duration**

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Aim: This study investigated the epidemiology and classification of patellar tendinopathy in elite Track and Field athletes, based on clinical and imaging findings, in correlation with treatment duration.
Materials – methods: From January 1993 to December 2002, we dealed with 55 athletes, 35 male and 20 female, with 78 cases of patellar tendinopathy. Cases with ACL or PCL reconstruction (BPTB graft), recurrence within a year and surgical treatment were excluded from the study. 62 cases in 49 athletes with an average age of 19 years (SD=3.75) met the inclusion criteria (33 male, 16 female). Diagnosis was based on history and clinical examination which was performed by the same physician. Tenderness in extension, onset of pain during certain phase of athletic activities and the existence of ECHO or MRI findings were the criteria for diagnosis and classification. The same rehabilitation program was followed in each case. Full recovery was estimated for the 62 conservatively treated cases, in order to correlate with the initial classification. Statistical analysis was performed using SPSS-PC software. The probability level was set at 0.01.
Results: The majority of the athletes were jumpers (51.02%) and throwers (24.5%) while the rest were competing in combined, sprinting and long distance events. 17 cases (27.4%) were graded as 1st degree, 23 (37.1%) as 2nd, 21 (33.9%) as 3rd degree patellar tendinopathy, while the remaining 1 case was classified as grade 4. Unrestricted activities were resumed after 9.083 days (SD=2.14) for grade 1, while 16.33 days (SD=9.1) were needed for 2nd degree and 27.25 (SD=14.42) for grade 3. Comparison between groups showed significant difference and correlation with clinical findings.
Conclusion: Classification of patellar tendinopathy based on clinical criteria can safely lead to prediction of the outcome and recovery time, the latter being the answer to the agonizing questions of athletes, trainers and physicians.

O7 **Strength, Flexibility and recovery Time after Acute Hamstring Strain in Sprinters and Dancers**

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INTRODUCTION
This study is part of an ongoing project concerning the aetiology, location and healing of acute hamstring strain injuries in athletes. Preliminary results from MRI

examinations have indicated that there are differences, as to which muscles and tissues are involved, between injuries induced during forceful activities, such as sprinting, and injuries occurring during extreme stretching exercises, such as splits in dancing (Askling et al. 2000). The main purpose here was to investigate if there are differences also with respect to hamstring muscle strength and flexibility during the recovery, as well as time to return to full activity.

SUBJECTS

Thirty-three athletes participated, 18 sprinters on national level (8 females and 10 males, 16-28 years) and 15 professional dancers (13 females and 2 males, 17-36 years) with clinically diagnosed acute, first time, hamstring strains. The subjects were investigated on four occasions (2, 10, 21 and 42 days) after the acute injury. Clinical examination included measurement of isometric knee flexor strength with straight knee and hip in a prone position and range of motion (ROM) in passive hip flexion, with the straight leg raise (SLR) test in a supine position. All values for the injured leg were expressed in percent of those for the uninjured leg. Student's t-tests were used to detect statistical differences ($p<0.05$).

RESULTS

Both groups demonstrated significantly lower strength in the injured leg at the first test. The difference was significantly larger in sprinters than in dancers (injured 39% and 79% of the uninjured leg, respectively). At the third and forth tests, there was no difference in strength between legs in the dancers, whereas, in the sprinters, the difference, although decreasing gradually, remained significant even at the forth test occasion (94%). The SLR test showed significantly lower ROM of the injured leg at the first test occasion, and, again, the difference was larger for sprinters than dancers (injured 63% and 80% of the uninjured leg, respectively). This difference between groups was absent at later test occasions. The ROM of the injured leg was progressively restored, but there was still a significant difference between legs at the forth test (injured 94% and 91% of the uninjured leg, respectively). Notably, at the forth test occasion, 42 days post-injury, none of the dancers, and only two of the sprinters, were able to participate fully in their respective activity.

DISCUSSION AND CONCLUSIONS

The results show that the recovery time to full activity after an acute hamstring strain injury generally exceeds 6 weeks. The recovery of performance in standard tests of strength and flexibility may, however, be shorter. The 90% recovery level, often recommended for return to full speed running and training (e.g. Heiser et al. 1984) was, on the average, reached well before the 6-week-test. Thus, this type of tests needs to be complemented with additional evaluation, perhaps of a more functional character, to provide a better representation of the actual level of healing and rehabilitation. The differences in acute effects and recovery time between tests as well as between athlete groups may prove to be related to differences in the localization and character of the hamstring strain injury.

O8 **Stability of the Ankle after Watson Jones Operation**

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AIM: Our purpose was to find out whether Watson-Jones operation provides stability of the ankle after a neglected rupture of the lateral collateral ligament.

METHOD: We studied 5 ankles in 5 patients with a mean evaluation time of 2.5 years postoperatively.A tenodesis of peronius brevis in fibula is done during the operation ,passing the tendon through two tunnels ,one in fibula and the other in the talar neck to reconstruct anterior talofibular ligament.
Postoperatively cast is applied for 6 weeks . no weight bearing.
In our cases there was no other injury beyond that of lateral collateral ligament.
The mean time from injury till the operation was 30 months.
All the patients were men 22-31 years of age.
Preoperatively , all of them had edema. pain and instability and two of them reported crepitus.They all had positive drawer sign and the talar tilt was more than 20 degrees.
RESULTS: We evaluated the movement of the ankle , the local sensitivity and the instability with examination and x-rays.All our patients had a stable ankle,while two reported mild pain during athletics,and sensitivity in the joint, because of osteoarthritis and not instability. Finally all of them had normal stress x-rays.
CONCLUSION: Watson Jones operation restores ankle instability with no consquences in subtalar joint.

O9 **Epidemiology of Ankle Fractures**

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The fractures of the ankle are the second most frequent injuries after the fractures of the lower end of the radius. We present here an epidemiological study on 154 fractures during the years 1999-2002. The overall incidence rate was 91 fractures per 105 person-years. The patients age were up to 50 years with an average of 28,9yrs,the third decade predominated 47{30%} ,as well as male patients 95{61%} and placement on the right side 89{57%}. The commonest cause of the fractures was a fall in 63{40%} , sports activity in 51{34%} and traffic accident in 40{26?%}. Associated injuries were observed in 13 patients, the main cause being a traffic accident and a leg unilateral. 1/3 of the patients were treated surgically and half of the patients were hospitalized for a few days. The most frequent fracture was that of the lateral malleolus 82{53,25%}, with the main mechanism external rotation ,while in 15 patients a rupture deltoid ligament co-existed . From a study of the epidemiogical parameters the following are recommended : 1} Fractures of the ankle are common everyday injuries caused by insignificant violence 2} Any kind of sports activities by amateur athletes of the week-end come second in frequency after falls 3}Among population groups those who work in the open {farmers } are the most exposed. 4} Considering that roughly 1/.3 of the patients are treated surgically and the average time of rehabilitation is 6-8/52 , the morbility of the fractures of the ankle means a considerable loss in working hours as well as heavy charge on social security. The aim of our study is to mark the epidemiological character of the fracture and thus to spot the possibility of reducing the incidence and morbility through prevention.

O10 **Injuries of the Extensor Mechanism of the Knee Joint in Athletes**

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Purpose of the studies: is to study the types of injuries of the extensor mechanism of the knee joint in athletes.
Material: We studied 40 athletes who suffered from some kind of injury of the extensor mechanism of the knee from a sum of 547 amateur athletes . The mean value of age of the athletes was 22,3 years and they were volley athletes (n=15), basketball players (n=13) and jumpers (n=12).
Method: We analyzed the type and the exact point of the injury of the extensor mechanism of the knee by clinical and x-ray control and furthermore by MRI and US whenever was needed. The management was mainly surgical and conservative whenever was needed.

Results: From the sum of the 40 injured athletes 26 suffered from rapture of the patellar tendon in its insertion from the patella with concomitant fracture of the lower pole of the patella, while 9 athletes suffered from partial or total rapture of the quadriceps tendon. In 5 athletes we diagnosed rapture of the patellar tendon in its insertion in the tibial tubercle with concomitant avulsion fracture of it. From our material we excluded all athletes who suffered from any kind of ligament injury of the knee joint.
We did not notice any special relevancy between the different types of injuries in the three different sports. On the other hand we noticed that all three types of injuries of the extensor mechanism of the knee occurred approximately with the same numbers in the three different sports.
Conclusion: It is clear that the extensor mechanism of the knee joint suffers quite serious injuries in these three different sports and the exact point of the injury seems to depend mostly on the morphological and the somatic characteristics of the athlete (intrinsing factors), rather than the kind of sport (extrinsing factor)

O11 **Injuries of the Shoulder Region in Athletes**

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Purpose of the study: is to investigate the kind and the prevalence of the injuries of the shoulder region in amateur athletes.
Material of the study: during the period 2000-2001 we examined 268 male football athletes and 70 judo athletes, of amateur level. The mean value of age was 22,6 years.
Method: during the period of the research all athletes participated in a full program of exercising and matches. From the sum of the athletes 57 encountered some kind of injury in the shoulder region. There was a thorough clinical and x-ray examination, and U/S and MRI wherever was necessary. The management of the injuries was mainly conservative with NSAIDs, corticosteroid injection, physiotherapy, and rehabilitation of the athlete.
There was a thorough measurement and analysis of the type of injury, of the exact management and its effects.
Results: from the 57 injured athletes 39 were football players and 18 judo players. The types of injuries that we encountered are: cuff injuries in 14/39 of the football players and 9/18 in judo players, contusion or partial rapture of the trapezoid muscle in 17/39 and in 5/18. Tendonitis of the long head of the biceps was found only in 3 athletes, 2 footballers and 1 judoka.

Only 22 were able to continue and finish promptly the competitive period (19 footballers and 3 judoka).from the rest 27 injured athletes (16 of football and 11 of judo) were characterized as chronic patients and were submitted in a continuous program of physiotherapy for the rest of the competitive period however without interrupting the exercising program. On the other hand 8 were forced to interrupt the exercise and the competitive period (3 footballers and 5 judokas)
Conclusion: from the analysis of the results of this research it is understood that injuries of the rotator cuff are encountered commonly at judo athletes and can be managed with much more difficulty due to the demanding exercising and competitive feature of the sport. It is also important to notice the fact that there is a very small percentage of injured athletes that have been acutely cured.

O12 **ACL Injuries in Females. Review**

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The frequency of the ruptures of the ACL in women is reffered to be two to eight times higher than in men in the same sport. According to that, we reviewed the literature and we excluded many usefull results and important topics mainly from studies based on laboratory examinations. The results from many of them show that women have a higher than the expected percentage of ruptures of the ACL in the middle of their menstrual cycle and lower in the luteal phase. It seems that oral contraseptives pills maybe have a relation to lower the percentage of the ACL ruptures in women.

O13 **Anterior Knee Pain in Young Athletes. Causes and Treatment**

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Purpose: The registration of the causes of anterior knee pain in young athletes and to evaluate the treatment
Material & Method: Between 2000-2001, we treated sixty nine (69) patients aged 15-30 years old (average: 23,7 yrs) for anterior knee pain, who didn't have recent previous injury. Patients with established ligamentous or bone injury were excluded from this study. Thirty eight (38) were males and thirty one (31) were females. They were athletes of football, basketball, volleyball, track and fields, handball, karate. In thirty four (34) patients the pain was located in the right knee in thirty two (32) in left one and in three in bilateral knees.
Evaluation was consisted of clinical examination, standard x-rays, MRI-scan and blood tests. Patients were followed-up for 4-14 months.
Results: Patella's diseases (chondromalakia, abnormal tilting or tracking,...) were the predominant causes of anterior knee pain, followed by meniscal tears, patellar tenonditis (jumper's knee), sypra-/infra- patellar bursitis, osteochondritis dissecans,

plica syndrome. Treatment was conservative in the majority of cases. In 85% of them, the results of treatment were very good-excellent.
Conclusions: Anterior knee pain in young athletes was due to various causes. Accurate diagnosis and appropriate treatment was essential for the outcome.

O14 **Injuries in Basketball Players: Analysis of Type of Injuries, Factors Influencing the Occurance and Options of Treatment**

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Purpose: This study describes the types of injuries occurring in basketball players, analyses the factors influencing the occurrence and registers the treatment's options.
Material and Method: Between 2002-2003, 125 basketball players of different levels of skill, aged 15-38 (average:27,3yrs) sustained 136 injuries during games or practice. 96 were males and 29 females. Previous injuries, frequency of playing (or practicing) basketball weekly (times/week) and condition of playing fields were registered.
Results: 88% of injuries caused by trauma and 12% by overuse. 48% of injuries involved the upper extremity, 40% the lower extremity, 7% both upper & lower extremity and 5% the spine.
Joints sprains predominated (43%), followed by fractures (20%), tendons injuries (11%), ligaments rupture (8%) and menisci tears. More than 15 different injuries were treated. Injuries to the fingers were most prevalent (34%), followed by the ankle (26%), the knee (15%) and the wrist (12%). The most common injuries were sprains of fingers' joints and ankle. 21% of injured players had suffered previous injury in the same area of their body. 58% of the injured players were playing basketball 1-2 times per week, usually without any previous practice/ training during the week. 42% of the playing fields were not fulfilling ''official'' standards. More injuries (74%) occurred during games. The treatment was conservative in the majority of them (61%).
Conclusions: Basketball players sustained a variety of injuries, mainly in the extremities. Poor physical condition, inadequate training, 'personal' factors (age, previous injuries, skill) and condition of playing fields seemed to be related with the frequency and the severity of the occurred injuries.

O15 **Survey & Comparison of Bone Mineral Density in Iranian Women National Teams**

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Osteoporosis is a major health problem which can be prevented. Osteoporosis is the underlying cause of for more fractures than any other disease, and loosing of bone mineral density (BMD) is the underlying cause of osteoporosis. One of the important factor which may influence in this disease is physical activity, that affects in the skeleton in several ways: negative and positive results. This article was discussed about the second effect. According of that we are going to determine an appropriate

exercise to increase the bone mineral density and as a result to prevent the osteoporosis in women. The study carried out on elit women players and their BMD was measured on lumbar spine and neck of femur by bone densitometry (Dexa) and was compared between weight bearing and non weight bearing activities, between sports with balls, rackets and also between basketball and volleyball players.

O16 **The Effect of a Weight Training Program on the Affective Status of Recovering Substance Abusers**

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The effects of a weight training program on depression on one group of chemically dependent adults was investigate. The subjects (N=18)were inparient rahabilitation program foe substance abuse(Therapeutic community) for one year. Subjects were randomly assigned to two groups. Experimental group(N=12) received a weight training program (bodybuilding)3 days per week for 8 weeks. Control group (N=6)was designatedas the control group and received no exercise treatment over 8-week period. Pre-and posttest measures included the BDI-II questinnaire. The dodybuilding program don't produce a significant decrease in depressive symptoms.

O17 **Therapeutic Exercise for Reumatoid Arthritis of the Hand**

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Rheumatoid arthritis is a chronic, systemic, inflammatory disorder that affects primarily the synovial tissues of the diarthrodial joints. The cause of reumatoid arthritis remains unknown. Women are affected two or three times more often than men.Because the disease is systemic in nature, it may involve the heart, lungs, blood vessels or eyes. The greatest incidence of disease occurence is at ages 35 to 45 years. The disease course varies for each patient and is usually characterised by exacerbations and remissions.

Typically the small joints of the hands and feet are involved. The wrist, the metacarpophalangeal joints, proximal interphalangeal joints and the metacarpophalangeal joint and carpometacarpal joint of the thumb are most often affected. Rheumatoid arthritis, as with other inflammatory diseases, can be divided into three stages: the acute stage, the subacute stage and the chronic stage. The treatment goals are to decrease pain and swelling, maintain joint mobility, prevent or minimize joint deformity and maintain a level of general physical fitness. Exercise programs must be modified according to the stage of the patient's disease and the presence or absence of pain and inflammation.

O18 **Effects of Submaximal Training on Serum Nitric Oxide and HDL-Choresterol Subgroup Levels in Middle-Aged Men**

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INTRODUCTION: Antiatherogenic and vasodilator properties are widely attributed to serum nitric oxide (NO) levels, and plasma malonedialdehide (MDA) is believed to be an indicator of lipid peroxidation. Physical training is known to have beneficial effects on serum HDL-cholesterol and subgroup levels. To assess the effects of training of aerobic and anaerobic nature on serum levels of these parameters in middle-aged men is the scope of the present study.

MATERIAL and METHODS: A total of 60 healthy, non-smokers, non-medicated men aged 40-55 participated in the study. Three groups of 20 were formed as sedentary controls (CG), joggers (JG) and football players (FG). The members of the two latter groups had an average training history of nine years. Apart their physical parameters, fasting plasma levels of MDA, and serum levels of NO, triglyceride (TG), total- and HDL-cholesterol (HDL-C) and HDL2/HDL3 subgroups were evaluated. Standard statistics, ANOVA and t-tests for group differences were used.

RESULTS: Mean serum lipid profile of the JG was significantly better than the FG. Although JG had 19 % higher mean NO levels compared with the CG, no significant differences were obtained for serum NO and plasma MDA levels amongst groups. Serum NO levels were found to be positively correlated ($r=0.41$, $p<0.01$) with training age. In this respect, FG members who had longer training history ($p<0.05$) than their JG counterparts had also 27 % higher mean plasma NO levels, the difference failing significance. Training age and weekly training duration were also correlated with VO2Max levels. A positive correlation was established between serum NO and VO2Max levels and a negative one between serum NO levels and HDL2-C/HDL3-C ratios that is predictor of coronary heart disease, for the training groups, the FG displaying better scores. Plasma MDA levels were correlated to serum TG and TG/HDL-C levels in both training groups, but no relationship was observed between MDA and NO levels.

CONCLUSIONS: To conclude, training of the type used in this study had no significant effect on blood NO and MDA levels. Serum NO levels that mediate vasodilator and antihypertensive effects, were positively related to training age. Positive effects of training on blood lipid profile were more evident in the FG.

O19 **Overtraining in Sports and Athletes**

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The primary goal of athletic training is to enhance performance as much as possible, this is accomplished via a training program, which should eventually lead to peak

performance at the right moment. To push the performance capacity to its upper limit, relatively high amounts of intensive exercises have to be done. Therefore, the athlete is continuously challenging the delicate balance between training and overtraining. The most difficult part of the training process is to find this optimal balance, and since most athletes are inclined to do too much training, overtraining is frequently encountered in elite athletes.
Overtraining is defined as doing high volume and high intensity training which is more than physiological and psychological tolerance of the athlete with inadequate rest and recovery periods between training sessions.
The physiological factors responsible for the detrimental effects of overtraining are not fully understood. However, many abnormal responses have been reported suggesting that overtraining is associated with alternations in the neurological, hormonal and immune systems.
Sympathetic overtraining can lead to increased resting heart rate, increased blood preasure, loss of appetite, decreased body mass, sleep disturbances, emotional instability and elevated basal metabolic rate.
Signs of parasympathetic overtraining include early onset of fatigue, decreased resting heart rate, rapid heart rate recovery after exercise and decreased resting blood pressure.

O20 **Child with Bronchial Asthma and Sports**

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The broncial asthma is more frequent chronic disease in the children.Its frequency increases worldwide the last years.
Aim of our study was to record the athletic activities of asthmatic children.
Material of our work they constituted 130 interviews of parents known asthmatic that visited the exterir surgerisof our clinic.From 130 children the 62 were boys and the 68 girls of age 6 until 14 years.
Results from the 62 boys the 15(24%) they did not deal with the sports,with a sport they dealt 21(34%) boys ,with two sports they dealt 16(26%),with three sports 8(13%).with 4 or more sports 2(3,2%).The weekly time of exercising of asthmatic boys was ,1 hour
5(8%)boys,2 hours 13(21%),3 hours 16(26%).4 hours and more 1 boy(21%).
The corresponding percentages in asthmatic girls were found 25(36%) that they did not exercised no means ,with 1 sport dealt 31(46%) girls with two sports 10(115%),with 3 sports 2(3%),with 4 or more sports no one.The weekly time of exercising of asthmatic girls was 1 hour 3(5%) girls,2 hours 12(18%),3hours16(24%),above 4 hours 12(17%)
girls.The 96% of asthmatic boys and 92% of asthmatic girls consider that the exercise them profits in bodily and in their phychosocial growth.
Conclusionthe asthmatic children are exercised in satiafactory degree.Exists important difference between in two sexes.The girls deal with less sports than the boys and dedicate lees hours weekly in the sports.The exercise for the asthmatic chidren is very important because they feel that they do not differ from the healthy children,essential condition is finding itself under the suitable therapeutic education.

