

## COMBINED RESEARCH OF FOOT-PRINT, PHYSICAL EXAMINATION AND KINANTHROPOMETRY IN A PROFESSIONAL FOOTBALL TEAM. INFLUENCE ON INJURIES

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### OBJECTIVE

Investigation of the feet's static analysis and morphology of football players in the injuries of the lower limbs.

### MATERIAL AND METHOD

CD Leganes Premier Team studied. Foot-print analysed by simplified Hernández-Corvo method, prior and next to a football match, classifying it in: flat, flat-normal, normal, normal-high arched, high arched and strong high arched. Kinanthropometry researched followed G.R.E.C. (Spanish Group of Kinanthropometry) methodology. Injuries history obtained by a questionnaire after informed consent obtained as established by local legislation.

### RESULTS

High arched feet bias an increase of injuries in football players. It is observed larger number of Sprains in the same foot (3-5 in most extreme high arched), providing injuries such fractures of the 5th metatarsal and muscular ruptures. Increase in knee injuries, as well noticed in feet with different photopodograms. Combined lesions (sprains, fractures of 5th

metatarsal and knee injuries) appear in high arched feet with a photopodogram showing marked pressure on the outward metatarsus. The photopodogram classified as flat or normal have less number of lesions, with such diversity that disables to establish a relationship with these injuries. It has not being found a conclusive relation between genu varum (absence of genu valgum) or heel distortions with the different injuries, because it has not been showed a common pattern. Exists relationship among players with pubic osteopathy and back pain with dissymmetry, specially in lileospinal and Trochanteric heights (lower in pack pain), but the pattern of lesions is not uniform.

### CONCLUSIONS

1) Injuries increases with abnormal foot-print and irregularity of feet pressure during march. 2) Lesions increases with high arched feet and produces combined knee and feet injuries if pressure distribution is over the outward metatarsus. 3) Broader study population should be investigated in order to compare results. 4) Different sports and general population must be increased in order to ratify these results.

## A STUDY OF TRAUMATIC EVENTS IN JUNIOR FENCING COMPETITIONS

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### BACKGROUND

Fencing is one of the oldest and most beautiful sports in the world. Nowadays due to using protective devices, Fencing is safe and injuries are rare. But physicians who are medical supervisors of fencing competitions must be aware of possible sport injuries to be able to manage them.

Knowledge of fencing injuries especially in "juniors" can be very useful and profitable to design methods for decreasing risk of injuries.

### 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 (Foil:60, Epee:50, Sabre:45) took part in 610 competitions (Foil:237, Epee: 196, Sabre: 177).

The average age of athletes was 17,88 year (SD=1.20).

### RESULTS

31 requests for medical attention (Sabre: 20 cases, Foil: 6 cases, Epee:5 cases) related to injuries were classified as follows:

A) Injuries due to opponent's weapon 20 cases (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

The result of study emphasized that if suitable protective 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 dangerous injury due to sharp end of broken weapon is rare but medical teams of fencing competitions should be aware of this accidents and Emergency facilities must be available.

**Key words:** Fencing injuries, Sport Injuries, Echocardiography, Athlete's Heart, women fencing.

## STUDY OF TRAUMATIC INJURIES IN WOMEN FENCING COMPETITIONS

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### BACKGROUND

Fencing is a traditional sport with increasing participation and population worldwide. Fencing was one of the nine sports in the first modern Olympic in Athens in 1896 and has remained as an Olympic sports ever since.

Presently, due to the 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 sports 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 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 (Foil=131, Epee=107). The mean age of athletes was 18.43 yr (sd=1.65, Min=16, Max=20). During this championship there were 14 requests for medical attention related to injuries

Were classified as follows:

#### A) The injuries across weapons:

Epee=9 cases & Foil=5 cases. There was no significant difference between

Them (P=0.10)

#### B) Cause of injuries:

1) Injuries due to opponent's weapon 9 cases (64,3%)

2) Functional overloading & other types 5 cases (35,7%)

#### C) Type of injuries:

- 1) Wound 7 cases (50%)
- 2) Bruise 2 cases (14,3%)
- 3) Sprain 3 cases (21,4%)
- 4) Spasm 2 cases (14,3%)

#### D) Location of injuries:

Hand & Fingers were the most common locations of injuries 3 cases 24,1%

Arm, Ankle & Neck were second places each one 2 cases (14,3%)

#### E) Cancellation due to injury:

Only one competition (7,1%) was cancelled due to severe ankle sprain.

#### F) 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 and competition was cancelled.

### CONCLUSION

The result of this study have 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 fencing can be suitably managed with first aid and RICE.

Although occurrence of dangerous injuries (like neck injuries) are rare, nevertheless, medical teams presiding at fencing competition should be aware of possibility of these accidents and suitable emergency facilities must be available.

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## LUMBOPELVIC STABILITY AND INJURY PROFILE IN RUGBY UNION PLAYERS

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### OBJECTIVE

To study the relationship between lower back and groin injuries and to explore the role of a lumbopelvic stability exercise programme in the prevention of back and groin injuries in a group of rugby union players.

### DESIGN

Prospective single blind intervention study.

### SETTING

Private practice of authors (MFC, CJB)

### PARTICIPANTS

Two groups of rugby players matched in height, weight, age and player position were assessed pre, mid and end-of-season for flexibility and back strength under the supervision of a blinded assessor. Injuries were surveyed and followed up throughout the season.

### INTERVENTION

Both groups had a standard stretching and fitness programme. The randomly assigned intervention group carried out three additional exercises on a Swiss ball twice weekly (average

13.6 sessions).

Main outcome measures: Players in the intervention group to have fewer relevant injuries, increased pelvic stability measured as pelvic strength measures, than those in the control group, and reduced symptoms.

### RESULTS

There were fewer relevant injuries in the intervention group. These results need to be validated with further studies with larger numbers. There were significant changes in both flexibility and strength in both groups. The intervention group had a greater range of improvement, but the differences did not achieve statistical significance.

### CONCLUSION

Whilst there was an improvement both in strength and flexibility, there was no significant difference between the intervention and control groups. Some trends were observed, but both the sample size and the total number of injuries were too small to allow any significant differences to be determined. Further studies are required to confirm the hypothesis.

**Key Words:** Lumbopelvic instability, back pain, injury prevention.

## HIP PATHOLOGY IN TAEKWONDO

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### PURPOSE

Achieve objective structural knowledge, that can help prevent future pathology due to hip overuse.

### MATERIALS AND METHODS

We examine 19 elite taekwondo athletes, who's average age is 24 years old.

### MEDICAL RECORD

Medical history, goniometric range of motion, image diagnosis using x-ray (AP, FA & FP), CT & MRI.

### RESULTS

Physical examination: Different ROM ratio between examined athletes and standard ratios. When compared our clinical results with results of ballet dancers, the ratios differ.

We find different values between female & male, in flexion & Add.

31% of the athletes suffer pathology, being pain the prevailing symptom. The left side is the most harmed, even when the dominant leg is the right one.

Several types of pathology are associated: low back pain, sciatic pain, scoliosis, spondylolysis L5, hip height asymmetry, hamstring pain, disk herniation L4-L5 & thoracolumbar contracture.

Plain x-ray studies judged independently, show: femoral head & neck sclerosis, & sclerosis on the acetabular edge and marginal osteophytes. MRI determines articular morphology, osteophyte location, cartilage width, labrum, capsular ligaments & synovial state.

### CONCLUSIONS

It's the first phase of a study, that attempts to find out the risk factors of taekwondo pathology

**Key words:** Hip joint, Taekwondo, Radiology



## MENISCAL CYSTS: MRI EVALUATION

Tsitouridis J, Natsis K, Emmanouilidou M., Tarazi L., Lorichovitou A., Chondromatidou S., Goutsaridou F., Papasterpiou Ch., Panidis G.

The purpose of our study is to present our experience from the MR appearance and clinical correlation of 16 meniscal cysts. The cysts are clearly fluid collection, arising from the peripheral margins of the menisci. Our patients examined at 1 T Scanner, Siemens Expert plus, using T1WI, PDWI and T2WI in an axial, sagittal and coronal plane. Also T2 – flash coronal and sagittal images were also obtained. All the patients had a meniscal tear, 3 complex type and 13 with horizontal type tear, 14 meniscal cysts were located at the lateral meniscus and only 2 at the medial meniscus.

Eleven of them were septated and the size of the cysts were ranged between 2 and 6,4 cm. Two of the patients had tendosynovitis of the popliteal muscle and 6 patients had also injury of the anterior cruciate ligament. All the patients reveal lateralizing joint line tenderness.

In conclusion, MRI is the imaging method of choice in the evaluation and characterization of meniscal cysts.

**Key words:** Meniscal cysts, MRI

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## GYMNAST WRIST: MRI EVALUATION

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Wrist pain is a frequent pathology in elite gymnasts (45-80% of the athletes). Of the total of pathology gymnasts suffer, 19% are wrist located. Risk factors and etiology aren't easy to specify (dorsal impingement, physical stress...). The objective of this work is to define and classify, using MRI, chronic wrist pain.

### MATERIALS AND METHODS

We examine 20 masculine gymnasts wrists (x: 14.3 years old, x: 9.1 years of practice), and record all clinic data. MRI results are classified according to Palmer (1989) and Shih (1995).