O21 **Effect of Humulus Lupulus (Hop) on Pituitary-Gonadal Axis During Swimming Exercise in the Rat**

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Humulus Lupulus (hop) belongs to the plant family cannabinacea. It has phyto estrogenic compounds and is a major component of beer.
The purpose of this study was to evaluate the possible effects oh hop on the male repsoductive physiology before and after exercises.
In order to evaluate these effects, we used the humulus lupulus extract injection with the following doses 80, 180, 280, 380 and 480 mg/kg. Intra per male Sprague Dawley male itoneal injections we applied in all experiments.
Rats performed swimming exercise in circular tank (diameter of 50cm and a depth of 55cm) during 60min for one week.
At rest, non-swimming exercise rats, Serum Luteinizing hormone (LH) level was significantly lower in the hop-administrated than that of vehicle-treated rats ($P<0.05$).
After 60min of swimming exercise, LH level of hop-administrated rats was significantly lower that that of vehicle-treated and rest rats respectively ($P<0.05$).
Similar results were obtained for testosterone.
But in all experiments no significant alternation was observed in Follicle Stimulating Hormone (FSH) levels.
These results suggest that the decrease of LH and Testosterone levels in swimming exercise might be induced by humulus lupulus extract administration in rats due to the phyto estrogenic effects of this plant.

O22 **Evaluation of Upper Extremity Motor Performance in Mentally Retarded Subjets**

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Objective: This study was carried out in order to examine of upper extremity motor performance in subject with mentally retardation.
Methods: 140 mentally retarded (mild) subject (MRS) with mean age16±3,66years who attend in summer school for MRS in Denizli, were included in the study. The subjects who have had no any kind of problems except for mentally retardation were selected (42,1%). 59 subjects who met inclusion criteria (22 girls, 37 boys) were evaluated using six test such as hand grip, throw/catch a playground ball, throwing to a target game, rolling a ball, throw a ball to rear and bench a flex-bar. All tests were applying by six physical therapists (PTs) and one physical educator. All subjects were informed about test before examining by examiners. The further information and test procedures will give during presentation. The data were obtained from the study were calculated using SPSS for Windows 9,0 version statistical program.
Results: Left and right arm hand grip strength score of 59 subjects was 21,77±9,52, 21,32±9,72 respectively. 45,8%of 59 subjects completed successfully three times of the throwing to a target game. They also were successful about throw/catch a playground ball (5 times, 83,1%). The number of bench of the Theraband-flex bar was 56,86±39,36. In rolling a ball test mean was 97,57±15,12/min. The mean number of the throw a ball to rear test score was 4,35±1,82m. In the end of the study, we

compared boys with girl subjects about all test. Boys showed a good motor performance better than girls in six tests.
Conclusion: To improve ability of activities of daily living and sport in MTS upper extremity motor performance should be good condition. That's why PTs, occupational therapists and physical educators should evaluate upper extremity motor performance of MRS so that they can perform the best activity and sport program for these subjects.

O23 **Results of ACL Recontruction**

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GOAL: Presentation of failures and complications of ACL reconstruction
METHOD: We studied 402 patients (407 knees) aged 14 – 52 years who had ACL deficiency and were treated by reconstruction the period from 1-1-1997 to 31-12-200. They have been operated by the same surgeon (S.P.) 7 days to 5 years after the initial injury by arthroscopy or/and mini arthrotomy using BPTB graft (285) and ST/G graft (122). All co-existing injuries were also treated simultaneously (88 tears of the medial meniscus, 46 tears of the lateral meniscus, 44 tears of the medial and lateral menisci, 18 traumatic lesions of the articular cartilage, 3 postero-lateral instabilities) by 52 meniscal repairs, 170 meniscectomies, 2 mosaicplasty, 16 drilling of the subchondral bone and 3 postero-lateral reconstruction.
RESULTS: Intraoperative: 3 patella fractures during BPTB harvesting, 3 breaking of bioabsorbable femoral screw, 2 non satisfactory BPTB graft fixation at the femoral tunnel, 4 new femoral fixation of ST/G graft, 1 asymptomatic exit of the screw at the back of the femur. Postoperative: 3 temporary apraxies of the peroneal nerve, 10 superficial and 3 deep infections, 16 re-ruptures or elongations of the graft, 18 with loss of extension $< 10^{o}$, 5 with loss of extension $> 10^{o}$, 2 with persistent hydrarthrosis after the 2nd postoperative month, 22 with anterior knee pain after BPTB harvesting, 3 with keloid, 1 with an acute corner at the graft harvesting site at the tibia, high percentage had weakness of the quadriceps mechanism and sensory abnormalities of the anterior side of the knee.
CONCLUSIONS: ACL reconstruction is a treatment with failures and complications that require experience, knowledge and good instrumentation

O24 **Repair of the Meniscus tears Using Meniscus Arrows**

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PURPOSE: Repair of some selected meniscal tears helps patients avoid meniscectomies, allowing very good long-term results. Meniscal repair can be done with the use of arrows
The purpose of our study is the presentation of the results of recent meniscal tear repair at the red-red or red-white zone in young adults.

METHOD: During 1996 - 2003 we repaired with the use of arrows recent meniscal tears at the red-red or red-white zone in 82 patients (82 knees). They were 51 men and 31 women, 14 - 48 years old. The mean number of arrows used at each repair was 3.5. At 75 patients the repair was performed arthroscopically while at 7 through arthrotomy. At 10 patients we repaired the lateral meniscus, at 71 the medial meniscus and at 1 patient both the menisci. We performed ACL reconstruction at 44 patients, lateral partial meniscectomy at 18 patients and lateral release at 4 patients.
RESULTS: Arthrofibrosis in one patient with ACL reconstruction. Failure of suture in one patient with ACL reconstruction. Degenerative rupture in one patient after a new injury. All the other 79 patients we had good clinical result. In 7 of these patients we had arthroscopic view of the result, while in other 36 MRI checked it.
CONCLUSION: Meniscal repair by the use of arrows, may not be the strongest method of meniscal repair but is adequate for good meniscal healing

O25 **Cultured Autologous Chondrocyte Implantation for Cartilage Repair**

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It is generally agreed that damage involving the articular cartilage surface and confined to the cartilage undergoes little restoration . Cartilage has little intrinsic ability to heal itself . The disability and the pain that result from damage to articular cartilage have stimulated the research for ways of facilitating cartilage repair.
For repaired or regenerated cartilage to perform satisfactorily as a joint tissue . it must restore normal pain free motion of the joint .Therefore, the repaired tissue must have the structure, composition, mechanical properties, and durability similar to the natural articular cartilage . A number of methods promoting cartilage repair for chondral defects have been explored . These include debridement and lavage , subchondral bone drilling , microfractures . abrasion arthroplasty , high tibial osteotomy , periosteal or perichondrial grafting , and mesenchymal stem cell implantation . However , with these procedures , the resulting repaired tissue is inferior to the original articular cartilage .
Brittberg et al reported a method for repairing deep cartilage defects in the femorotibial articular surface of the knee joint in humans . Cultured autologous chondrocytes . cells isolated from an individuals own cartilage , can been expanded in vitro and returned to the damaged site for repair of the defect . This remarkable process is characterized , by modulation of gene expression during proliferation and subsequent re-differentiation of cultured chondrocytes . The authors describe this method as a treatment for 10 knee joints. They evaluate the results with different scoring systems and propose this method as the treatment of choice for cartilage defects of more than $3cm^2$ in the femoro-tibial joint especially in young active patients.

O26 **Osteochondral Autograf Transplantation as a Treatment Option for Cartilage Defects of the Knee**

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Aim: To evaluate osteochondral autograft transplantation for the treatment of cartilage defects on weight-bearing surfaces of the knee.
Materials and methods: Twenty patients (mean age 29.9 years, range 16-56 years) with cartilage defects of the knee underwent osteochondral autograft transplantation and were followed up for 23 months on average (range 13-42). Cartilage defects located at patellar groove (2), medial femoral condyle (15) and lateral femoral condyle (3), while the mean size of defects was 298.6mm2. These lesions developed after trauma (11), osteochondritis dissecans (7) or degenration (2). Donor sites were intercondylar area (11), lateral femoral condyle (5) or combination of the above (4). Additional lesions (ten patients with ACL rapture and one with abnormal mechanical axis) were treated at the same operation. All patients were re-examined and evaluated with Tegner activity score, Lisholm score and IKDC score.
Results: Two patients aged over 45 with chondral defect at the patellar groove had poor results (IKDC score 13.8 and 41.4). The rest of the patients had good to excellent results and succeeded average scores: Tegner activity 5.1 (range 3 to 6), Lisholm at 3 and 12 months post-op 95.3 and 96.1 correspondingly and IKDC score 74.5 (range 55.2 to 83.9). All patients had full weight bearing in 10.5 weeks on average (range 6 to24) and they returned to their previous occupation in 21.2 weeks (range 5 to 52).
Conclusion: Osteochondral autograft transplantation represents a technically demanding but useful operation for the treatment of chondral defects at weight-bearing surfaces of knee at young patients. Transplantation at patella groove site has poor results. Predispositioning or causing factors to chondral lesions should be treated at the same time.

O27 **Synovial plica of the Knee: Pathologoc Entity or Accidental Finding?**

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Synovial plica of the knee is the remnant of septa, which separates the knee joint into several compartments during embryonic development, and is present in approximately 90 % of arthroscopies. In nearly 5%, synovial plica may produce symptoms of plica syndrome. The clinical view of this syndrome is not typical and can cause diagnostic difficulties even to the experienced arthroscopic surgeon. The symptoms include mediopatellar pain mainly during physical activity, cracking, crepitation, popping, catching, pseudolocking and sometimes instability sensation. The diagnosis of this syndrome is absolutely arthroscopically set and the treatment is the arthroscopic resection of the plica. The aim of this study is to evaluate this entity according to international references and our experience.
Material and method: In 271 arthroscopies we found pathological synovial plica, which was between femoral condyle and patella in 22 knees (8,1%). Medial plica syndrome was present in 14 of 22 knees (5,1% of total knees). In the rest of the 8 arthroscopies (3%), we found medial plica syndrome, which coexisted with other non-associated lesions (e.x. ACL rupture, meniscal tears, cartilage lesions etc.). We re-examined only the patients who had plica syndrome without other lesions (14 patients) and they were treated by arthroscopical excision of pathological plica. 10 out of 14 patients underwent the arthroscopy by local anaesthesia (71,4%)
Results: The results classification was made according to the evaluation of pre and post-operative pain of the patient, based on Farkas et al. scale (1997), which was from

full absence of pain (0), till the pain which minimises every physical activity (5). The results are grauated excellent (full recovery of activities), good (recovery of most activities with occasional symptoms), satisfactory (no difference in symptoms) and poor (aggravation, no activities).
The average score of preoperative pain was 4,3, while postoperative was 1,3.
Excellent results were obtained in 4 patients (28,5%), good results in 9 patients (64,3%), and satisfactory in 1 patient (7%). No patient's situation has been aggravated.
Conclusions: Synovial plica of the knee may be pathologic entity and always has to be evaluated during arthroscopy. It has to be resected when it impinges between femoral condyle and patella, when it is hypertrophic and when during the arthroscopy there is no other evident cause of the symptoms.

O28 **Artroscopy and Local Anesthesia: Our Experience**

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The appreciation of pain relief quality, during the operation at 12 knee arthroscopies with local anaesthesia (Ropivacaine 5%).
Intra and postoperatory, the majority of patients was satisfied with the result of anaesthesia (VAS <4)
The advantage is: Arthroscopy without general anaesthesia and minimum hospitalization.

O29 **The Importance of Closed Kinetic Chain Training Rehabilitation of Knee After ACL Reconstruction**

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It is frequently at athletes and gymnasts. This plantar aponeurosis assure the static stability of foot and transmission of muscle force from triceps sural to toes, during gait.
The aim of this study is to apply the rehabilitation programme to athletes that present break plantar aponeurosis.
Material and method: Our study include 15 athlets(age 18-22years; and 5 gymnasts age 15-20years). Study was made between april 2002-april2003. They present brutal pain, total functional impotence, inflammatory process in medioplantar side.
Our clinic and functional evaluation include: active and passive motion, special tests like-eversion test, inversion test, Drawer test, Kleiger test, Squeeze test, Heel tap test. Also we used visual analogique scale(VAS) (0-10) and Spitzer scale(0-10); arch index and grade Kumbhare. Paraclinic evaluation –echographic aspects.
Rehabilitation programme include: 10days rest, taping, decrease the pain using AINS therapy.
>From 10days to 21day we began the kinetic and physical rehabilitation programme using cryotherapy (4time/day, 30min); massage of triceps sural, passive mobilization, stretching of tibial muscle, quadriceps and hamstring. Second phase of rehabilitation is from 21day to 45day, and include: reeducation of gait, using orthesis during gait; Cyriax massage; stretching exercises; proprioception exercises, exercises that use PNF

method for improve muscle force, mobility, ability, motor control; plyometrics exercises.
After 45 day to 60 day we used only plyometrics exercise

Results: VAS-from 6,4points before treatment to 2,5points after.
Spitzer scale from 183,5point before to 27,4after.
Grade Kumbhare from total score 51(64% total impairment) to 39(49%total impairment)
After 60days 70% from our subjects go back to sport activity.

Arch index:

Heel side	2 before	5after
Middle side	3 before	4after
Front side	1 before	6after
Total area	6 before	15 before

Conclusions: Kinetic programs –2times/day using at 50% from our subjects, involve a good and rapid return to sport activity(less than 60 days).
That means that this kinetic rehabilitation programme is more efficiency if we used this programme at soon at possible and if we can 2 times /day ev

O30 **Acute Ankle Ligament Injuries: Clinical Therapeutic Applications and Recovery Acceleration**

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Aim: To establish decrease in full rehabilitation time in correlation with clinical therapeutic applications according to the healing process phases.
Materials – Methods: From 1997-2002 132 athletes with acute ankle sprains were included in our study. Patients were divided in two groups: those who followed the prescribed rehabilitation program in full detail, and those who failed to comply with the instructions. All cases were initially classified in 4 grades (I, II, IIIA & IIIB) according to our classification criteria. The protocol consisted of PRICE and isometric exercises during phase 1 (inflammation), AROM and stretching exercises during phase 2 (fibroproductive) followed by isotonic and eccentric exercises during remodelling phase (phase 3). We recorded the time ("recovery" duration) needed for executing the advanced hop test without clinical discomfort. No modalities were used during all phases. SPSS for Windows were used for statistical analysis. The probability level was set at 0.01.
Results: In group A, 42 cases were grade I and needed 8.03 days (SD=4.45) for recovery, 38 grade II needed 13.35 days (SD=3.85), 16 grade IIIA needed 16.81 days (SD=8.37) and 5 IIIB patients needed 28 days (SD=7.84). In group B, 17 grade I cases needed 12.9 days (SD=3.17), 9 grade II needed 26.55 days (SD=5.71), 4 grade IIIA "recovered" in 36.5 days (SD=3.77) while 1 patient with grade IIIB sprain needed 54 days for "recovery". Statistical comparisons between groups (IIIB excluded) showed highly significant difference.
Conclusions: Application of PRICE, flexibility and strengthening exercises along the rehabilitation course of ankle sprains, especially when applied in accordance with the

healing process stages, can lead to faster recovery, making rehabilitation focused in certain goals.

O31 **Before or After the Soccer Training the Performance of the Lower Limb Proprioception Training**

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The muscular fatigue represents an inevitable phenomenon for daily physical activities that the central nervous system has to take into account. Fatigue affects proprioception negatively through either deficiencies in the activation of the muscular mechanoreceptors or a decrease in the muscular function. The purpose of the present study was to investigate the effect of a balance training program performed under different fatigue conditions. More specific, the aim of the study was to investigate which is the optimal time to apply a balance training program to soccer players (before or after the soccer training).

Methods: The sample of this study comprised of 26 young soccer players (16,11±1,19), who were divided into two groups, followed the same intervention balance program (20 min, 3 times per week, for 3 months). The two groups performed the balance program at different stages. The first group (N=13) performed it before the soccer training and the other (N=13), after the soccer training. Before the beginning and after the completion of the balance program, the subjects performed static balance tests on a balance system (deviations from the horizontal plane, Total, AP, ML) and on a balance board (time on balance). All these tests were performed immediately after a soccer training session.

Results: The data was analyzed statistically using Anova Repeated Measures and the results revealed significant differences between the pre and post balance training measurements. Both groups improved the balance ability equally.

Conclusion: Considering the overall results of the present study, what is proposed is that healthy athletes should perform balance exercises in order to improve their proprioception ability. The balance exercises could take place before or after the sport specific training.

O32 **Our Experience in Ankle Arthroscopy.**

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AIM: The purpose of this study is the presentation of our experience and the clinical results of ankle arthroscopy in selected patients.

MATERIAL AND METHOD: We reviewed 10 ankle arthroscopies performed from 1999-2001. The patients were 5 male and 5 female, aged 18-67 years (mean 41 years). In every patient the procedure was performed under tourniquet ischemia and in 2 cases skin traction was used.

One patient presented loose osteochondral bodies, 7 cases were treated for ankle osteoarthritis - shaving and lavage. In particular in two of them osteophytes removal from medial and lateral malleolus was performed. Finally, two cases were treated for grade I osteochondritis of the talus (the lesion was treated with drilling).

RESULTS: In the patient with loose bodies we have had excellent clinical result after their removal. In the two cases of osteochondritis of the talus, we also have an excellent clinical result. About the 7 cases of ankle osteoarthritis the 5 of them are free of symptoms (pain, swelling) as well as of their ability to walk long distance. All patients stayed in the clinic for one day and entered physiotherapy program on an outpatient basis.
CONCLUSION: The ankle arthroscopy is an effective form of treatment for ankle disorders. It requires significant experience in arthroscopic surgery.

O33 **Comparison of the Lactate Analysis on Field and in Laboratory Conditions**

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Objective: Blood lactate level analysis is commonly used to evaluate the endurance performance capacities of the athletes. In this study, time and speed dependent running tests and lactate level analyses were performed to investigate if there were any differences between field and laboratory tests.
Materials and Methods: 22 elite football players were enrolled in the study. A cross study design has been established to perform 3 minute runs and 30 seconds blood sampling sessions to each of the athletes with increasing running speeds. In the field, a hexagon lane has been established by exercise cones, with 20 meters of sides. The athletes ran on this lane according to the audio-signals produced by a Conconi shuttle run timer. (Prosport TMR ESC 1100, Tumer Engineering, Ankara, Turkey). The running protocol has been started at a speed of 8 km/hour, and athletes were asked to reach the corners at the signals. With 3 minutes of intervals, the speed was increased to 10 km/hour, 12 km/hour and then 1 km/hour increments were applied. During the run, heart rates were recorded at every 30 seconds. During the 30 second pauses between the runs, blood samples were taken from the ear lobes of the athletes with capillary tubes and blood lactate levels were detected by YSI 1500 lactate analyzer. (Yellow Spring Instruments Inc., Ohio, USA) The tests were ended when the lactate levels reached to 4 mmol/L. The same type of exercise protocol performed on treadmill in the laboratory. The running speed-lactate level, running speed-heart rate graphics were depicted and speeds and HR levels at 2, 2.5, 3 and 4 mmol/L lactate levels were determined.
Results: The running speeds at 2 mmol/L lactate level were found as 13,22 ± 1,57 and 12,06 ± 0,90 km/hour at lab and field tests, respectively. ($p<0,005$) Heart rate values were 173, 9 ± 9, 2 and 170, 6 ± 9, 2 beats/min. on treadmill and at field respectively. ($p>0,05$)
At 2.5 mmol/L level, 14,38 ± 1,05 km/hour and 12,88 ± 0,75 km/hour ($p<0,001$) running speeds and HR values of 180,1 ± 8,1 178,2 ± 8,3 /min ($p>0,05$) were detected at lab and on field tests respectively.
3 mmol/L lactate level values were as such; Speeds: 15 ± 1 and 13,39 ± 0,72 km/hour ($p<0,001$), HR: 184,4 ± 7,6 and 182,2 ± 7,8 beats/min ($p>0,05$) at lab and on field respectively.
4 mmol/L lactate level values were as such; Speeds: 15,91 ± 0,9 and 14,13 ± 0,69 km/hour ($p<0,001$), HR: 189,5 ± 6,9 and 187,4 ± 7, 2 beats/min ($p>0,05$) at lab and on field respectively.

Conclusion: Running speeds showed significant differences between laboratory and on-field tests, whereas HR values revealed no significance. The unstability of the field physical conditions have thought to be the reason of the significant difference of running speeds at specified lactate levels. Laboratory tests conducted by treadmill would be proper to evaluate the improvement of athletes' endurance performance due to the well-standardized indoor conditions.

O34 **The Effect of Two Different Exercise Protocols on Postural Balance of Football Players**

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Objective: To detect the effects of incremental exhaustive and 20 minutes exercise at running velocity corresponding to LT (lactate threshold) on postural balance of football players.
Materials and Methods: 15 elite football players were enrolled in this study. Same athletes performed an incremental exhaustive and 20 minutes exercise at running velocity corresponding to LT (lactate threshold) with one week intervals. Each athlete performed stabilometric postural balance test before the runs at resting situation. Both exercises were performed on a treadmill. Incremental exhaustive exercises were applied starting with speed of 10km/hour, increased with 1 km/hour at every step until the athlete gave up running due to extreme exhaustion. At the point of exhaustion, the athlete asked to step immediately on the stabilometer (PROSPORT TMR ESP1000, Tümer Engineering, Ankara) for 30 seconds. The athletes completed the 20 minute run at LT velocity and the stabilometric tests 1 week after the incremental exhaustive exercises.
Results: There were significant differences between the postural balance of the athletes before and after the incremental exhaustive exercises. ($p< 0.05$) Although the postural balance data of the athletes after LT velocity runs were strikingly worse than the resting values, it was not statistically significant. ($p>0.05$)
Conclusion: Incremental exhaustive exercises significantly alter the postural balance of the athletes. Reduction of the postural balance can result in uneven injuries during the training or competition periods. Non-exhaustive but continuous exercises also may reduce the postural stability of the athletes but further studies should have been conducted to explore the effects of different types of exercises on proprioception and balance properties of athletes.

O35 **Comparative Research of Four Different Starting Positions for Manual Muscle testing of the Hip Joint Rotators, for Grade 2, and Suggestions For More Precise Measuring**

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The purpose of this article is to explain the importance of selecting a proper starting position for manual muscle testing of the hip joint rotators in order to achieve more objective results. It distinguishes the disadvantages of the different starting positions

proposed by various authors and points out the eventual mistakes to be avoided. One of the four original initial positions was modified to suggest a more accurate measuring technique.

O36 **Evaluation of the Efficiency of Paneurhythmy In Improving the Intellectual Faculties of 3rd Grade from a General School and a School for Mentally Retarded**

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The purpose of the research work is to evaluate the influence of Paneurhythmy training on the intellectual faculties. Research is carried out in the beginning and at the end of the period of training in a general school and a school for mentally retarded with pupils divided in two groups: experimental group and control group, who do not play Paneurhythmy. In the general school imagination (Warteg test), stability and switching over of attention, and visual memory are tested. In the school for mentally retarded children research is carried over stability and switching over of attention, and general intellectual level (Raven test). Results are processed with variation analysis. As a result of systematic Paneurhythmy training we find strong and verified improvement of the following indicators. For general school pupils: attention (stability and switching over), and imagination. For mentally retarded pupils: attention (stability and switching over), and the intellectual development as a whole. Paneurhythmy is a successful corrective and compensatory method. Key words: intellectual functioning, mentally retarded, Paneurhythmy.

O37 **Fatness and Fitness of Hungarian Schoolboys**

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Obesity and physically inactive lifestyle are two of the most prevalent risk fac-tors for common chronic diseases in the industrialised world. A physically inactive lifestyle is a risk factor for weight gain with age, moreover, obese individuals are gene-rally very sedentary, as their excess body mass constitutes a major obstacle in adopting a more physically active lifestyle. The ratio of fat and especially obese children shows an approximately double increase during the past 25 years in Hungary.
The aim of the study was to compare selected anthropometric characteristics and motor test scores of 10 to 13-year-old, non athletic Hungarian schoolboys.
A total of 1718 subjects were devided into three groups by their relative body fat content: G1 = F% < 25, G2 = F% is between 25 and, G3 = F% > 30.0. The body build was characterized by the metric index, the body fat content was estimated by skin-fold thicknesses followed the suggestions of Parízková, and the BMI was also calculated. Physical performance was estimated by the results in 30m dash, 400m run and 1200m run tests.
The summarized ratio of fat and obese boys was high, ranged between 23 and 29% in this sample. Both fat and especially the obese children were significantly taller than their non fat counterparts, but no real biological explanations can be mentioned in respect of taller height of fat and obese boys. For their significantly taller stature

refers more picnomorphic mean growth type in all the investigated age groups. Since the metric index is the ratio of chest depth and width corrected by height, the distorting effects of greater skinfold measures around the chest is smaller than the mean differen-ces. The picnomorphic phisique of obese children should evaluate as human biological attribute.
Mean running performances were significantly lower in the groups of fat and obese children. Nevertheless, the relative differences were smaller in 1200m run than those in 400m run, consequently the 1200m run test is more reliable for testing obese children. As one of the consequences of high body fat content only the subsequent mean running scores of Group1 (F% < 25.0) showed a significant age dependency.

O38 **A Comparative Study: Skin Folds, Estimated Percentage Body Fat, Total Body Fat Weigth and Fat-Free Body Mass in the Female and Male Turkish Athletes**

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The aim of this study is primarily to investigate the anthropometric parameters and body composition in handball, basketball, badminton, volleyball and underwater rugby players who are students in Physical Education and Sports Department in Turkey. 49 female and 51 male athletes have taken part in this study. Skinfolds of triceps, abdomen, suprailiac, chest (for only male), rear thigh (for only female), subscapula and front thigh have been measured in both female and male athletes. Estimated percentage body fat, body fat weight and fat free body mass have also been measured in athletes. The skinfolds of rear thigh in female players are significantly ($p<0.05$) higher than those of other female and male skinfold values. Minimum skinfold values have been observed in subscapula and chest of female and male athletes, respectively. Although estimated percentage body fat and body fat weight values in female athletes are significantly ($p<0.05$) higher than those of male athletes, fat free body mass in male athletes is significantly ($p<0.05$) higher than those of female athletes. According to results, athletes who have taken part in this study are appropriate for the sports they are exercising. The results have also shown that ability selection has been applied successfully by Physical Education and Sports Department. Similar selections should strongly be recommended for secondary school students, particularly for adolescents, in Turkey.

O39 **Use of Supplements of Diet in Athletes Adolescents**

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The recent years the athletes often receive supplements of diet. These may include not prescribed medicines, plant extracts, and vitamins, are sold without directions on sure use this substances can have side effects and interact with medicines and foods.
Aim of our work was to study the use of supplements of diet in adolescents that they were exercised systematically.

Material - method of our work they constituted 52 personal interviews of adolescents that dealt systematically with the sports. From them 52 adolescents the 23 were girls and the 29 boys.
Results supplements of diet received the 23% of adolescents from which the 17% were boys and the 28% girls. The supplements of diet which used were iron the 85%, vitamins the 48%, trace elements 15%, amino-acids 30%, phosphor 15%, calcium 18%, energetic aids 22%, the boys adolescents athletes received the supplements of diet, to12, 6% from alone them, the 79,4% after constitution the coach, 8% after constitution of doctor the corresponding percentages for the girls were alone them 2,6%, after constitution of coach 25,2%, after constitution of doctor 72,2%.The use of supplements of diet became in the 30% for improvement of athletic records, while the 70% after medical advice because dietetic restrictions .The 35% considered that the supplements of diet have not side effects.
Conclusion supplements of diet use less from the 1/3 of athletes. The Pediatrician should explain and inform the adolescents that the supplements of diet are not without risk and are not necessary when the individual has adoption a right and balanced diet.

O40 **Assessment and Treatment of the Muscular Imbalance in Shoulder Instability**

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The paper is aimed on assessment end treatment of the muscular imbalance, as a factor relevant with minor shoulder instability The term minor instability refers to a condition in which chronic microtrauma involving the stabilizing mechanism of the glenohumeral joint leads to subluxation of the humeral head. This condition is commonly associated with athletes involved in repetitive, high velocity activities such as throwing and swimming. Recent investigations shows the muscle imbalance could be causal factor, but also a consequence of minor instability. The clinical examination signs which might alert the physiotherapist to the potential diagnosis of minor instability are reviewed. The presentation is stressed on the relationship and differential diagnosis between minor instability and subacromial impingement. Conclusions about the typical muscle imbalance involved with the condition have been made. The authors states that not only the condition of the glenohumeral musculature should be assessed and managed, but of great importance is also to pay attention on the condition of the scapular stabilizers. An original approach to management with emphasis on establishing muscular control is presented.

O41 **Speed and Endurance of Prepubertal Boy - Comparison in Eight Nations**

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A low level of habitual physical activity and consequently, a low or moderate cardiorespiratory performance are one of the leading risk factors for the development of fatness and obesity and their unfavourable health consequences both in childhood and adulthood. A lower than required cardiorespiratory performance has a significant

role on current and future health status. Tests of sprinting, distance running, jumping and throwing are most commonly used in assessing physical fitness. Since the most important determinant of cardiorespiratory endurance in healthy individuals is the habitual physical activity, the differences in middle- or distance running times may characterise the life style in general. The general perception is that children and youth of the economically developed societies are less active and physically fit than it is recommended for the optimal protection against future chronic disease. The level of habitual physical activity in children can be different in a given geographical region, however, the generation differences within one country are also marked.

The aim of the study was to compare two running performances of prepubertal boys living in different cultural, socio-economic and geographic regions.

Data collection was carried out in 3.521 volunteer, non-athletic schoolboys aged between 10 and 12 years in five countries (Cyprus, Egypt, Hungary, Malaysia and Romania) between may of 2001 and October 2003. The classes were selected randomly in all the available schools. The Cypriot (CYP) boys were living in the capital and its sub-urbs, all of them were of Greek origin. The Egyptian children were the inhabitants of Banha (the city is the capital of Banha County in north-east Egypt). All the Hungarian subjects were of Europid origin, this sample contains the children of Gypsy families separately. The Romanian boys were living in Oradea. The Malaysian boys represent the children of town Ipoh (the settlement is the capital of Perak State, in middle-north Malaysia). The Malaysian samples were divide into three groups by the dominant nationalities. Both parents of the children belonged to the same nationality, namely, Chinese (CHI), Indian (IND) and Malay (MAL). The samples represent the middle socio-economic class of the respective country. The Gypsy boys represent exception in this respect, belonging to the lower socio-economic class of Hungary.

Height, body mass and 5 skinfold thicknesses (biceps, triceps, subscapular, sup-railiac and calf) were measured according to the suggestions of the International Biological Program. Body fat content expressed as a percentage of body mass was calculated by the description of Parizková. Sieber-Hegner anthropometer, the same calibrated digital weight scale and Lange skinfold calliper were used in all the four countries. Running speed was measured by 30 m dash. Three attempts were performed on the same day, and the best result was used. Cardiorespiratory endurance was estimated by the results of 1200 m run. Data collection was carried out by the same team in all the 5 countries. Differences between the means were tested by F-test following one-way ANOVA at 5% level of random error. In case of significant F-value, the Scheffé's critical difference was also calculated.

According to the real anthropologic variability the mean heights and consequently the body mass averages were different. Significant, but random variability could be observed among the relative body fat content means. The characteristic averages were over 20% in general, the two exceptions are the Hungarian and Romanian boys in this respect. The running performances showed a remarkable internation variability also. The marked performance variability cannot be attributed to the variability in body fat content or to the number of curricular PE classes. Almost all the children had 1 PE class in a week. Although the 2-3 classes is characteristic only in Hungary, the mean running performances of the Gypsy boys were the lowest and the Cypriot and Romanian subjects performed in the same level or better than the Hungarians in this comparison. The possible rank order created by the estimated habitual (extra curricular) physical activity is: Romanian, Cypriot, Hungarian, Malay, Chinese, Indian, Egyptian and Gypsy. The level of habitual physical activity and the quality of performances cannot be attributed to the characteristic life standard.

O42 **Recording of Children's Accidents in Camps**

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Camps constitutes a micrography of society, where could presenting equal risks. This risk can be related with child or staff behavior, with facillities, with the way of operation or even with the activities which developed(Schirich, 1999). The aim of this study was to record injuries risk by which childrens offenden in a camp enviroment at the duration of all periods of camps operation. In the present study participated 8 camps which reside in different regions of Greece. For the recording of accidents were used the "Student Injury and Incident Report for use in Swedish Schools"(Laflamme, Menckel, και Aldenberg 1998),which was modified for the present study needs. According to the results the higher percentage of accidents are caused at the first period(51.8%).Injured pupils were 6-11 years of age and boys were more likely to present with an injury (58.8%).Most injuries caused at evening hours (45.9%) and the greatest proportion of injuries occured on playground(18.5%). Most injuries caused in physical activities (46.4%) and especially on football(17.1%). In the 57% of injuries used some type of equipments, and the type that was involved more often was that of ball (39%). In the 39% did not exist supervision, while the 51.4% of activities they had not been organised by adults. The type of surfaces that was involved more was that of τσιμέντο,while the movements of the body which involved waw running(50%).The main injury event which involved more often was that of slip cement(22.5%)and the part of bodyinjured the knee(22.0%). With regard to injury type το cut/laceretion were more likely to present (51.1%). According this it could be created a risk profil for the location and activities which take place in a camp, while at the same time gives the possibility to camps staff taking the suitable corrective and preventive measures for the reduction of injuries risk.

O43 **Diseases Rate and Traumas in Students' Sport**

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Morpho-functional indices and health of students involved in active sports greatly depend on the branch of sport they are active in, trainings and competitions. Besides, students sportsmen suffer great psycho emotional pressure while studying and during the examination period. These factors create greater risks for pathology and sickness.
The aim of this research was to examine and compare the distribution of traumas and sickness among students' sporsmen in certain sport branches. The research was carried out in Kaunas Sport Medicine centre on the Lithuanian Academy of Physical Education Sports medicine department. 198 students of all courses took part in it (41 rower, 34 boxers, 94 basketball players and 29 handball players). Physical development was investigated on the basis of anthropometric body measurements. Body adaptation to physical load was estimated performing physical charge test. Sickness rate and traumas statistic analysis was performed on the basis sports medicine department data. Using PC programs, mathematic statistic analysis of data carried out.
The research proved that students' sportsmen morphologic and functional indices depend on the branch of sport and it do not have essential differences from predicted values. The adaptation to physical loading in all groups of students is normal. The

research proved that all students' have some health complaint. Disease of heart and blood vessels system are the most common among basketball (68.7%)and handball palyers (60.7%0. they occur rarely among rowers (48%), and boxers (38.3%). Respiratory diseases are the most rare among basketball players (8.8%), and they occur almost frequently (22.3-31.7%) among the representatives of other sport branches. Traumas in the common structure of diseases compose the lowest percentage (14.9%) in rowers' health; in basketball and handball players traumas common cases structure percentage (22.4-24.6%0 is almost equal. Rowers more often have muscular and ligament strains and brakeage (57.2%). They are frequent among basketball players (41.7%). Boxers more often suffer from bruises and wounds (47.4%). Other traumas are almost equally divided among all sportsmen.
In conclusion, in should be mentioned that students sportsmen illness and injuries have essential differences which could be influenced by specifications of sport branch and training and competitions specifications.

O44 **Supraspinatus Syndrome in Athletes - Operative Treatment**

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In the period from 1995 to 2003 we have operated 17 patients. 14 of them are professional athletes. They had complaints of pain and movement restrictions. Five of them are volleyball players. two basketball players. four body builders. one weight lifter, and two gymnasts. All the patients have returned to their professional and daily activities postoperatively. One of the volleyball players is a member of the Bulgarian national team and now plays in France. The weightlifter is from the Cyprus national team and has just started preparation to the European Championship 2004. We want to pay more attention that the operative treatment in professional athletes should not to be delayed.

O45 **Most Frequent Sports Injuries of the Shoulder**

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In the last decade the sport injuries became more frequent. The sport loadings are on the limit of the human capacities. The increasing of the sport's injuries is related to the professional sport and also to the week-end and amateur's sport's activities. The authors present the more frequent sport injuries of the shoulder. They analyse the operative treatment of 74 cases of chronic anterior shoulder instability. 29 surgically treated ruptures of the pectoralis major muscle and 7 cases of supraspinatus syndrome. The results are presented and the advantages of the surgical treatment are discussed.

O46 **Evaluation of Balance and Muscle Strength in Physical Education Students with Recovered Lower Limb Injuries**

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Aim: The main aim was to evaluate effects of lower limb injuries on balance and muscle strenght in univercity physical education student.

Methods: Sixty voluntary students of both sexes from the Dumlupinar University Scholl of Physical Education KUTAHYA - TURKEY were divided into two groups: Thirty students had lower limb injuries and Recovered Group (RG), mean age 21.7±1.5 (19-26); and thirty students a non-injuried control group (CG), mean age 20.7±1.8 (18-29) years. RG were injuried 56.7 % ankle, 43.3 % knee injuries and were recovered since 3.6 ± 1.7 (2.5-6) months. Both groups are training sports (basketball, veleyball, soccer.....) twenty hours a week. The CG was selected in order to match the RG characteristics, such as: age, mass and sex. Standing on dominant and non-dominant one leg, functional reach and manuel muscle tests were used for assessment.
Results: Static and dynamic standing one leg test on non-injuried leg eyes open and injuried leg eyes closed were significantly lower in RG ($p<0.05$). The results showed no significant differences between the groups in muscular strenght and functional reach test values ($p>0.05$). Conclusion: Althought intensive training program and normal muscular strenght still continue balance problems after lower limb injuries. Thus, propriception training is important and should continue even muscular strenght is normal.

O47 **Spondylolysis as Causative Factor of Appearance of Low Back Pain (LBP) in Athletes**

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It is estimated that the 80% of population worldwide, have even felt ache in the lumbar region of vertebral column once time during his life (Dreisinger & Nelson, 1996). The LBP is frequent so much in individuals that have adopted the sedentary life as in individuals that participate systematically in sports. Studies have shown however that the causative factors of phenomenon are differentiated between this two populations. Moreover it has been observed that sports that are characterized from torsion and bending movements of lumbar region, for example tennis, golf, baseball, include more risks for appearance of LBP.
The purpose of this studding was are investigated the reasons of appearance of LBP - and how many of these are differentiated - in athletes that participate in different type of sport and to be compared with corresponding results of not athletes with LBP. For the realization of research they were selected N=90 subjects that they safer from LBP, with mean age 19.4 years old and were separated in three groups (athletes of table tennis n = 30, athletes of football n = 30 and not athletes n=30). All subjects were submitted in clinical and radiological control, were recorded their medical background, and they followed conservative treatment with anti-inflammatory and rest, where this was considered essential. From our results it was observed that the main causative factor of appearance of LBP in the athletes of table tennis was spondylolysis (60%). Same radiological findings were observed n the footballers in smaller percentage 30%, while only in 2 not athletes (6.7%) was found spondylolysis. Moreover it was observed that the athletes of football had faster reactivation while the way of appearance of symptoms was differentiated between athletes of table tennis (repeated and progressively symptoms) and the footballers (acute appearance of symptoms).

The results of our study, strengthen the opinion of possible, appearance of LBP in athletes, due to injuries that owed to the nature of sport. However, it will be wise to investigate the possibility, implementation of rightly structured program of muscle strenghening, before even the symptoms will be presented, to contribute considerably in the reduction of rate of prevalence LBP in the various sports, as well as in the obliteration of serious causes of challenge as is the spondylolysis.

O48 **Stress Fractures in Athletes**

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Purpose of the study: is to study the relevance of stress fractures in athletes with age, sex, level of exercise and the exact point of the skeleton that stress fractures occur.
Material: In a period of 5 years we encountered 100 cases of athletes that suffered from at least one stress fracture from a sum of 3482 amateur and professional athletes in Greece. Thirty five were field athletes, 27 runners of big distances, 23 dancers and 17 football players. The mean value of age of the injured athletes was 21.8 years.
Method: All injured athletes (100) were submitted to a fully clinical and radiological control and the results were analyzed in accordance with the age, the sex, the type and the level of exercise.
Results: From our results we found that 62 athletes were male and 36 women. The commonest point of stress fractures were the metatarsal bones(n=37), the tibia (n=30), the fibula(n=22) and the scafoid bone of the tarsal region (n=11). The commonest sport we encountered stress fractures was the field (n=35), followed by the runners of big distances (n=25), the dancers (n=23), and the footballers (n=17). The commonest point of the skeleton was different from sport to sport. In the field athletes the commonest stress fracture was the scafoid and then the tibia and the metatarsals. On the other hand in runners of big distances the tibial stress fracture was more prevalent than the fibular and the metatarsal fracture. In dancers we encountered exclusively metatarsal fractures while in footballers we diagnosed fractures of the tibia scafoid and fibula.
Conclusion: It is clear the fact that the occurrence of each stress fracture depends mainly on the sport but also on the level of exercise of the athlete.

O49 **Injuries in Amateur Dancers**

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Purpose of the study: to study the types and the rates of occurrence of fractures in amateur dancers.
Material: In a period of 2 years, from 2000 till 2002 we attended three clubs of 76 amateur classical and modern dancers. From these dancers 12 female and 8 male dancers had been treated for some kind of injury.
Method and results: The main complain was either an acute injury or a chronic ace. The commonest injury that was diagnosed was metatarsal fracture (n=14), tibial

fractures (n=4) and vertebral fractures (n=2). In 16 of the 20 injured dancers we found stress fracture while in the rest 4 the fracture was after a direct blow of high energy. It is interesting the fact that all female dancers were suffering from some degree of amenoria and showed big percentage of stress fractures (11 out of 12). On the other hand the male dancers showed grater percentage in injures of high energy.
Conclusion: We noticed the fact that the injuries in dancers depend on the sex, the etiology of which must be a future field of research.

O50 **Alternation of Immune Markers During Training**

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Introduction: The main component of the immune system comprises the leukocytes. The number and functional capacities of them alters during exercise. The reason is probably related to increased levels of stress hormones during exercise and entry into the circulation of leukocytes from the bone marrow to the circulation. After the pause of exercise the number of neutrophils continues to increase and the number of lymhocytes decreases. Therefore it is shown that the neutrophil / lymphocyte ratio (N/L ratio) is also affected. Except from the number of leukocytes it is also affected the function of marrow as for the blood making which is estimated through the counting of soluble transferrine receptor (STFR). The aim of our project is the observation of the alteration of the number of leukocytes, N/L ratio, the number of RBC and finally STFR.
Subject–Method: We analyzed the blood samples of two teams of professional soccer players in Drama (44 players) before training (A phase) and after training (B phase). We examined blood count with hematology analyzer (Sysmex SF 3000) and control of STFR with the method nephelometry (Dade Behring).
Results: 1) WBC: There is important increase from 7,16±0,58 (A phase) to 8,56±0,65 (B phase). 2) N/L ratio: There is important increase from 2,19±0,3 (A phase) to 2,52±0,29 (B phase). 3) RBC: The number of RBC decreased from 4,77±0,1 (A phase) to 4,75±0,05 (B phase). 4) STFR: The levels of STFR decreased from 1,37±0,12 (A phase) to1,30±0,07 (B phase).
This statistic control has become with t-test for paired observations and with test Wilkoxon also for paired observations. Significant level α=0,05.
Conclusion: Overtraining when it is escorted with inadequate recovery, may result in pathological situations: anemia, infection, predisposition etc. So for the preservation of the homeostasis of the function of marrow it is necessary the balanced cooperation of blood forming cells and immune system. This is checked with blood analysis and is succeeded with frequent medical observation and support.

O51 **Quantification of Basic Function of Locontor System: A Means of Objective Assessment for Athletes in Competitive Sports**

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Walking use a repetitious sequence of limb motion to move the body forward while simultaneously maintaining stance stability. As the body moves forward, one limb serves as a mobile sorce of support, while the other limb advances itself to new

support site (perry, 1992). Function of the locomotor system is an integrated part of the athletic performance in the competitive sports. Inman (1968) in his work on the conservation of energy in ambulation, considers that in order to provide an accurate analysis of human locomotion, it is necessary to combine the knowledge gained from energy expenditure with knowledge gained from the force plate studies. Results of Bernardi et al (1999) suggests that heart rate was a good measure of walking energy cost in young adults and other subjects with no cardiac problem or anxiety.

O52 **Nutritional Knowledge, Attitude and Practices of Body Building Trainers in Ahwaz, Iran**

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Objective: To determine nutritional knowledge, attitude and practices (KAP) of male and female bodybuilding trainers in Ahwaz, one of the 7 major cities of Iran.
Design: KAP questionnaires which contained information about nutrients, food groups, using of supplements and ergogenic aids, were completed by trainers.
Subjects: 63 certified male bodybuilding trainers and 30 certified female trainers were recruited from all clubs of the city.
Results: All of the male and 47 % of the female trainers have prescribed diet program for their trainees ($P<0.001$) and it showed that there was a significant ($P<0.001$) relationship between their diet prescription and their educational degrees.
None of the female trainers neither use nor advise anabolic hormones such as Nandrolon; however 62% of the male trainers have advised hormones to their trainees while only 50% of them use hormones themselves.
49% of the male trainers who had higher educational degrees advised hormones for their trainees; interestingly 88% of the male trainers who did not have diploma degrees advised hormones for their trainees.
96.8% of the trainers did not know that minerals and 88.2% did not know water are essential nutrients; and more than 90% did not realize that fat and sugars are in food groups.
All of the graduated trainers VS 54% of whom with diploma degrees suggested drinking water in training sessions. More than 50% of the trainers recommended multi-vitamin supplement to their trainees.
Conclusions: The training courses and educational levels of trainers are positively related to their practices. All of the trainers need more theoretical and applied nutritional education.

O53 **Skin Blood Flow in the Forearms of Tennis During the Match**

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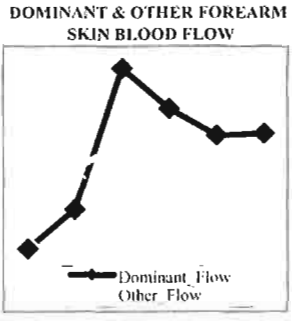
Introduction
The regulation of blood flow during the exercise is essential for the athlete, in order to reach a high level of performance [1,2].The aim of this study was to evaluate skin blood flow in the forearms of tennis players, during a simulation of a tennis match.

Methods

Thirty-two male right-handed tennis players aged between thirty and forty years, were recruited. During the common breaks of a tennis match, the skin blood flow was evaluated by using the Laser Doppler. For the simulation of the game we used a tennis ball machine and a speed radar in order to maintain the same level of difficulty in all our subjects.

Results

For the statistical analysis we used the ANOVA test.



LASER DOPPLER evaluation	Dominant forearm	Non-dominant forearm	Heart rate
1st	3,77 ± 0,57	4,56 ± 0,6	71± 8
2nd	6,15 ± 1,03	8,59 ± 1,11	142± 5
3rd	14,64± 3,1	10,06 ± 1,38	165± 5
4th	12,23± 2,0	9,10 ± 0,88	156± 6
5th	10,60± 1,2	8,61± 1,27	155± 7
6th	10,73 ± 1,05	8,94 ± 0,94	155± 2

Discussion-Results

The skin blood flow increased in both forearms. At the beginning of the performance the non dominant forearm reached higher values compared to the dominant one. After a period of time the values inverted and the dominant forearm skin blood flow enhanced at a level of statistical significance ($p<0,05$).Haemodynamic stabilization seemed to occur after the 33th minute of exercise. The competition between skin and skeletal blood distribution and the mechanisms of vascular contraction-dilation are probably responsible for those observations [3.4]. The results of this study suggest that the warm-up of the tennis players should last more than half an hour and the peak of the effort during the training should be after this period of time.

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O54 **The Break of Plantar aponeurosis at Athletes' Rehabilitation Program**

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It is frequently at athletes and gymnasts.This plantar aponeurosis assure the static stability of foot and transmission of muscle force from triceps sural to toes, during gait.

The aim of this study is to apply the rehabilitation programme to athletes that present break plantar aponeurosis.
Material and method: Our study include 15 athlets(age 18-22years; and 5 gymnasts age 15-20years). Study was made between april 2002-april2003. They present brutal pain, total functional impotence, inflammatory process in medioplantar side.
Our clinic and functional evaluation include: active and passive motion, special tests like-eversion test, inversion test, Drawer test, Kleiger test, Squeeze test, Heel tap test. Also we used visual analogique scale(VAS) (0-10) and Spitzer scale(0-10); arch index and grade Kumbhare. Paraclinic evaluation –echographic aspects.
Rehabilitation programme include: 10days rest, taping, decrease the pain using AINS therapy.
>From 10days to 21day we began the kinetic and physical rehabilitation programme using cryotherapy (4time/day, 30min); massage of triceps sural, passive mobilization, stretching of tibial muscle, quadriceps and hamstring. Second phase of rehabilitation is from 21day to 45day, and include: reeducation of gait, using orthesis during gait; Cyriax massage; stretching exercises; proprioception exercises, exercises that use PNF method for improve muscle force, mobility, ability, motor control; plyometrics exercises.
After 45 day to 60 day we used only plyometrics exercise
Results: VAS-from 6,4points before treatment to 2,5points after.
Spitzer scale from 183,5 point before to 27.4 after.
Grade Kumbhare from total score 51 (64% total impairment) to 39(49%total impairment)
After 60days 70% from our subjects go back to sport activity.
Arch index:

Heel side	2 before	5after
Middle side	3 before	4after
Front side	1 before	6after
Total area	6 before	15 before

Conclusions: Kinetic programs –2times/day using at 50% from our subjects, involve a good and rapid return to sport activity(less than 60 days).
That means that this kinetic rehabilitation programme is more efficiency if we used this programme at soon at possible and if we can 2 times /day ev

O55 **Acute and Chronic Effects of Power Training in the Cardiovascular System**

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Changes in cardiac frequence during relaxation time, in arterial pressure and lipidaemic profile are related with reduction of cardiovascular risks.
Cardiovascular changes are divided into a) chronic ones during relaxation time and b) immediate ones during exercise and those that are due to the Power Training that are present in every physical activity.
In chronic changes during relaxation time we see a small reduction or no change in the cardiac frequence, in systolic and diastolic arterial pressure, in the product of pressure by frequence, in total cholesterol and in LDL. Moreover we see a small increase or no change in the absolute cardiac output and in the HDL cholesterol. No

change is observed in the cardiac output relative to the surface of the body and to the lean mass tissue. The same happens as far as the cardiac function is concerned (systolic and diastolic). The Cardiovascular system immediately responds during exercise by increasing cardiac frequence during concentric or eccentric stage by increasing the arterial pressure and reaching the maximum value of systolic and diastolic during isometric contraction, by differentiating the cardiac output, that is reducing it during concentric and eccentric stage, increasing cardiac supply in both stages, increasing the intrathoracic pressure with the Valsava technique. The changes of the cardiovascular system that appear during exercise and which are due in the chronic power training are: the reduction of cardiac frequence, of the arterial pressure and of the product of pressure by frequence, the increase of oxygen consumption from the myocardium, the increase of the cardiac output and cardiac supply and the increase of VO2 max. Factors such as intensity, type and breaks during exercise influence the changes.

O56 **A New Classification of the Morphology of Suprascapular Notch. An Anatomical Study.**

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This study is suggesting a new classification of the morphology of suprascapular notch, for the first time in the literature based on specific geometrical parameters which are clearly separating each type.
420 scapulas were examined at the Laboratory of Anatomy in University of Cologne and at the Laboratory of Anatomy in Faculty of Medicine of A.U.TH. Four types of suprascapular notch were observed: **Type I** - without apparent notch: 35(8,4%), **Type II** - notch with longer transverse diameter: 177 (42,1%), **Type III** - notch with longer vertical diameter: 177 (42,1%), **Type IV** – notch with completely ossified superior transverse scapular ligament: 31(7,4%).
As vertical diameter was considered the maximal vertical diameter from the imaginable line, which joins the margins of the notch. As transverse diameter was considered the median line of the vertical diameter.
We believe that anatomical variations of the suprascapular notch will be determined by the use of this classification, because it clearly separates each type using specific geometrical parameters. This classification may, also, help to correlate the shape of the suprascapular notch and the suprascapular nerve entrapment predisposition.

O57 **Respiratory Physiotherapy in Cystic Fibrosis: AComparative Study of Conventional Physiotherapy and the Active Cycle of Breathing Techniques in Positions With and Without the Head Downwards**

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The active cycle of breathing techniques (ACBT) is an active method of respiratory physiotherapy, relatively new, that is used today in the 80% of the centers in Europe. In the present study the active cycle of breathing techniques in positions with and without the head down is compared with the conventional physiotherapy, that is a passive and dependent method and its effectiveness is established by many researches. In the present study 35 children and adults, aged 8-24 years old (14 boys and 21 girls), with cystic fibrosis participated. All persons received three methods of respiratory physiotherapy per 3months in a random order.
The first method was conventional physiotherapy that included postural drainage, pressure- vibration, percussion, directed cough in combination with respiratory exercises. The second method was the active cycle of breathing techniques in positions without the head down, supine and sitting positions in combination with respiratory exercises. The third method was the active cycle of breathing techniques in positions without the head down (sitting- supine) and with the head down (side lying left-right, titled forward- backwards in combination with respiratory exercises.
The results showed that the application of the active cycle of breathing techniques in positions with and without the head down has better results in the pulmonary function (PEFR, FEV1, FVC and FEF50), the saturation of O2 and the sputum expectoration.

O58 **Neurodynamics, Accomodation of the Nervous System to the Body Movements in Water Sports**

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The nervous system is a continuous tissue tract and pathology of one of its parts could reflect the others. The methods of the neurodynamics are based on the theory of D.Butler (1991).
The tension tests, that provide a basis for this research, set in stress the nervous system and if its reaction is normal (there's no pathology) the test is negative.
The aim of the research is to follow and furnish documentary evidence of the changes in nervous tension, which appear during a two weeks' course of water sports.
The tests of neural tension of upper and lower limbs made at the beginning and at the end of the course on the participants in the "Swimming" and "Water ski" groups, are enclosed.
The test results indicate the positive influence of water sports on neurodynamic. This preliminary research reveals the possibility to prescribe water sports as a method of treatment in many clinical states, connected with hightended tension.

O59 **Spirometric and Ergospirometric Evaluation of Elite Paraolympic Athletes**

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Peak performance requires the maximal participation of all body system and especially the cardiopulmonary and the musculoskeletal systems. The physically challenged athletes have limited involvement of the musculoskeletal system, in different levels depending on the degree of disability. For example, athletes with cerebral paralytic conditions or paraplegic, they have limited mobility, less flexible

joints, and in some cases, ataxia, especially during maximal effort. However, a fundamental question to be answered is if and to what degree the limited mobility affects cardiorespiratory performance during exercise, since this system is very important for peak performance. Two(2) elite athletes from the Greek Paraolympic National Swimming Team underwent spirometric and max exercise testing during the preparation for the European Games for Athletes with Cerebral Paralytic and Paraplegic conditions, which were held in France, in January 2004. Their cardiorespiratory fitness was assessed at rest and during maximal exercise and the results were compared with the respective parameters from two (2) elite swimmers members of the National Greek Swimming Team in order to determine the main parameters which limit performance, and the degree of limitation for each one of them Spirometric testing was within normal range for all participants. However, during maximal exericse on a cycle ergometer, VO2max was 93% higher for the National Team athletes (3,98 L/min) compared to paraolympic athletes (2,06 L/min). Similar differences were found in most of the pulmnary system parameters during exercise, for example, VO2 at the anaerobic threshold, (AT-VO2 +87%), the max Ventilation (VE +91%) and at the max tidal volume (VT + 71%), but the difference in respiratory rate was much smaller (+8,3%). On the other hand, the respiratory equivalents for oxygen (VE/VO2) and carbon dioxide (VE/VCO2) were similar both in nadir as well as during maximal effort. It is noteworthy that for Paraolympic athletes, HRmax did not differ as much.

In conclusion, although muscle peak and mean power is not very different in paraolympic athletes, especially when their body weight is taken into account, the inability to mobilize more muscle groups during max exercise, has a profound effect on VO2max. The transport of oxygen under these conditions is accomodated mainly by an increase in heart rate and to a lesser degree by increased respiratory capacity.

O60 **A Research on the Effect of our Method of Kinisitherapy on Patients Suffering Postmenopausal Osteoporosis**

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An original method of kinesitherapy has been applied to 42 women whose average age is 71.7 years [experimental group]

The kinesitherapeutic program consisted of isotonic physical exercises [30%], isometric exercises [30%] and special exercises that applied vertical pressure to the bones [40%].

The results were compared to those of 23 women whose average age was 61.2 years [control group] who did not participate in our program for physical activity.

After a period of 2 years, the patients of the experimental group showed better and statistically significant results in the densitometric parameters [BMD, T-score], the balance test and the muscle strength test, even though their average age was significantly higher that that of the control group.

O61 **Evaluation of Motor Performance of Mentally Retarded Subjects Using the Brockport Physical Fitness Test (BPFT)**

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Introduction: The BPFT is a health-related, criterion-referenced test of fitness .The BPFT may be used with youngsters both with and without disabilities. It was developed by Winnick & Short for use with disabilities, specifically those with mental retardation.
Objective : The purpose of this study was to determine motor performance of the mentally retarded subjects dividing into two groups about mild and moderate handicap.
Methods: 34 subjects (11 girls, 23 boys) were included in the study. They were divided into two groups: Group I (mild mental retardation), Group II(moderate mental retardation). Both groups were examined by Physical Therapists using The BPFT procedures. Physical Therapist selected the most suitable tests in BPFT for 34 subjects. The test were as follows; test 1 (sum of triceps and calf), test 2 (dominant grip strength), test 3 (20 m PACER), test 4 (modified Curl-up), test 5 (trunk lift), test 6 (back saver : sit and reach), and test 7 (shoulder stretch). Both Group I and Group II were informed about tests. Then they were examined by 3 Physical Therapists.
Results: Analysis of the results reevaluated that there was a significant difference between the groups respect in PACER (test 3), and sum of calf (test 1) ($p<0.05$). On the other hand, there was not a significant different about test 2, 4, 5, 6, 7.
Conclusion: According to the results of this study, physical fitness of mentally retarded subjects must be measured accurately in order to perform the most suitable exercises program. In addition it can be said that BPFT is very simple and easy test battery to evaluate the motor performance and physical fitness level of the disabled subjects.

O62 **An Analysis of Physical Fitness Level of Overweight Subjects**

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Objective: This study was planned to compare the physical fitness level of overweight and normal subjects.
Methods: 50 subjects were divided into two groups as Group I (25 normal subjects) and Group II (25 overweight subjects). Mean age of Group I was 29.52 ±7.94 years. And mean age of Group II was 35.21±8.31 years. Body Mass Index (BMI) score of Group I and Group II were 21.68±1.90 kg/m^2 , 28.35±3.24 kg/m^2 respectively. All of the subjects were included in this study had not any health problem such as hypertension, diabetes mellitus , coronary heart diseases, neurological or musculoskeletal dysfunction. All subjects were evaluated using physical fitness tests such as Harward-Step, push-ups, Sit-ups, flexibility, and balance. All results obtained from our study were analyzed using SPSS for windows statistical program.
Results: The results showed that scores of Group II were significantly less than scores of Group I regarding cardio-vascular endurance and a parameter of flexibility (trunk extension) ($p<0.05$).
Conclusion: To gain weight is an important risk factor regarding healthy life especially physical fitness level. That's why both overweight subjects and obese subjects should be evaluated using physical fitness tests in order to describe their physical health profile and to able to organize the most suitable preventive medical program to improve quality of life in overweight or obese subjects.

O63 **The Associated Treatment of the Posttraumatic Pain of Top Athletes**

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General data: An essential rule in the treatment of the chronical posttraumatic pains of top athletes is the prophylaxis of these by administering the antialgic medication in proper doses and at some fixed hours. In the blocking ambulatory treatment (B) and / or in the electrostimulation treatment (E), after the therapeutical session, at a certain period of time, the pains can reappear abode (at home). In order to maintain a continuity of the analgesia this free "gap" must be covered by a medicinal treatment.
The purpose of the work:It was analysed the efficiency of ketoroloc tromethaminas (ketorol) administering within the free therapeutical gap abode for the athletes with acute and chronic posttraumatic pains, previously treated ambulatory with blocking (B) and electrostimulation (E).
Material and method: We chose two groups of 30 (thirty) top athletes each, with acute and chronic posttraumatic pains (tendinitis, mioenthesitis, strains, lumbago, muscle stretching) at which were applied ambulatory:

- at the first group - only B and E
- at the second group - it was moreover administered ketorolac tromethaminas (ketorol) - 30 mg x 3 / a day - for 5-7 days.

The total efficiency of the the treatment was analysed (followed) by the assessment of the pain score according to scheme which comprises 9 (nine) lines of investigations and an estimate scala 0-4 for every line.
The analgetic effect of the ketorol was appreciated by the patiens according to a visual analog scala (VAS) - 0-10 - before and at every thirty minutes after the administering of the medicine dose.
Results: Very good results were obtained for 33,3% of the patients, good results for 16,6%, and insignificant results for 50% of the patients of the first group.
For the second group very good and good results were obtained for 80% of the patients and insignificant for 20% of the patients.
In addition, the patients who had taken advantage of the analgetic effect of the ketorolac tramethaminas, mobilized more, they were calmer and slept better.
Conclusions :In blocking (B) and / or electrostimulation (E) treatment the analgetic effects lasts 4-8 hours on an average, after which the pain can reappear.
For that free therapeutical "gap" of the 16-20 hours, ketoroloc tromethaminas assures an efficient analgesia for the most of the patients.
This associated treatment diminishes the therapy days number.

O64 **Changes in the Intercellular Matrix in the Deep Layers of the Articular Cartilage During the Development of Osteoarthrosis**

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In order to establish the pathological alterations in the articular cartilage, it is of great importance to determine the distribution of proteoglycan complexes (agrecan) in the deep layers. We used hystochemical method to estimate the agrecan concentration during different stages of experimental osteoarthrosis. The electronogrammes were later analyzed by computer techniques. We discovered that the most important changes take place in the so called "tide mark" zone in the deep layer. In it the agrecan concentration diminishes and the proteoglycan complexes undergo the process of disorganization. The computer analysis shows increased number of globular components of the agrecan. These alterations are the cause for the breakdown between the cartilage and bone and the appearance of irreversible degeneration processes.

O65 **Anatomical Study of the Meniscus Tears of the Acutely Injured Knee in Young Athletes that are Diagnosed Arthroscopically**

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The Arthroscopic surgery in the knee was most likely used for diagnosis, classification and management of meniscal lesions. The anatomy of isolated meniscal tears (type and location) in athletes with intact cruciate ligament is described. Arthroscopy was performed in 314 (83.1%) knees in the acute phase (< 6 weeks) of injury and in 64 (16.9%) knees more than 6 weeks after injury for a totally of 364 athletes (378 knees). Cooper's5 classification was used to classify the meniscal tears according to the type and location.
262 out of 378 tears (69.3%) were located in the medial meniscus and 116 (30.7%) in the lateral meniscus. Vertical tears [n=292 (77.2%)] were significantly more frequent as compared to the horizontal ones [n=86 (22.8%)] (chi-square test P<0.001). Longitudinal tears were the most frequent, 86 out of 262 in the medial and 51 out of 116 in the lateral meniscus, while the inverted tears 8 out of 262 and 2 out of 116 respectively, were the less frequent in both meniscii. Regarding the posterior horn in both meniscii (zone A and F) the tears were 152 (40,2%) and if these are combined by those extending from the posterior horn to the middle third (zone AB and EF) the tears were 244 (64,5%). Tears of the medial meniscus were found relatively more frequently in men than in women and the difference was significant (unpaired t-test, P<0.01). Vertical tears were also relatively more common in men than in women but this difference was not significant, whereas horizontal tears were significantly more frequent in men than in women (unpaired t-test, P<0.05).
In conclusion in athletes with isolated meniscal lesion, the type and location of the isolated meniscal tears differs from the meniscal tears that are presented with cruciate ligament rupture. Vertical tears and especially the longitudinal tears seem to be the most frequent.

O66 **Comparison of Step Measurement το Stroke Patients**

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During the first examination the mean value of the A group is 19.65 cm, while group B is - 29.22 cm, without a reliable difference - P(t)%=87.37%. Similar differences appear in the three tests, in wich we can see the damage of the immediate post hospital has smaller step length from those of the post period, meaning a year after the stroke. In the first period of the appliance of the Bobath method in connection with PNF date the pasients of the A group improve the result 14.16 cm - 72.06% wile those of the B group 9.30 cm (31.83). The difference of the improvement is not reliable (P(t)%=84.90%.

During the second period of the experiment we made (from the 10th until the 40th day), the mean improvement of the A group increases from 33.81 cm to 42.92 cm, meaning with 9.13 cm (27.0%). The improvement is statistically reliable, with a high degree guaranteed possibility. In B group the improvement of the step length is in smaller degree - 6.48 cm (16.82%).

For the wole period of the kinesiotherapy sesson appliance the A group improves the step length 23.29 cm wile B group 15.78 cm. To sum up we can point out that the Bobath method with date of PNF influences effectively the step length in both groups of the examined persons. Though the improvement in young patients is bigger, this leads in the equivalence of the indicator to the patients with an earlier stroke, meaning one year before the 40th day from their exit of the hospital.

O67 **Study of Traumatic Injuries in Women Fencing Competitions**

Naghavi S.H.
IRAN Fencing Federation

Background: Fencing is a traditional sport with increasing participation and popularity worldwide. Fencing was one of the nine sports in the first modern Olympic in Athens in 1896 and has remained as an Olympic sport ever since. Presently due to use of protective devices (protective clothing and mask), Fencing is relatively safe and injuries occurring during competition and training are relatively rare.

Nevertheless, physicians acting as medical officers at fencing competitions must be aware of possible sport injuries, injury severity and incidence and be adequately equipped to manage them.

Knowledge of fencing injuries especially in "Female juniors" can be very useful and profitable in designing methods for decreasing the risk and severity of injury.

The aim of this study was to quantify the incidence, severity and management of injuries in women fencing competitions.

Methods: This survey was undertaken during junior international fencing championship in women's Foil & Epee weapons, which was held in Yazd, Iran, Feb 2001.In total 50 fencers, Foil=27(54%)&Epee=23(46%) took part in 240 competitive matches. The mean age of athletes was 18.43 yr (sd=1.65, Min=16, Max=20). During the championship there was 14 requests for medical attention related to injuries were classified as follows:

The injuries across weapon: Epee=9 cases & Foil=5 cases. There was no significant difference between them (p=0.10). Cause of injuries: Injuries due to opponent's

weapon 9 cases (64.3%), Functional overloading and other types 5 cases (35.7%). Type of injuries: Wound 7 cases (50%), Bruise 2 cases (14.3%), Sprain 3 cases (21.4%), Spasm 2 cases (14.3%).
Location of injuries: Hand & Fingers were the most common locations of injuries with 3 cases (21.4%). Arm, Ankle & Neck were second place, each one 2 cases 14.3%.
Cancellation due to injury: Only one competition was cancelled due to severe ankle sprain.
Rate of injuries/100 participants was 28
Injuries were managed with RICE (Rest, Ice, Compression, Elevation). Two cases of neck injuries (One wound & one bruise) happened due to opponent's weapon in Epee. The most severe injury was ankle sprain, not responding to RICE. The athlete couldn't continue & competition was cancelled.
Conclusion: The result of this study has emphasized that if suitable protective devices are used, women's junior fencing competitions bear only a low risk of accident/injury, and that most of sport related injuries occurring in fencing can be suitably managed with RICE.
Although occurrence of dangerous injuries (like neck injuries) is rare, nevertheless, medical teams presiding at fencing competitions should be aware of possibility of these accidents and suitable emergency facilities must be available.

O68 **A Study of Traumatic Events in Junior Fencing Competitions**
Naghavi S.H.
IRAN Fencing Federation

Background: Fencing is a traditional sport with increasing participation and popularity worldwide. Fencing was one of the nine sports in the first modern Olympic in Athens in 1896 and has remained as an Olympic sport ever since. Presently due to use of protective devices (protective clothing and mask), Fencing is relatively safe and injuries occurring during competition and training are relatively rare.
Nevertheless, physicians acting as medical officers at fencing competitions must be aware of possible sport injuries, injury severity and incidence and be adequately equipped to manage them.
Knowledge of fencing injuries especially in "juniors" can be very useful and profitable to design methods for decreasing risk of injuries.
The aim of this study was to quantify the incidence, severity and management of injuries in junior fencing competitions.
Methods: This survey was done during Junior International Fencing Championship (men's sabre, foil & epee), which was held in Yazd –Iran Feb 2000.
155 Fencers took part in 610 competitions. The average age of athletes was 17.88 year (SD=1.20).
Results: 31 requests for medical attention (Sabre: 20cases, Foil: 6 cases, Epee: 5cases) related to injuries were classified as follows:
A) Injuries due to opponent's weapon (64.5%) including 12 wounds & 8 bruises.
B) Skin abrasions & blisters on the contact site between handle &hand, 6 cases (19.3%)
C) Functional overloading & other types 5 cases (16.1%)
All the injuries were managed with RICE (rest, ice, compression, elevation) & No competition was canceled due to injuries.

The most dangerous injury was on the carotid area of neck due to sharp end of a broken sabre weapon
Conclusion: Medical intervention percentage during fencing competition was low & most of accidents were light. The result of study emphasized that if suitable protective devices are used, youth fencing competitions bear low risk of accidents & most of sports injuries in fencing can be managed with first aids and RICE.
Although the injury due to sharp end of broken weapon is rare but it is quite dangerous and life threatening thus medical teams who are in charge of fencing competitions must be aware of this accidents and
Emergency facilities must be available.

O69 **Echocardiographic Aspects of Young Elite Fencers**

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Background: Modest increase in heart size (cardiac hypertrophy) represents a fundamental adjustment of healthy heart to exercise training.
1) Eccentric Hypertrophy: In Endurance training, internal ventricular dimensions increases.
2) Concentric Hypertrophy: In resistance training, thickened Ventricular wall represents compensation of workload on LV.There isn't any data about Cardiac characteristics of Fencers, thus this study was done as a starting point.
Methods: 25 members of Iran Junior & Cadet National Fencing team were compared with25 nonathletes as control group. Average age was 18.23 year (sd: 1.41) & 18 year (sd: 1.53) in Fencers and controls respectively.
Echocardiography was done in a heart hospital under supervision of Medical committee of Iran Fencing Federation. T-student test was used for analyzing the data.
Results: Significant statistical differences were found between Fencers & control group in:
-Interventricular Septal Thickness (9.55 & 7.66 mm, $p<0.05$)
-Ejection Fraction (%72 & %65, $p<0.05$)
-Left Atrial Diameter (34.02 & 30.16 mm, $p<0.05$)
-Diastolic Blood Pressure (66.66 & 74.16 mmhg, $p<0.05$)
Other differences weren't found significant statistically.
Conclusion: The results show that in Fencers Interventricular Septum is thicker Than Controls (9.55 vs. 7.55). There wasn't significant difference In Left Ventricular end diastolic & end systolic diameter. The findings support the Idea that Fencing could be considered as Resistance Training. It's obvious that this study isn't enough for an exact deduction & larger studies must be done.

O70 **Assessment of Exercise Therapy Effectiveness By Cardiac Rate Measurement**

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Heart rate is a biomechanical factor which is easily measured (Ganguli & Datta 1975. Bernardi etal 1999) . PCI [beats /m] as a function of heart rate [beats /min] and speed

of progression [m/min] is an indicator of energy cost. The PCI is easily measured. consumes less time and is reproducible (MacGregor , 1981).
However , should be noted that autnomic dysreflexia which is a vascular reflex with the symptoms of outburst sweating , raised blood pressure and slow pulse occurs in response to stimulus from the bladder , bowel or other internal organs below the level of the lesion in a patient with a high spinal cord lesion , i.e. above T6 (Bromley 1998 and Stokes 1998) . Therefore autonomic dysreflexia with effects on cardiac output drastically affects the heart rate measurements in response to physical activeties . This concept should be seriously considered when conducting heart rate measurements of spinal injured patients during activity. The instrumentation is also inexpensive. simple to operate with easy accessability to results while other gait parameters (cadence. speed. steplength) can also be obtained by other means. On the basis of the above advantages PCI was chosen as an indicator of energy consumption in paraplegics. The instrument used in this study is commercially called sport tester (Polar Erectro oY type PE 3000) which is based on the remote recording of the heart rate.
Objectives of this study were as follows:
I: To obtain energy cost as measured by PCI of swing - through gait (STG) in normal subjects (with & without braces). using elbow crutches , to simulate paraplegic ambulation. II: Role of exercise regime (gait training) in reducing energy consumption of STG.

O71 **Injuries of the Maxillofacial Region Sustained in Football**

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INTRODUCTION: Football remains the most popular team sport worldwide. A major part of the Greek population, especially men, is occupied with this sport professionally or mainly amateurishly. Contact with another athlete, fall on the ground, hit at the goal post or even on the ball during this sport can cause accidents which, in many cases, have as a result the admission of the injured athletes in the hospital.
PURPOSE: The aim of this study is to present the injuries and the fractures of the maxillofacial region sustained during football in Greece, to analyse the injury pattern and the mode of treatment and suggest methods in order to prevent these injuries.
PATIENTS-METHODS: Between 1996-2003, 89 patients had been confronted in the Department of Oral and Maxillofacial Surgery of General District Hospital "KAT" for maxillofacial injuries as a result of football. The factors taken into account were age, sex, injury pattern, type and site of fractures and applied treatment.
RESULTS: This group of patients represented a rate of 62.2% of sports-related maxillofacial injuries we confronted in the last eight years. The patients' age ranged from 14 to 52 years and they were nearly all men. Most of the incidents lay between 21 to 30 years old. It is remarkable that 82 of the patients were amateur athletes. The soft tissue injuries represented a rate of only 5% of all injuries, while the fractures represented a rate of 95%. The most common cause of football-related fractures was the impact against the head of another player. The most commonly fractured sites were the zygomatic bone and the mandible, in an almost equal rate. 13 of the patients (14.6%) sustained multiple facial fractures. As to the treatment, most of the patients were confronted conservatively with intermaxillary fixation, while some others were

treated surgically by osteosynthesis. The rest of the patients had neither functional nor aesthetic problems, so they received no other treatment than the follow up.
CONCLUSIONS: Given that the majority of the athletic accidents in Greece occur during football and that the most of the involved athletes are amateurs, we suggest that there should be an effort to apply the general preventive measures (improvement of the field facilities, constant education with regard to techniques and skills, application of the rules) and also specific measures concerning the maxillofacial region, such as mouthguards and extraction of impacted teeth, in order to reduce the incidence and the severity of maxillofacial injuries.

O72 **Quick Diagnosis About Sports Injuries**

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There are quick diagnosis about sports injuries during the competition, which allows to the sports doctor quickly and clearly to give complete diagnosis about the injury, and to make clear decision about the injured sportsman; will he continue with the competition or will he be taken away of the competition field and would other preventive activities be taken. This issue will present briefly the most common system injuries, which more frequently occur and if they could not be effectively prevented and paid attention to, could be disastrous for the sportsman.

- What is that sport injury? That's a similar injury like all other injuries, but differs by the state and the mechanism of the happening. Because these injuries are happening on the sports fields for the time in training process or competition in some certain people, sportsmen, they are named like sports injuries.
- The research that I've been doing for five years (1997-2001), in three most popular sports in FYROM, football, handball and wrestling, its clear that the number of injuries its quite large. Why is this??? Here we have influence by many factors, which are numbered in the text. There are asked, 750 football players, 300 handball players, 210 handball women players and 88 wrestlers, for the answers of these five questions that they are being listed in this research, among other questions: head and neck injuries, spine and chest injury, abdominal injuries, upper and lower extremities. The results are given in the text.

O73 **The Role of Physical Conditioning for Prevention of Sports Injuries in a Volleyball Team**

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Introduction: Training must be considered principally in terms of prevention of injury. The musculoskeletal injuries can be obviated by proper and through physical conditioning.
Materials and methods: The study registered the incidence of trauma in a volleyball masculine team of high level performance before and after a specific training programme. The programme addressed to the strengthening of tendons and ligaments, along with the muscles, in order to fortify the joints they traverse, to prevent untoward injuries and to permit full and effective range of movement and stability. We also

increased flexibility and range of joint motion. We used static stretching exercises for general flexibility, specific warm up procedures, weight training and resistive exercises in terms of specific activities.
Results: After a year of using the proposed programme the trauma incidence showed a decrease of 37% in acute injuries. Measurements of muscular force of the upper limb by dynamometry and joint mobility by goniometry showed also improvements at the end of the programme.
Discussions and conclusions: Physical conditioning is herein defined as the role played by exercise in getting prophylactic results in trauma incidence. Muscular imbalance, improper timing because of poor neuromuscular coordination, a lack of ligamentous or tendinous strength, lack of flexibility are among the causes of injury attributable to insufficient or improper physical conditioning.

O74 **Conservative Treatment of Tennis Elbow in Patients Aged Less than 40 Years Old**

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Puprose: The evaluation of the results of conservative treatment of tennis elbow.
Material & Method: Between 2000-2001, 67 patients aged 18-39 (average: 30,2) suffering from tennis elbow, were admitted in our outpatients' clinic. 42 were males and 25 were females. In 90% of the cases the symptoms were located in the dominant elbow. 45% of the patients were playing tennis 2-4 hours weekly. Pain was the predominant symptom followed by weakness in lifting. Antiflammatory medications, strapping and physiotherapy consisted the conservative treatment. Patients were followed-up for 6-17 months & evaluated clinically.
Results: Clinical improvement was achieved in 86% of the cases. In 8% the symptoms were recurrent and in 6% (4 cases) corticosteroid / xylocaine was locally injected due to persistent or recurrent of symptoms. In two cases surgical release was performed
Conclusions: Conservative treatment of tennis elbow in patients aged <40 yrs old seems to have excellent/very good results.

O75 **Patellar Tendinopathy in Elite Track and Field Athletes**

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Introduction: This study investigated the epidemiology and classification of patellar tendinopathy in elite Greek Track and Field athletes, based on signs and symptoms in correlation with patellar tendon imaging.

Methods: From January 1993 to December 2002, 55 athletes, 36 male (65.45 %) and 19 female (34.55 %). with an average age of 18.34 (S.D.= ± 4.01) years, visited the National Sports Medicine Clinic of the Greek Athletics Federation in Thessaloniki, Hellas, with I-IV degree patellar tendinopathy (first incidence). Diagnosis was based on history and clinical examination which was performed by the same physician in all cases. The most reliable sign was palpation tenderness at the lower pole of the patella or the upper third of the patellar tendon in 0o of knee flexion with relaxed quadriceps, which in combination with patellar tendon imaging (ECHO and MRI) established the diagnosis and classification. Tenderness in extension, the onset of pain during certain phase of athletic activities and the existence of ECHO or MRI findings were the three criteria for the classification.
Results: These injuries consisted 36.9% (55/149) of knee overuse syndromes for the same period. The majority of the athletes were jumpers (45.4%), throwers (29.1%) and sprinters (12.7%) while the rest (12.8%) were competing in combined and long distance events.11 athletes (20%) presented with 1st degree, 19 (34.5%) with 2nd, 23 (41.8%) with 3rd degree patellar tendinopathy, while the remaining 2 cases were classified as grade 4. Six of them (10.91%) underwent surgical treatment and the rest 49 (89.09%) were treated conservatively. Finally, an attempt was made to reveal any prognostic value of this classification referring to the duration of rehabilitation and the indications for surgical treatment.
Discussion: Our clinical classification is helpful in defining the method of treatment (conservative or surgical) and designing the rehabilitation program.

O76 **The Relationship Between Objective Functional testing and Subjective Evaluation Scores in Patients with Anterior Cruciate Ligament Rupture**

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Functional tests (objective evaluation scores) combined with questionnaires (subjective evaluation scores) are used in the assessment of anterior cruciate ligament (ACL) rupture. These various methods of examinations are useful as preoperative indicators as well as in the follow up of ACL reconstruction.
The purpose of this study was to determine the relationship between subjective and objective evaluation scores in patients with ACL rupture.
11 male patients (mean age 23±2.5 years) with ACL rupture participated in this study. The patients had no any concomitant knee injuries. ACL rupture diagnosed by clinical examination and KT1000 arthrometer. The Lyshom activity score was used to evaluate the subjective scores of the patients. Single leg hop for 6m distance and isokinetic testing were performed to evaluate the functional objective scores.
No statistical significant correlations were found between Lyshom activity score and isokinetic isometric torque of quadriceps (r=0.525) and between Lyshom activity score and isokinetic side-to-side difference between injured and normal knees

of isometric torque of quadriceps (r=0.048). On the other hand, results revealed statistical significant correlation between Lyshom activity score and single leg hop for distance (r=0.829, p=0.01). Regression analysis showed that Lyshom activity score could consider as a prediction factor 68.7% when correlated with single leg hop test in ACL rupture.
Our findings suggest that subjective and objective scores could consider as independent preoperative indicators of clinical evaluation in patients with ACL rupture. Therefore, the relationship between Lyshom activity score and single leg for distance could be used as one of the evaluation criteria in the preoperative phase of ACL rupture.

O77 **The Investigation of the Influence of Three Rehabilitation Programs, in Muscle Endurance and Muscles Deficit of Knee Hamstrings and Flexors, After Arthroscopic Menicectomy.**

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The aim of this research work was to investigate the influence of 3 different rehabilitation programmes on the muscular performance of extensors and flexors muscles of knee in patients who had under went a partial arthroscopic meniscectory. It was about a simple double-blind study. 28 patients were randomized in 3 groups. The first group (N=10) followed a programme of physical therapy, reeducation exercises and proprioreception and a protocol of isokinetic strengthening in the isokinetic dynamometer Cybex Norm.
The second group (N=10) followed a programme of physical therapy and proprioreception but a protocol of isotonic strengthening.
The third group (N=8) followed a programme of exercises at home according to oral instructions of the surgeon and physical therapist.
As a conclusion we can say that the implementation of rehabilitations programmes improves the performance of extensors and flexors muscles of knee after a partial arthroscopic meniscectomy.

O78 **Evaluation of 8 Weeks Tai Chi Chuan (TCC) Training Effects on Cardiopulmonary and Musculosceletal Systems in University Students**

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Objective: TCC can be defined as a series of graceful movements that are made for a spiritual, mental and physical health. The purpose of our study is to evaluate the effects of TCC training on cardiopulmonary and musculosceletal systems of the university students that are examined for this study.
Subjects: The students of the University of Dumlupinar, School of Physical Therapy and Rehabilitation, 23 subject TCC group aged 20 ± 2.76 (16 female, 9 male), 14 subject control group aged 20.02 ± 3.07 (9 female, 5 male).

Study Design : Subjects participated in and practiced 8 weeks TCC program. Each session consisted of 20 minutes of warm-up (3 min. breathing controlled walk, calistening and stretching exercises) 24 minutes of practiced 37 movement Yang style TCC program and 10 minutes cool-down exercises.
Measurement: Static and dynamic balance when the eyes are open and closed, dominant, nondominant quadriceps and hamstring musculature's strength, sit and reach test, flexibility tests, kinesthetic, pulmonary function test and 3 minutes step test. All measures were evaluated before and after TCC training.
Results: After TCC training when eyes are close in static balance, when eyes open in dynamic balance, in flexibility tests hyperextension and sit and reach tests were improved with statistical significance ($p<0.05$). In TCC group after TCC training addition were increased dominant and nondominant quadriceps and hamstring musculature's strength with statistical significance ($p<0.05$).
Conclusions: 8 weeks TCC training has improved the balance, flexibility and lower extremity strength in accordance with literature, but it doesn't effect cardiopulmonary function. TCC training needs long duration and more training frequency to improve cardiopulmonary function.

O80 **Paneurhythmy as a Highly Reliable System Harmonizing the Vital Powers of the Organism**

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The purpose of the research is to prove that regular performance of Paneurhythmy harmonizes the vital powers of the organism. The efficiency of the influence is measured with BIOTEST MK-02, expert evaluations, video analysis, and interviews. The results are processed with variation and correlation analysis. For children there are positive changes of the meridians of the lungs, the triple heater, the gall, the heart and the small intestines and the endocrine and lymphatic systems have improved their activity. For adults there are positive changes of the meridians of the stomach, the bladder, the gall, the lungs and the endocrine and lymphatic systems, connective tissue and joints have improved their activity. The influence of the negative emotions is restricted, the positive emotions become active and the psychological tension is reduced. Paneurhythmy increases and balances the vital energies and so brings about positive changes in the organism. It is a highly reliable system that sets the vital powers in harmony. Key words: vital powers, vital energies, Paneurhythmy.

O81 **Paneurhythmy: A Model for Group Psychotherapy of Children**

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The research studies the psychological and therapeutic effects of Paneurhythmy training on 82 children, aged 9-11. The methods used include thematic drawings and two projective tests: unfinished sentences and Wilson Tree. Results show that the training satisfies the basic needs of children: need for security, for they express and verbalize feelings of repose and harmony; need for belonging and love because common plays, interests and experiences give them the satisfaction that they are protected and not alone; need to have one's achievements valued and feeling

competent because expression of needs and abilities is encouraged: awareness of the needs of others is developed, because the children receive the emotional support to be good. With the help of Paneurhythmy obstacles on the way to self-assertion can be removed because it is a school for good relationships in agreement with contemporary understanding of humanistic psychology and psychotherapy. Key words: humanistic psychology, psychotherapy, Paneurhythmy.

O82 **Therapeutic Riding – An Alternative Method for Children with Cerebral Palsy**

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Cerebral palsy (CP) is one of the most frequent congenital (or acquired) neurological disorders and affects the immature brain of the child.
Cerebral palsy (CP) is manifested in various ways. The most frequent manifestations are the following: neurokinetic disorders, mental retardation, increase of the muscular tone, inability to walk and to be self-served.
The parents with children suffering from CP know that this disorder implies an almost life-long treatment performed by a rehabilitation group consisted of physicians, physiotherapists, ergotherapists and logotherapists.
The present retrospective study dealt with therapeutic riding, an alternative therapeutic exercise which can be auxiliary to other forms of treatment for patients with CP and which ensures, apart form the benefits on the kinetic sector, also positive effects on the psychological and social status of the children.
The effects that this form of outdoor exercise seem to have on the children with CP, with the involvement of a noble animal, such as the horse, are encouraging and open a new road for children with CP, as well as for the parents, the practitioners and the physicians in their effort to offer the best they can.

O83 **Effects of Sports on the Reaction Time of the Children with Down's Syndrome**

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Reaction time is considered as one of the criteria in the assessment of movement or the response to stimuli. Since exercises and sports are effective in improving the physical capacity of the children with mental disabilities, this study aimed to observe the effects of sports on the reaction time of the children having Down's syndrome. Fourteen (14) of the children (17.21±1.11 yrs) involved to this study were doing sports on elite level since 4.92±0.78years and thirteen were sedentary (15.46±0.08yrs) joining only physical education and sports classes in their schools. Simple reaction time of both groups to light stimuli were measured by NewTest 2000 reactionometer. The mean result of the reaction time in the sports group was 514.44±1.04msec and in sedentary group was 642.27±2.54msec. The difference between the two groups was statistically significant on the favour of the sports group ($p<0.05$). We can conclude that, children joining to the sports activities were faster in giving response to stimuli than the sedentary. This result gives us the clue that, sport may increase their ability to focus their attention on people, objects or events. Thus, sports can be suggested for

the individuals with mental disabilities not only for their physical performance but also to support them intellectually as well as socially.

O84 **The Effects of an Intense Exercise Program in Medicinal Spring Water upon Joint Flexibility of the Elderly**

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The therapeutic medicinal properties of thermal spring waters are renowned worldwide. The purpose of this research was to test the extent to which an intensive exercise program in thermal spring water would improve joint flexibility and range of motion for elderly participants 65 years and older. A daily exercise program lasting 30 minutes for 20 days was implemented for 61 elderly participants. This research was carried out in the Revitalization Center located at the Thermai Sylla Hotel of Evia with 61 of the center's residents. Measurements were taken at the neck, shoulder, hip and ankle joints; all at different angles on the first and twentieth day of the exercise program. The control group consisted of 39 elderly residents that didn't participate in the exercise program but did do personal hot baths. According to the results considerable improvements were recorded between the first and final measurements for the experimental exercise group. In contrast the control group did not show any significant changes. In conclusion a twenty minute daily exercise program has positive effects upon the physical flexibility of the elderly. Taking into consideration the evidence from this research we believe that exercise must be combined with the hot spring baths.

O85 **Pedography for Determining Static and Dynamic Loading of the Post-Traumatic Foot**

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The application of high accuracy systems is absolutely necessary for diagnostic purposes after the trauma due to the complexity of the human gait cycle.
Pedography (measurements of plantar pressure during the walking cycle) is used in Bio-kinetics and sports medicine thus giving useful clinical outcomes for any functional disorders of the lower limbs. In order to be able to analyze the kinetic problems, the functional disorders and dissimilar pressure distributions after the trauma of the foot certain techniques and certain parameters should be looked into. These include measurements of pressure distribution as well as range of motion of various joints during walking. During a classical clinical examination some common functions are examined together with some objective examination e.g. X-Rays or CD as well as some neuro-muscular functions like EMGs. Kinetic analysis with kinematics parameters and pressure distribution measurements are enhancing the clinical examination giving information for the function of the foot after the trauma. This is absolutely important when it comes to deciding the right treatment plan for the person. In addition to that kinetic analysis allows a better assessment of improvement

of the athletic efficiency and achievement records. (E.g. angle measurement, mathematic models)

Key words: Kinetic analysis- dysfunction- post traumatic foot- kinetics- kinematics- mathematic Montello

Pedography

By pedography we get information concerning electronic kinetic parameters

a) Power reaction of an area
b) Pressure distribution under the foot during walking and running

Application of force under the foot: During normal walking the weight of the body is shifted from one foot to the other. The center of pressure during the gait cycle of the foot is starting for the heel touching the floor- midfoot loading- metatarsal loading- toe off (medially-between the first and the second toe). The weight of the body is exercising pressure on the ground via the feet. During walking and running we have forces of stopping and forces of acceleration. The total force of the reaction F of the area of contact of the foot is distributed on the area of contact. Consequently pressure is the value of the perpendicular force over the area of contact application (in N/cm2)

$P = F/A$

The measurement of pressure is achievable with the platform Emed (Novel). It consist of capacitive sensors in a matrix (2 sensors per cm2 or more and it measures pressure distribution during the movement and per time (seconds),

The total force of the reaction is $F = (\text{oloklíroma}) P \delta A$ in Newton.
During the measurements the patient is walking barefoot on the platform.

These measurements with the Emed platform we get information of the maximum pressure points, centre of pressure for each individual frame which could be due to various traumas, functional disabilities or even information about the anatomy of the foot.

The maximum pressure-points are giving the maximum application for the force either due to pain or weakness during rehabilitation. This non-normal pressure distribution is giving us

a) Diagnostic evidence which are completing our clinical examination.
b) Information which will help in designing the appropriate insert.

Achieving a better balanced pressure distribution will enhance the treatment and protect during high standards athletics (achievement records) as well as good shock absorption.

In conclusion:

The athlete would benefit from an examination with the help of the pressure distribution platform and the made to measure insert for him according to these data and the clinical examination. These inserts are made from many different materials depending on the needs of the athletes.

O86 **A study on the knowledge and attitudes of high school students in a suburbian town concernign Doping**

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The aim of this study is to investigate the knowledge and the attitudes of high school studentson doping. A questionnaire was distributed to 1103 students with a mean age 16.8 years (15-29 years).
A great number of students 67.3% related to sports, more specifically, football 62.2%, basketball 55%, volleyball 32.2%, Handball 21.3%, track and fields 15.6% and other sports 18%.
The duration of the athletic activity was from 5 to 12 months (4.3 years) and the frequency of the training 1to 8 trainings per week (4,6 training/week).
The answer to the question which of the following substances you consider to be prohibited (doping) the athletes answered a) narcotics analgesics (90.2) b) androgenic anabolic steroids (84.9) c) b-blockers (56,4).
83.9% of the students would never take drugs. 10.5% would consider taking drugs to improve performance, 14% would take drugs for economic reasons and 15,1 would take drugs for prestige. 0.09% did not answer the question. 45,9% are not informed about the measures that are taken by the Greek legislation on the use of prohibited substances by athletes. 13.6% has a limited knowledge on the issue and 59,5% consider that has knowledge. 62,8% believe that they are not informed on the issue of doping. 25% believe that they have a moderate knowledge and 12,1% an adequate knowledge on the substance.
To sum up, the knowledge of high school students on the substances that are prohibited seems to be limited. On the whole the students know the contraindication that are reported on the questionnaires. There is confusion concerning the substances that are considered doping and the ones considered drugs. 12,1% believe that they should be informed by sports associations. 59,4% consider that they should be informed by schools and 22% believe that they should be informed by medical associations.

O87 **Words, Music and Movements of Paneurythmity: Reliable Methods For Prophylactics and Therapy**

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The research presents the basic aspects of Paneurhythmy as a therapy: text, music and movement. The basic cycles of exercises are presented with their choreographic composition, physical and spatial organization of movements and basic motive tasks. The results from the content analysis of the text reveal the basic concepts and the words with highest frequency. Music and its specific means of expression act as a music therapy; this effect is supported by the research of the Japanese scientist Masaru Emoto. Music, art, dance, and drama are found all at once and turn Paneurhythmy into a synthetic and unique psycho-therapeutic method. This provides for the research results on its influence: powerful positive influence on the mental make up, decrease in psychological tension, improvement of intellectual faculties,

refinement of psychological and physiological processes, stimulation of the need for a healthy way of life. Paneurhythmy is a reliable system for prophylactics and therapy.

O88 **Phychological Aspects of Injuried Athletes (Rugby Players)**

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When in sport an athlete is injured his reaction will be function of the sens given at this event and mainly at the stress due to his break of activity.
The hypothesis of our study are : 1. injured rugby players are more anxious, have less self-esteem and a bad body image. 2. there is an interdependance between those parameters.
Subjects: 60 rugby players (+/- 26 years from 6 clubs of high level) are involved in our study, they are divided into 2 groups; G1 = 26 recent injuries with more than 15 days breaking of the training process, G2 = 34 players without recent injuries.
Technique: State and Trait Anxiety test (Spielberger), Body perception test (Bruchon-Schweitzer) and Auto-Estimation test (Lavoegie).
Tests were submitted during the last part of health recovery.
Results: statistical analisis shows that injured athletes present a higher level of state anxiety but a similar trait anxiety versus the other players (G2).
The body image in G1 is perceived as less positive than in G2 group. Concerning the body image factors, injured athletes perceived their own body in a passive and depreciative way. Through the autoestimation test, the energetical,dynamism weighting and self-confidence present a low level. Relation appear between the various items concerned by the tests mainly with the injured players.
Those results confirm similar investigation leaded with soccer and volley-ball players. This points out the real psychological impact and importance of an injury occuring during the season which breaks the sport activity.
Thus, the study of those parameters seems particularly relevant in the field of a better reintegration in the training session.
Moreover such parameters like self-esteem ,self confidence and body perception are unquestionable factors needed by rugby players involved in competition.

O90 **The Effects of Determination of the Load According to the Body Weight or Lean Body Mass on the Power Outputs in the Wingate Test**

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Several studies proved that the common use of 75 g.kg-1 load for the Wingate test was low and various loads required obtaining the highest power outputs.
The purpose of this study was to determine whether there was an alternative optimal load to the classical load of 75 g.kg-1 for the body-weight in the Wingate test.
Wingate tests were performed on a Monark cycle ergometer using 75, 85, 95 g.kg-1 loads for body weight and 90, 100, 110 g.kg-1 loads for lean body mass on 24 untrained young males. These loads were applied to the participants at random. Pedal

revolutions were recorded every 5 seconds during the test and the peak power, mean power and the fatigue index were calculated.
The peak power outputs of the Wingate tests in which 100 and 110 g.kg-1 loads were used for the lean body mass were significantly higher than the peak power outputs obtained from the tests in which 75 g.kg-1 loads were used for the body weight. None of the mean power outputs obtained from the load was significantly higher than those obtained from the other loads.
It would be appropriate that the load of the Wingate test would be calculated according to the lean body mass in young males and 100 or 110 g.kg-1 loads for lean body mass can be used as they result with significantly higher peak power outputs.
It is also concluded that similar studies should be carried out on the older men, women, children and athletes whose body fat percent can be highly different.

O91 **The Relationships of the Critical Power to Maximal Aerobic Power and Anaerobic Threshold**

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The aim of the present study was investigate the relationships between critical power (CP), maximal aerobic power (VO2max) and various measures of the anaerobic threshold.
An incremental maximal cycle exercise test was performed on 30 untrained males aged 18-22 yrs. Lactate analysis was carried out on capillary blood samples at every two minutes. From gas exchange parameters and heart rate and lactate values, ventilatory thresholds, heart rate deflection point and the onset of blood lactate accumulation were calculated. CP was determined with linear work-time method using three loads. The subjects exercised until they could no longer maintain a cadence above 24 rpm at their CP and exercise time to exhaustion was determined.
CP was lower than the power output corresponding to VO2max, higher than the power output corresponding to anaerobic threshold. CP was correlated with VO2max and anaerobic threshold. Exercise time to exhaustion and work at CP were not correlated with VO2max and anaerobic threshold.
Because of the correlations of the CP with VO2max and anaerobic threshold and no correlation of exercise time to exhaustion and work at the CP with these parameters, we conclude that exercise time to exhaustion and work at the CP may not be used as an index in the determination of endurance.

O92 **Subcutaneous Rupture of the Achilles Tendon. Treatment by External Fixation**

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The treatment of ruptures of the Achilles tendon has always been a field of conflict among of orthopaedic surgeons. The purpose of this study is to present a method of treatment with external fixator. During period 1996-2003 we treated 8 men, with an average age of 43 years and having as main cause of the rupture .sports activities . Diagnosis did not take much time and the treatment was in all patients stabilization

with modified a double sided external fixator for 5/52 .with a partial loading and a change into plaster cast in all patients for 4/52 with full loading. A month of physiotherapy followed and then six months of protection from srain. All patients were examined again 1-5 years after the treatment focusing on the ability of walking, the strength of gastrocnemious muscle and the range of motion of the ankle. The results were satisfactory in all the patients without any re- rupture or other complication. From our experience as well as from bibliography we conclude that this method could be an alternative treatment for middle -aged people,who do not make sports and for cases where surgical treatment is not indicated. Besides we have to point out that it is technically easy, it does not demand anaesthesia or hospitalization and also combines the advantages of the two types of treatment {Surgical- Conservative}, without any of their complications or disadvantages.

O93 **I Medical Care to High Level Handballers who suffer from the handball goalie's elbow syndrome.**

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The investigation about specific lesions in handball is of vital importance for some handballers. The aim of this paper is to present data that concerns the medical care to handballers who suffer from the so called handball goalie's elbow syndrome. The material of our study is 16 players A1 and A2 class who had suffered in the past from problems in the elbow joint. Questionnaires were given to them. With questions regarding diagnosis, hospitalization, medical care and rehabilitation.
As a conclusion we say that the handball goalie's elbow syndrome must be treated very carefully by all specialties involved (medical doctors, physical therapists, players, coaches). The aim of treatment must be the safe resumption of the previous sport activity.

O94 **Frequence and severity of High Level Handballers who suffer from the hanball goalie's elbow syndrome in hanball**

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It is well known in the field of Sport Medicine that in handball lesions are many and severe ones. The aim of this paper is to write down the frequence and the severity of lesions as well as individuals traits of Greek handballers who suffer from the handball goalie's elbow syndrome. As a conclusion we say that lesions that are interwined with the handball goalie's elbow syndrome are many and severe. There is the need for further investigation of this too, in larger samples.

O95 **The Importance of Physiotherapy in Athletes' Rehabilitation After Injury of Achilles' Tendon**

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Injury of the Achilles Tendon is one of the most common sports injuries and is being observed in a large number of sports activities. It is usually attributed to the strain imposed during the sports activities and during specifically hard training that is being required by the athletes as well. The physiotherapeutic proximity, evaluation and rehabilitation are of great importance. Using methods such as cold therapy, electrotherapy, ultrasounds, laser, proprioception exercises, dilations and therapeutic treatment, physiotherapy tries to reduce the settle-out time, and to anticipate further complications. This helps the athlete to return back to his activities faster and without further dangers of complications and rebounds.

O96 **Kinesitherapy and Rehabilitation for Patients with Pain in the *Lumbar Region Irradiating* in the Seat and the Thigh**

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Sixty patients were observed with lumbar disc disease. Using mechanical investigation after McKenzie (1981) was established that they have displacement 3. It is characterized with unilateral pain at L4 - L5 and L5 S1 levels, irradiating to the seat or the thigh. There is no deformation of the lumbar spine. Patients were divided into two groups: Group A – 30 patients (20 men and 10 women), treated with the mechanical McKenzie method, complemented by relaxation after Bobath, a massage of trigger points and therapeutic exercises during the subacute phase; Group B – 30 patients (22 men and 8 women) treated routinely with drugs, electrotherapy , position therapy, trigger points massage and therapeutic exercises in the subacute phase.
In the acute period, the abatement of the pain and the occurrence of the Lasseque's symptom were followed daily. At the beginning of the subacute period and 30 days later a test after V. Jelev and L. Venova (1979, 1992), complemented by the authors for lumbar disk disease was applied .
The results concerning the pain abatement and the occurrence of the Lasseque's symptom show a quicker pain abatement (with 1 day) in Group B. The results from the lumbar disc disease test are better for the patients from Group A.
The conclusion is that the mechanical method of McKenzie and the routine treatment are equally appropriate for patients with displacement 3 after McKenzie.

O97 **Kinesitherapy After Reconstruction of the Anterior Cruciate Ligament with Bone-Tendon-Bone Graft in Cases of Injured Sportsmen**

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The anterior cruciate ligament (ACL) is the major stabilizing ligament of the knee. This is one of the structures most often injured by sportsmen. This injury causes

internal rotational instability of the tibia to the femur when the knee is in flexion. The ACL reconstruction with anatomically placed bone-tendon-bone free graft from lig.patellae is accepted today as the "golden standard".
In the period 1998 – 2003. there were observed 48 reconstructions of ACL with bone-tendon-bone graft harvested from the lig.patellae. Arthroscopic or miniartrotomic surgical reconstruction with two incisions was used.
The purpose of the present study is to follow up the results of the functional recovery of the operated knee and the lower extremity.
Combined postoperational kinesitherapeutical program was applied, conformed with the up-to-date trends for aggressiveness and acceleration. The program consists of three phases:

- Early postoperative phase- the initial 4 weeks
- Phase of maximal protection – 5th to 7th week
- Phase of full recovery – after the 7th week

The following means of kinesitherapy were used : exercises to facilitate the contraction of the quadriceps femuri, continuous passive motion, using the "Kinetec" device, mobilization of the patella, exercises for suppression of cocontraction, exercises stimulating and facilitating the coactivation of the muscles moving the knee, multiangular isometric contractions , exercises with elastic cord and weights, isometric exercises with 60o of flexion (after V. Jelev), exercises from closed kinetic chain, exercises on the velo chaise-longe, walking on a flat surface or going up-stairs, etc.
At the end of the treatment the clinical tests are negative, the hypotrophy of the muscles of the thigh is minimal, the range of movement of the knee joint is restored, the strength of the muscles is within the normal limits. the IKDC results are very good.

O98 **Kinesitherapy and Rehabilitation in Case of Insertionitis of the Long Head of M.Biceps Brahii**

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The insertionitis of the long head of m. biceps brahii is one of the forms of periarthritis of the shoulder joint. It is common for individuals exercising at fitness centres, playing tennis, badminton, etc. The pain is usually located in the anterior part of the shoulder. It may cause disability.
The purpose of the present study is to report the results of the functional recovery of the shoulder joint and of the upper extremity following the application of physical therapy.
In the period 2000 – 2003 were treated and studied 35 individuals practising sports suffering from insertionitis of the long head of biceps brahii.
The therapeutic program included electrotherapy and kinesitherapy. The electrotherapy included treatment with diadynamic currents of P. Bernard and ultrasound. Kinesitherapy included transversal massage, techniques of sliding and traction after Cyriax, relaxing and analytical exercises, PNF – I and II diagonal for upper extremity with an object. Later, manipulative massage after J. Terrier is included as well as exercises against resistance. The degree of pain, the movement

range of the shoulder joint. hand dynamometry and the strength of the agonists in the shoulder joint were studied at the beginning and at the end of the treatment.
The results were compared to those of 25 individuals practising sports and suffering from insertionitis of the long head of m. biceps brahii, treated with routine methods.
The manual mobilizing and manipulative techniques give better results regarding the functional restoration of shoulder joint. the upper extremity respectively.

O99 **Ultrastructural findings in the myocardium of aged rats after L-carnitine administration**

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It is well known that sufficient morphological changes in the sub-cellular level are observed in postmitotic cells. like myocardial cells, early in life; in aged mammals ultrastructural alterations are abundant. Reactive oxygen species (ROS), which are produced as by-products during oxidative phosphorylation in the mitochondria, play a significant role in the aging procedure. L-Carnitine administration has been found to increase mitochondrial function and therefore ATP production.
The aim of this study is to examine if there are morphological evidences that the administration of L-Carnitine in aged animals can reverse characteristic alterations in the myocardium.
Aged male albino rats (10 months old) were divided in two groups. In the first group, 300mg/kg body weight/day of L-Carnitine was administered intraperitoneally for 35 days. In the second group, normal saline was administered intraperitoneally for 35 days, as well. After the last day of administration rats were anaesthetized and tissue sections from the heart were removed and processed for transmission electron microscopic study.
Abundant morphological changes were observed in the normal saline group, such as intracellular edema, reduction of mitochondrial cristae, disorganization of sarcomeres, organelle alterations in endothelial cells. A significant reduction of such ultrastructural changes was revealed in the L-carnitine group.
According to the above findings, it is concluded that L-carnitine administration can reverse morphological alterations in the sub-cellular level in the myocardium of aged rats.

O100 **Comparative Analysis of 5 Different Functional Tests in ACL Deficient and Healthy Subjects**

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The purpose of this nonexperimental study was to compare 5 functional preformance tests between ACL deficients & healthy males. These tests are used to assess readiness of the subject to progress to another level of rehabilitation 'to return to athletic practice' or to discharge. Selection of the appropriate battery of tests is

important to maximize information about the patients functional capacities. In this study 16 males with ACL injury (group 1) & 32 healty males (group 2) participated.
Statistical analysis: Descriptive statistics for each parameter and variable measured in this research was done. Also two sample analysis for each functional test between groups was done.
Results:
1. Significant difference wasn't seen in co-contraction semicircular test between two groups ($p>0.05$).
2. Significant difference was seen for carioca, shuttle run timed hop and cross over hop tests between two groups ($p > 0.05$)
Conclusion: Above functional tests are objective measurement methods of functional instability which can be performed in a clinical setting do not need expensive equipment.

O101 **The Comparison of Three Training Methods Including Balance 'Plyometric & Heavy Resistance Training' on Some of the Functional Performance Tests**

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The purpose of this RCT was to compare the effects of three training methods including balance 'phyometric & heavy resistance training' on some of the functional performance tests. The inter and intratester reliability of these tests were confirmed in the pilit study. Thirty – nine young healthy male adults were selected by nonprobability sampling (sample of convenince) and assigned systematically randomly into three groups. (n= 13)
For each group training was performed for six weeks and three times weekly. The functional tests were vertical jumps 'single leg hop' timed hop 'shuttle run' modified Rhomberg 1RM and squat repetitions / 30 seconds . These tests measured for 4 times in the training period. Data were analysed between groups by on – way ANOVAS. Results showed significant progress within all groups for all tests except for squat repetitions / 30 seconds in balance & strength groups. Balance group showed the maximal progress in 1RM was observed in the heavy resistance training group. Also the maximal improvement in vertical jump test was observed in plyometric & heavy resistance groups. For this result we have concluded that the mode of training specifically improve various parameters contributing in the functional performance.
Also each training method improves nonspecific functional tests through improving some components for performance.

O102 **Mallet-Finger, a Sports Injury and the use of Stack splint**

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At the 1st Propedeutic Surgical Clinic of the Aristotle University of Thessaloniki 27 patients with mallet finger were treated. At a 65% of the cases the lesion occurred during sports, and mallet finger is considered therefore as an athletic injury. The methods used were immobilization by Kirschner Wire, surgical repair using a

technique similar to that described for open injuries and, in most cases, splints such as that of Stack.
The primare purpose of this essay is to highlight the simplicity of the palmar splint Stack as a method of immobilization of the distal phalanx during primary treatment, its total lack of complications and, principally, the potential offered to the patient for rapid home-coming. The great importance of rapid recovery of the lesion should be punctuated, especially for patients who work with their hands in professions which demand accurate manual control.

O103 **Reproducilbility of Kinematic and Ground Reaction Force Data in Normal Gait**

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Gait analysis is widely used to determine the efficacy of rehabilitation programs applied in subjects with several neuromuscular dysfunctions in the lower limbs. The accuracy of the conclusions drawn on gait analysis depends on the reproducibility of the gait movement. The purpose of the current research was to determine the reproducibility of selected kinematic and ground reaction force data during normal gait. Twelve subjects, aged between 20 and 22 years, without any neuromuscular dysfunctions, performed 10 gait trials, at their natural speed, on a 20m long walkway. A piezoelectric force platform was located in the middle of the walkway and recorded the sagittal and vertical ground reaction force at a sampling frequency of 1200Hz. A camcorder operating at 60Hz was also used to record the movement of the right lower limb during gait. The 2D direct linear transformation method was used to compute the two-dimensional coordinates of selected anatomical points of the lower limb, using 8 control points. Low-pass digital filters with a cut-off frequency of 6Hz were used to smooth the raw data and the angular displacements of the hip, knee and ankle joints were calculated. The intra-class correlation coefficient was used to determine the reproducibility of the above data between the different trials. The results showed significantly high reproducibility both for the two components of the ground reaction force (sagittal: r=.989, SD=.004; vertical: r=.99, SD=.003) and for the angular displacements of the three joints (hip: r=.978, SD=.009; knee: r=.996, SD=.004; ankle: r=.976, SD=.009). It was then concluded that, even a single trial is enough for the evaluation of these gait parameters.

O104 **Homeric and Hippocratic Athletics; An Uninterrupted Continuity of Greek History**

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In the Homeric scripts athletics are presented as a privilege of the aristocratic polemarchs, as an additional mean that could promote their posthumous fame, but at the same time could denote their state of readiness as warriors. In Iliad, a list of athletic events is presented associated with burial manners and customs, though in

Odyssey athletic competitions are taking place both as entertainment and as means for paying respects to the dead.
Ancient Greek pottery is very rich in depictions of athletics from the prehistoric times i.e. from 16th century B.C. In this work the first Greek historic scripts are considered with respect to those athletics that were used as therapeutic means by the Hippocratic physicians, like running, wrestling, boxing, chariot and horse racing, namely athletics that initially aimed to exercise the Homeric warriors but they are also referred in the Hippocratic Corpus as the means for the improvement or restoration of health, which at the same time proves the unbreakable continuity of the Greek History.

O105 **The Influence of Mental Imagery and Relaxation Training on Physicopsychological Parameters of Athletes**

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Mental Imagery and Relaxation Training sessions for six weeks were administered to athletes of University of Rajasthan, Jaipur, India and their effect was analysed on the physical, psychological and physiological parameters of the athletes. The six week training program had an influence (but not significant) on the muscular strength of arms, abdomen, explosive power of legs and speed and agility (t value of 0.46 was than the table value of 2.026 with a degree of freedom of 38). A similar trend was observed in the physiological variables after the six-week training program. However, the resting pulse rate registered a significant change after the training program (t value of 4.00 greater than the table value of 2.048 required for 't' test to be significant at 0.05 level with 28 degree of freedom). The psychological parameters, viz., cognitive and somatic anxiety, self-confidence, achievement, motivation and will to win, too did not change significantly after the intervention program. The present study underscores the probable inter-relationship of the parasympathetic tone (exemplified by the significant change in resting pulse rate) and the other variables under study.

O106 **Cardiac Values of Young Soccer Players**

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The aim of this paper is to evaluate the cardiorespiratory parameters of young soccer players during strenuous efforts with a particular attention given to the cardiac values.
Three young soccer teams were investigated (15.8, 15.8, 17 years). The 3 teams are regularly involved in high level national championship. Respiratory values were measured by means of the treadmill test and the open circuit method, cardiac parameters with the non-invasive Kubicek technique. Anaerobic alactic power was evaluated by the Pirnay cycloergometric test and on the field the Leger shuttle run test was applied.
Respiratory values: VO2 max values for youngest players and junior team are not different (63.2, 65.6 versus 68.1 ml/min/kg for the junior team) (# NS)).
The 3 teams reached their Ventilatory Threshold (VT) at 88% of their VO2 max obtained at 335, 360, and 346 Watts (# NS).
Field values are lower (10 to 20%) for both teams.

Anaerobic Power: The mean value recorded for the 3 teams reached 641 Watts or 9.56 W/kg.
Cardiac values: Maximal Heart Rate (HR) is not different between the 3 groups (190, 193, 185 beats/min). maximal Stroke Volume Index (SVI ml/min/m2) is significantly different between young and older payers (P= 0.02) at rest as well as at maximal exercise (56 vs 70 ml/min/m2). The resulting Cardiac Output Index (CI l/min/m2) is also significantly different (10.5 vs 12.7 l/min/m2) (P=0.04). Ejection fraction (EF %), 60% is not higher for the older players, this fact assessed that the cardiac dynamic is similar in the 3 groups although the End Diastolic Volume (EDV ml) is markedly different (160 vs 217 ml) (P=0.001) between young and older players.
Finally cardiac and respiratory values are discussed and related to corresponding studies reported in the literature as well as with results recorded in adult professional soccer teams in Belgium, France and Brazil.

O107 **Brachial Endothelial Function in Strenght-trained Athletes**

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Purpose: Brachial artery ultrasound during reactive hyperemia is a noninvasive method of assessing peripheral endothelium-dependent vasodilatation. We sought to analyze the effects of regular aerobic training on brachial artery endothelial function in endurance athletes.
Methods: We studied diameter and blood flow of the brachial artery in 32 wrestlers and 30 healthy sedentary male subjects. Endothelial functions of the brachial artery were evaluated by using high-resolution vascular ultrasound (10 MHz transducer, attached to a standard Vingmed System Five, Norway). After resting in supine position for 10 minutes, internal diameter of the brachial artery was assessed at the end of diastole (timed by the QRS complex). After deflating the pneumatic forearm cuff that had already been inflated up to 250 mm Hg for 5 minutes, the arterial diameter were measured immediately and 60 seconds, respectively. All participants underwent a standard Bruce multistage maximal treadmill protocol with metabolic measurements. Oxygen uptake was measured every 10 seconds using a metabolic chart.
Results: Baseline measurements of the diameter and the blood flow volume of the brachial artery were similar in both groups. During reactive hyperemia period, the percent of the changes of endothel diameters (4.87+1.71 versus 3.01+0.74, $p<0.01$, respectively) and flow were characterized by significantly higher in athletes than in controls.
Conclusion: Changes in flow-mediated dilatation in athletes may be observed due to different intensities of isometric and isotonic exercises.

O108 **Effect of Patellar Taping on Vastus Medialis Oblique / Vastus Lateralis Electrical Activity Ration in Active and Reactive Movement Patern in Subjects with Patellofemoral Pain**

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Background and purposes: Patellar maltracking is one of the main causes of patellofemoral joint pain. This tracking dysfunction is mainly due to lock of a precise neuromuscular control between two parts of quadriceps muscle – vastus medialis oblique (VMO) and vastus lateralis (VL). In this situation one of the way to facilitate VMO muscle is patellar taping. The purposes of this study are to compare the effect of patellar taping on VMO/VL activity ratio in active (feed forward control mechanism) and reactive (feedback control mechanism) movement patterns.
Methods: This is a quasi-experimental study on a group of 30 healthy men as a control group and 30 patients as a experimental group complaining of patellofemoral joint pain. These two groups non probably assigned and conveniently sampled and randomly asked to performed movement patterns our test. During these test. Electromyographic activity of VMO and VL muscle. With a surface method collected. In scaling electromyographic activity of muscles, normalized IAV index were used. Movement pattern tests include maximum isometric contraction of quadriceps muscle in 60 of knee flexion, active movement patterns consist of forward step up (FSU) and lateral step up (LSU), and reactive movement patterns that consist of angular perturbation of ankle and perturbation of waist.
Results: In healthy subjects VMO/VL ratio in active and reactive movement patterns was significantly greater than isometric contraction ($P<0.05$). Also this ratio was significantly greater in upward phase of FSU and LSU compare to downward phase. There was no precise and clear relation between muscle activity ratios in different movement patterns. Compare between normal and patient subjects revealed the greatest significant difference only in active and isometric movement patterns. Pre and post patellar taping comparison showed a significant increase of VMO/VL ratio in most reactive movement tests. But in active pattern this ratio increase only were seen in upward phase of FSU and LSU. Comparing of VMO/VL activity ratio in different tasks revealed that most significant variations were in reactive movement patterns.
Discussion and Conclusion: Results indicate that VMO/VL activity ration in normal patients has no relation to direction and location of perturbation, but conversely a task-dependency to direction and location of perturbation were seen for patients group. Patellar taping induced a sensory feedback on gamma motor neuron, and this probably increase the sensivity of muscle spindles, and this cause reactive movement patterns had a greater influence on ratio activity of muscles.

O109 **Οι Γνώσεις Κατοίκων Αστικών Περιοχών για την Επίδραση της Άσκησης και της Διατροφής στην Οστεοπόρωση**

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Osteoporosis is the most frequent metabolic illness of bones. Nowadays, because of the way of leaving, it tends to get epidemical dimensions. Undoubtedly the better treatment of this illness is prevention. The aim of this study was to estimate the level of knowledge of the population of Northern Greece for the causes of osteoporosis and the preventive factors In the research participated 1057 individuals from which 311 were students, 259 workers in the sector of health or studying relative subjects and 487 individuals that belong in the general population. For the measurement of

knowledge of population was used questionnaire that was developed out by Natsis et al. (1999). The analysis of data of research was performed with the use of descriptive statistics. From the 1057 asked 1027 (97.2%) answered that they know about the osteoporosis and the 920 (87%) answered that it is found more often in women. The 542 persons (51.3%) knew that smoking worsens the osteoporosis, while 451 (42.7%) answered that also caffeine worsens the osteoporosis. From 1057 asked 274 (25.9%) answered that decreased bodily weight worsens the osteoporosis and 546 (51.7%) that amenorrhea is related with the osteoporosis. From the 1057 asked, 910 (86.1%) knew that natural exercise protects from osteoporosis, but 575 (54.4%) answered that they would recommend swimming for the prevention of osteoporosis, 97 (18.6%) answered that they would recommend running for the prevention of osteoporosis and finally 265 (25.1%) declared ignorance as for which type of exercise helps in the prevention of illness. From the 1057 asked, 376 (35.6%) answered that very intense exercise (championship) in the children's age of girls can cause amenorrhea. With regard to the informing on the osteoporosis in our country, 617 individuals (58.4%) believe that it is mediocre, 385 (36.4%) that it is non-existent and only 45 from the persons asked (4.3%) believe that informing is sufficient. From the results, the need of more complete informing and adoption of the appropriate methods of the prevention of osteoporosis is requested.

O110 **Sudden Death in Children and Young Athletes Caused by Heart Disease**

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Most of the athletes that die suddenly, are unknown if suffering from any heart disease. Many of the heart disease suffering young persons, die in time out of exercising. Only 10% of known heart disease children die while participating in sports. The rest of deaths are dealing with persons of unknown heart disease.
Such diseases are cardiomyopathies, coronal artery diseases, and silent arrhythmias, the two first causes more often.
Careful family history should be included in routine of children's training programms. It could reveal even a sudden death history in family members. Also special care, should be given in children with history of chest pain or syncopic episodes. In 16% of sudden deaths in young people there is sudden death family history.
Electrocardiogram is a simple and very useful examination that reveals anomalies of such a danger. Fatigue test could be also included in the panel of examinations.
The treatment and comprehension of sudden death causes in young athletes has done great progress in the last decade. The annual number of sudden deaths in non tested runners is 1:250.000, however the same number in pilots that are submitted in ordinary and meticulous testing is 1:75.000.000.

O111 **Therapeutic Use of Physical Exercises in Patients with Peripheral Arterial Obstructive Disease**

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Peripheral Arterial Obstructive Disease (PAOD), a frequent problem in people with symptomatic atherosclerosis, is a serious invalidating disease that inflicts the everyday life of the patients causing pain during walking.

Aim: the aim of this study was to verify how did patients in II class of ischaemia due to PAOD support physical effort and how the exercises influenced their symptoms and quality of life.

Material: 65 patients with this disease were treated with physical exercises for 4 – 6 weeks.

Method: Personalized programs were planed for each patient depending on their physical condition. Patients were encouraged to walk for increasingly longer distances day by day and to perform special exercises in order to enhance the leg muscle performance.

ABI, time of free of pain walking on treadmill and and pressure recovery time after ischaemic hyperaemia were recorded in the beginning and at the end of the physical treatment program.

Results: For 4 – 6 weeks walking was improved in almost 80 % of patients. This was paralleled by improvements in ABI and pressure recovery times.

O112 **Results of Cardiological Examination of Football Players From the Region of Serres**

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PURPOSE: The examination of the rate and the kind of problem that were found in the cardio logical examination of football players, and the percentage of those who were suggested to interrupt their athletically activity.

MATERIAL AND METHOD: 200 professional and amateur football players were examined clinically, with laboratory measurements, roentgenography and echocardiography.

RESULTS:

A)	**128 Athletes age 11-25 years old**	**Amount percentage**
1.	6 person had systolic murmur 1/6 intensity without ultrasound evidences	4.69%
2	2 overweight persons had high blood pressure (140/95 mm Hg), but they became normal when lost weight	1.56%
3	120 person were found physicals	93,75%
B)	**72 Athletes 25-40 years old**	
1)	2 persons had increased heart diameter	2,77%
2)	2 persons had thickness of the interventricular septum	2.77%
3)	1 person had prolapse of the mitral valve	1,37%

4)	1 person 32 years with repeated episodes of asystole without subjective evidences	1,37%
5)	2 persons 35and 36 years old had dyskinetic the inferior wall and ventricular function deterioration (probably old inferior infraction)	2,77%
6)	2 persons with high blood pressure	2,77%
7)	1 person had Wolf Parkinson White syndrome but exercise stress testing didn't show any arrhythmia	1.37%
8)	3 persons with frequent premature atrial and rare premature Ventricular complexes, one day before the game, but they disappearance the first minutes of the game as it was confirmed from long term electrocardiografic recording (Holter monitoring)	4,17%
	Total of the athletes that were excluded are the categories B) 3,4,5	**4(5,55%)**

CONCLUSION: In the football players age younger than 25 years no significant pathological problems were found. From the football players age order than 30 years an amount of 5,55%were excluded.

O113 **The Effect of Aerobic Exercise on Serum Isoenzyme CK-MB in Healthy Young Women**

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Aerobic exercise is now a common form of recreational exercise among young women. Although serum creatine kinase isoenzyme MB (CK-MB) is commonly used as a marker of acute myocardial infraction, it has been observed to increase after strenuous exercise in some athletes, e.g. female marathon runners.
The purpose of the present investigation was to determine the effect of aerobic exercise on serum CK-MB value in a heterogeneous young female population.
METHODS: Fifteen volunteer young women (age range: 19-33 years) with variable training status participated in this study. They had no clinical symptoms and were not taking any medication including oral contraceptives.
Blood samples were collected after resting of at least 4 days and 48 hours after the performance of an aerobic exercise programme for 50 minutes. The serum total CK and CK-MB activities were measured by using the reagents of Spinreact (Spain).
The reference intervals were 24-170 U/L for total CK and 0-10 U/L for CK-MB.
RESULTS: Serum total CK activity increased significantly 48 hours after exercise ($p<0,05$) when compared with baseline. Three of the 15 subjects (20%) had elevations in CK-MB activities above the upper normal limit, ranging from 29,4 to 33,4 U/L. All subjects with high serum CK-MB had also high CK activities, and the two measures were significantly related ($r=0,86$, $p<0,001$) in the postexercise period. However the CK-MB isoenzyme activity did not exceed after exercise 3,5% of the total CK activity, even for the subjects who had increases in serum CK-MB.
CONCLUSIONS: It is concluded that aerobic exercise programmes can cause large elevations in serum CK-MB in some women and therefore they may confound the diagnosis of acute myocardial infraction.

According to our findings in the postexercise period females with suspected myocardial infraction should be evaluated using the percentage of CK-MB when total CK is high.

O114 **The Changes in Serum Leptin Concentration and Anaerobic Performance During the Menstrual Cycle**

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The purpose of the present study was to investigate whether there was a difference in the leptin levels and anaerobic prefromance during the normal menstrual cycle. Fifteen sedentary females aged 19-23 yrs were included in this study. All had regular menstrual cycle and the cycle period was 28-30 days. Blood samples were taken from the objects for the analysis of serum estradiol, progesterone and leptin levels and Wingate test was applied on a Monark 818E ergometer with 75 g/kg load on the 7^{th}, 14^{th}, and 21^{st} cycle days at random.
The differences between serum leptin levels and peak power, mean power and fatigue index on these cycle days were not significant. The correlations between serul leptin and FSH, LH, estradiol and progesterone levels were not significant.
We conclude that: 1) Performance in a short-term intense exercise which require high motivation is not affected by menstrual cycle period. 2) In women with normal menstrual cycle and no hormonal therapy, serum leptin concentration were not changed throughout the cycle. 3) Constituting more standard groups, controlling food intake, timing the blood sampling, studying more days of menstrual cycle will help to obtain more accurate results.

O115 **The Investigation of the Influence of Three Rehabilitation Programs, in Functional Activities of the Injured Knee, After Arthroscopic Menicectomy.**

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28 patients participated in this simple douple blind study, who were randomized in 3 groups. The first group (N=10) followed a programme of physical therapy, exercises of reeducation, proprioreception and a protocol of isokinetic strengthening in the isokinetic dynamometer Cybex Norm. The second group (N=10) followed a programme of physical therapy and proprioreception but with a protocol of isotonic strengthening. The third group (N=8) followed a programme of exercises at home according to oral instructions of the surgeon and physical therapist. We concluded that the implementation of rehabilitation programme improves the functional ability of operated limb since functional tests are a useful method of assessment of functional limitations.

O116 **Models of Access to Health Cares for Disabled People Socially Marginalized**

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All disabled people, it doesn't matter their age and race, the nature, the origin, or the severity of disability, might have access to a requested help in order to live according to their real and potential capacities at the highest level for everyone (2).

The practice of the physical culture and sport for a healthy style of life is one of the most important methods of prophylaxis against diseases and of the strengthening, of the health. In 1983, the Council of delegates of the International Federation of Sports Medicine (FIMS), in a meeting held in Rome launched out two slogans: "More sports for all" and "More Sports Medicine for all"! Sports Medicine is that theoretical and practical medicine, which uses, as own means physical exercise and sport, under the incidence of the natural factors of the environment on purpose to support a correct and harmonious psychic-physical development, on purpose to prevent some physical, or functional deficiencies and on purpose to correct or to treat some diseases together with, other therapeutic means. The practice of sports is growing up and the numbers of people who love the sports and want to obtain, international high level performances also have grown in the last years. Parallel, the number of injured athletes during trainings and competitions seriously grew. More and more frequent we register numerous cases when sport injuries lead directly to, life disability (invalidity). The contemporaneous sport is becoming a profession, one of the hardest and risky one. The actual legislation does not recognize such severe sports injuries as professional diseases. The level of the medical, sports-medical and medical-psychological cares is low or even misses (3,4). The medical assistance and medical-psychological rehabilitation is essential for these people in order to cover the miss of information's regarding the new methods of diagnosis, treatment and rehabilitation, the scientific and practical leading of physical exercises which thy practice voluntarily (including the sports medication, the fight against doping in sports etc).

Athletes and not diplomat's are the best ambassadors in the whole world! There exist in the world the International Olympic Committee (IOC); the National Olympic Committees (NOC); the International Paralympic Committee (IPC) and the National Paralympic Committees (NPC). People with congenital or earned handicap by practicing the physical culture and sports, including high performance sports, demonstrate to the society their desire of being fully integrated in the society, blaming the hypo dynamism and sedentary life by the practice pf physical and intellectual exercises and sports, laudable by their semen (1).

We have in Moldova two national organizations which deal with disabled people: The federation of blind athletes from Moldova (FSNRM) and the Federation, of locomotors handicapped athletes from Moldova (FSHL). The first one, recently founded, is a membership of the International Association of blind chess players, of the Council of Balkanic countries of blind athletes and of the International and European Paralympic Committees. The second Organization was founded in 1985 and named "Handisport". It includes 180 athletes, 15 being former elite athletes: Sergiu Afanasenco, bronze medalist at Atlanta Olympic Games (1996) in tennis, actual president of the FSHL and vice-president of the National Paralympic (NPC); V. Polcanov, bronze medalist at Atlanta Olympic Games in 1996 (table tennis) president of the National Paralympic Committee of Moldova (NPG). On the other hand our National Sports Medicine Center together with the Independent Association of Sports

Doctors from Moldova deal with the practical implementation of the project "Rehabilitation and medical-psychological assistance in disabled athletes, socially marginalized". The purpose of this project is to elaborate and implement into practice the principles of rehabilitation for social marginalized people, invalids of sports and disabled people who practice physical culture and sport in Moldova (6).
In order to make evident the possible relation between sports medical assistance and the evolution of sports performances we performed this trial.

O117 **A New Classification of Acromion Morphology in 423 Scapulas. Correlation with or not Enthesophytes**

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Purpose of this study is the classification of the morphology of the acromion and its correlation with the existence or not of enthesophytes, which play part at the pathology and the surgical treatment of the subacromial impigement syndrome and the tear of rotator cutt of the shoulder.
Although that in the international bibliography there are many studies about the morphology of the acromion, there are very few that refer to the 4 types and there is none that has recorded the correlation of the 4 types of acromion with the existence or not of enthesophytes.
423 scapulas were studied at the Anatomy Laboratory of the University of Kologne and the Anatomy Laboratory of the Medical School of the Aristotle University of Thessaloniki. There were observed 4 types of acromion: the 3 classical ones per Bigliani and 4th one, where the below surface was convex. There was also recorded, the correlation of the 4 types of the acromion with the existence or not of the enthesophytes at the peripheral edge of the acromion.
The findings of the study are reported at the following table:

	Type I	Type II	Type III	Type IV	Total
Without enthesophytes	50(14%)	220(61.6%)	76(21.3%)	11(3,1%)	357(84,4%)
With enthesophytes	1(1,5%)	19(28,8%)	46(69.7%)	0(0%)	66(15,6%)
Total	51(12.1%)	239(56.5%)	122(28,8%)	11(2.6%)	423(100%)

From the findings of the study it is ascertained that there is increased frequency of Type III of the acromion when enthesophytes also exists. It is also shown that at Type I (1,5%) and at Type IV (0%) the existence of enthesophytes is inconsiderable.
Type III of the acromion and the existence of enthesophytes consist, αποτελούν, provenly by a large number of investigators (authors), inclinational factors for the appearance of syndrome of subacromial impingement syndrome but also for the tear of rotator cutt of the shoulder, especially at athletes the make excessive use of the upper limb, over the shoulder level, like swimmers, water polo players, throwers, basketball players, volleyball players, handball players.

O118 **Osteochondral Autogenous Transfer Grafts for the Treatment of Full Thickness Articular Surface Defects. Arthroscopic Techniques**

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Localised articular cartilage defects in weight-bearing joints are common, yet difficult to treat.
The O.A.T.S procedure represents an effective means to treat full thickness symptomatic articular defects.
O.A.T.S is currently the only arthroscopic cartilage repair technique that provides and retains hyaline articular surface.
The results has shown that the transplantation of osteochondral autologous grafts can be effective for the treatment of focal defects of articular cartilage in selected patients.

O119 **Arthrodcopically Assisted Reconstruction of PCL and ACL Ligaments in One Go**

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When time of "functional adaptation" and "functional tolerance" is over,PCL injuries develop Osteoarthritis.
We have to treat PCL injuries more than we used to in the past for the simple reason that now we know how to do it easily with minimum morbidity.
80 % of PCL injuries are combined with ACL or PLC injuries.
Open PCL surgery in the past was major surgery, difficult and dangerous.Arthroscopically assisted PCL reconstruction with the new instrumentation is safe and fast enough to allow us to perform simoultaneously PCL and ACL reconstruction in one go.

O120 **Changes in the Function of Psychic Activity of Students of Sport Education Faculty During the Period of Studies**

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PURPOSE: The aim of the study was to estimate the mobility of the basic nervous processes, the volume of attention and working capacity of nerve – cells of 1st–year students of Sport Education faculty and 4th – year students completing their studies for Bachelor's degree. Besides, the present study was aimed at comparing the data obtained according to students' inclination for languages or mathematics, the school leaving average mark and sex.
RELEVANCE: The information gained about the changes in psychic activity of students of Sport Education faculty during the period of their studies is important for training sport pedagogues and coaches.
SUBJECTS: The subjects were 100 students (42 girls and 58 boys) studying at Sport Education faculty of the Lithuanian Academy of Physical Education. The age of 1st–year students averaged 18–19 years and that of 4th–years students 22–23 years accordingly.

METHODS: By means of special questionnaires health condition of the subjects, their place of residence, living conditions, the school leaving average mark and inclination for languages or mathematics have been established. Making use of the number search tables introduced by Shulte and the complex modified test of number search introduced by F. D. Gorbov the function of psychic activity was studied.
RESULTS: Health condition of all subjects was good; 12% of them had suffered from breathing system diseases, 9% – from digestion system diseases, 4% of the subjects had motor-supporting apparatus traumas and 2 of them had suffered from cardiac failure accordingly. Most of the subjects (87%) were city residents and merely 13% had come for studies from the country-side. During the period of studies 12% of the subjects lived in the Academy students' hostel, whereas 88% of them lived with parents or rented a flat. The school leaving average marks of the girls were better than those of the girls. Research data of the function of psychic activity both at the beginning of the studies (1st-year students) and at the completion of studies (4th-year students) were within the limits of the norm. The results of the function of psychic activity were better in 4th-year students as well as in the group of students who showed a stronger inclination for mathematics than languages and who had higher school leaving average marks. Research data in the group of students more gifted for mathematics were better among girls than among boys.
CONCLUSION: Research data of the function of psychic activity of students of Sport Education faculty were within the limits of the norm. Better results of the mobility of the basic nervous processes, the volume of attention and working capacity of nerve-cells were registered among 4th-year students compared to 1st-year students as well as in the group of students who showed a stronger inclination for mathematics than languages and who had higher school leaving average marks.

O121 **The Effects of a Winder Weekly Program on Biochemical and Hormonal Parameters of Pubescence and Pre-Pubescence Swimmers**

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Exercise on a regular basis has been shown to affect resting levels of various hormones and enzymes. Examining the responses and adaptations of the various of hormones and enzymes to exercise training, is of interest because of their role in physical and physiological stress with implications in overtraining, in regulation of energy metabolism and in growth and development.
So the competitive swimming make up an ideal environment for studies of combination hardly train and maturation. The aim of the present study was to exam the responses of the levels of hormonal and biochemical parameters of young swimmers. Sixteen competitive swimmers in two separate group in pre-pubescence group(Tanner 1-2, mean age 11) and pubescence group (Tanner 3-4, mean age 14.35) were studied during a winder weekly train program, of 24 and 40 Km respectively. Venous blood samples were collected at rest early morning at the begging of the week (PRE) and at the end of the weekly program under the same conditions (FIN).

Serum Cortisole (C), Prolactine (PRL) and while Testosterone (T) were measured by the method of Chemiluminescence. The CPK . LDH ,SGOT and SGPT were measured by the method of enzyme analyzer. The level of significance was set at $p<0.05$ level. The results of the present study presented statistical significant changes between pre and post measurements in levels of creatine kinase (CPK) $p<0,05$. in levels of lactate dehydrogenase(LDH) $p<0.05$ and in levels of aminotransferase (SGOT) both to the groups . The levels of hormones presented statistical significant changes between two groups in total testosterone and in prolactin but there were no significant changes between pre and post measurements for all hormones. Conclusion: The alterations in hormonal and biochemical level in the pre and post measurements , due to training adaptation should be taken into consideration when evaluate performance and health. At a given a single hormonal response cannot be interpreted and should not be evaluated the use of its predictive value, without the individual's whole hormonal profile, so we can assess how this is influenced by training . Consist for the coaches to control the biochemical and hormonal parameters regularly so that recognized the degree of muscle damage and the degree of maturation.

O122 **The Effects of Creative Supplementation on Performance During the Repeated Bouts of Supramaximal Exercise**

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In this study it was aimed to investigate the effects of creatine supplementation on performance during the repeated bouts of supramaximal exercise.

Twenty-three untrained young males participated in the study. Wingate test was performed 5 times with 90 g.kg-1 body weight load with 2-min intervals. Peak power, mean power, fatigue index and power output for every 5-s interval were calculated. A double blind design was used to create the creatine and placebo groups. For 6 days the creatine group (n=12) ingested 5 g creatine monohydrate, the placebo group (n=11) a flavored drink without creatine monohydrate four times daily. On the seventh day, the Wingate tests were repeated, as was the first day.

In the creatine group, mean power in the first and second Wingate test, peak power in the second Wingate test significantly increased. In the placebo group, peak power in the first Wingate test, fatigue index in the first and second Wingate test increased and mean power decreased in the third Wingate test. While the total power output obtained from the five Wingate tests increased 7.6% from 366.3 (65.0) W to 394.0 (67.1) W, there was no change in the placebo group.

It is concluded that creatine supplementation enhances total power output and the power outputs in certain periods of short intense exercises which have short resting intervals. The fact that creatine supplementation is effective at the beginning periods of the test is compatible with the fact that use of creatine phosphate is the most important at the beginning of exercise.

O123 **Implication of Fibromyalgia Early Diagnosis in Sports Medicine**

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Fibromyalgia, only recently recognize as a nosologic entity by OMS at 1 January 1993, is a common musculo-squeletal disease mainly characterized by pains and tender-points in muscles and ligaments. We present the most recent data about fibromyalgia, known as a diffuse muscular-ligaments pain syndrome, without an evident cause, which can frequently associates sleep disturbances, depression, headaches and other clinical variants of symptoms, but, most important, affects young people in stress condition and it is not a rare finding in high athletes. Fibromylgia can directly affects the athlete's performance level, that's why it must be early recognize, diagnosed and treated. The syndrome mostly benefits of a complex rehabilitation treatment with drugs therapy, physical and kinetic therapy, diet and psychological professional support.

O124 **Our Experience from the Physical Rehabilitation of Athletes woth Shoulder Instability**

Kefalas Ch., Garbounis Ch., Rogdakis G.
GREECE

Indubitably the good function of shoulder constitutes basic factor of success in a lot of sports as basketball, handball, swimming ..... Many times reasons as injury, wrong training even genetic differentiations leads to conditions of joint instability, which is one of the basic reasons for pathologies in the region (impingement syndromes, tendinites). Aim of this work is to analyze all those factors that lead to this situation and to propose the suitable programs of physical rehabilitation supported in the biomechanics and neurophysiology of region.

O125 **Instability of the Shoulder**

Kefalas Ch., Garbounis Ch., Rogdakis G.
GREECE

Instability of shoulder
Increase of Neutral zone of the joint mobility with small charge.
Pathological situation that leads to increased shift of head of brachial in to the articulation and brings in risk the structures (Nerves –Labrum)

Stability of shoulder
1. Passive
Capsule – Ligaments - Labrum - Negative compaction

2. Energetic
Neuromuscular Integrity of stabilizators muscles region

Biomechanics of shoulder

Types of instability
- Traumatic
- Functional
- Congenital

Test of Instability
1. Drawer test (Paradoxical of Position Fault)
2. Apprehension Test
3. Relocation test
4. Clunk test
5. Quadrant

Re-establishment
1. Surgical

In big damage of stabilizing elements of region (Rupture capsule, Labrum)

2. Conservative
- Re-establishment of biomechanics (control of neighbouring joints)
- Control - Stability of scapula
- Mulligan Techniques - Tapping
- Importance of use subscapularis –Rotator Cuff (Functional neurophysiology of shoulder)
- Propioceptive – Force – Resistance
- Eccentric control
- Control in the speed

0126 **Evaluation of Postural Alignment in Basketball Player and Sedanter Subjects by Using New Posture Analysis Program**

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OBJECTIVE: The aim of this study was to evaluated of postural alignment in basketball player and sadenter subjects by using new posture analyses program.
DESIGN: Trained 9.5±1.3 years twelve male basketball players mean age 21.1 ± 1.7 years (height: 185.5 ± 5.3 cm, weight:77.0±8.6 kg) and nontrained twelve sedanter subjects mean age 22.1±2,9 years (height: 182.1±5.4, weight: 71.1±5.4 kg) were evaluated anteior and lateral static body posture by using Olympus Camedia Digital Camera c-150, fiber posture analyses panel and Visual Basic 6.0 program. Data were analyzed by SPSS statistical data program.
RESULTS: Shoulder and chest symmetry differences were statistically lower in basketball player in anterior posture analyses ($p<0.05$). No statistical difference in head, pelvis symmetry differences and knee valgum angle in both groups ($p>0.05$). In lateral posture analyses, cervical and lumbar curves were found lower in basketball

player subjects($p<0.05$) and no differeces were found in dorsal and popliteal curves ($p>0.05$).

CONCLUSION: New posture analyses program is a successful for analysing postural alignment. Static posture of the basketball players are more symetrical and close to normal postural aligment than nontrained sedanter subjects.