### RESULTS AND CONCLUSIONS

We find a greater prevalence of radial and dorsal clinic

injuries. There is no asymmetry in bilateral MRI images. Ulnar variance is positive in 1 case. Radial changes (n:15) in physis width, are more frequent than ulnar physis changes (n:9). Metaphysary changes have a similar frequency (Radius 12 and Ulna 9).

TFCC presents high intensity signal in all the cases.

Carpal pathology is the most frequent injury in gymnasts during growth period.

For the evaluation of this chronic irregularities and evolutive follow-up, MRI is the technique that offers the most reliable assessment.

**Key words:** Wrist, overload, gymnastics, MRI.

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## CLASSIFICATION OF THE MUSCLE INJURIES CAUSED FROM INDIRECT TRAUMA

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### PURPOSE

The muscle lesions from indirect trauma occur during training or competition without direct contact between athletes or against obstacles. We propose a classification of muscle lesions with the aim to achieve the best therapeutic management of muscle injured athletes.

### METHODS

Prospective study of 470 athletes aged 14-60 yrs, treated from

January to December 1998 for muscle lesions. Male/female ratio was 464/6; 392 patients (84%) were soccer players.

We propose three classification criteria: 1) clinical (site and appearance of pain), 2) anatomo-pathological (presence of anatomic muscle lesion) and 3) echographic (characteristics of the echographic image). Based on these three criteria the physician will be able to distinguish the muscle lesions into: contractures, sprains and strains. Contracture: clinically manifests itself with delayed pain with variable latency after

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sports activity. The pain is not precisely localizable and muscular tone at rest is increased. The echography does not evidence any damage of muscular tissue. Muscular sprain: clinically manifests itself with pain increasing progressively during the sports activity. The functional damage is delayed and the beginning of symptoms is easily established. The pain is well localized and the exact painful point can be recognized by manual inspection. Echography shows some alterations but does not evidences anatomic lesions. Muscle strain: clinically manifests itself with acute pain precisely localized, and function immediately damaged according to the gravity of the anatomic lesion. The muscular strain is divided in three grades based on the anatomic lesion of muscular tissue. I grade: lesion limited to one muscle fascicle; II grade lesion less than  $\dot{y}$  of the cross-sectional muscle area; III grade lesion more extensive than  $\dot{y}$  of the cross-sectional muscle area.

## RESULTS

In the 470 athletes, 93% of the lesions occurred with indirect trauma. The muscle contractures were 90 (21% of indirect traumas), muscular sprains were 41 (9%) and muscular strains were 306 (70%).

## CONCLUSIONS

Muscle lesions occur mainly from indirect trauma. Muscle strains are the most frequent type of muscular lesion to consider for rehabilitation and treatment. A correct diagnosis based on the proposed classification permits the most appropriate therapeutic choice.

**Key words:** muscle injury, indirect trauma, contracture, sprain, strain.

## ACCELERATED REHABILITATION PROGRAM AFTER ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

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### PURPOSE

Evaluation of the effect of an accelerated rehabilitation program, after anterior cruciate ligament (ACL) reconstruction, consisting in 3-6 weekly rehabilitation sessions, starting immediately after surgery and organized in 3 phases with 3 specific objectives: 1) return to walk autonomously (gym and swimming-pool exercises), 2) return to running (gym and swimming-pool exercises), 3) return to specific athletic act (gym and sport field exercises).

### MATERIALS AND METHODS

From January to December 1998, we studied 128 patients (106 males, 83%) participating in the accelerated rehabilitation program, after ACL surgical reconstruction with autogenous patellar tendon graft (10%) and autogenous semitendinosus and gracile tendon (90%). Mean  $\pm$ SD age was 29 $\pm$ 8 (range 14-50) years. On 70 (55%) patients the injury occurred in training or competition during soccer (45%) and skiing (25%). The professional athletes were 11. 120 patients (94%) underwent their first surgery, while only 6% were recidivate.

### RESULTS

The maximum extension and flexion range of motion were achieved in 38 $\pm$ 46 and in 76 $\pm$ 65 days after surgery respectively. The isokinetic test was performed 95 $\pm$ 36 days after surgery, showing in the injured knee a 14 $\pm$ 10% deficit in extension maximal torque and 11 $\pm$ 13% in flexion maximal torque. The deficit in isokinetic endurance test (20 $\times$ 8221; at 180 $^\circ$ /s) was 7 $\pm$ 9% in extension and 7 $\pm$ 11% in flexion. The field

training began when the difference in the isokinetic test results was lower than 20% between the two knees. The last therapy was performed 112 $\pm$ 75 days after surgery and the number of sessions of physiokinesitherapy for one patient was 28 $\pm$ 25 with 12 $\pm$ 6 therapies in the swimming-pool. The last medical visit occurred 118 $\pm$ 87 days after surgery. The most frequent complications were swelling (86 patients, 67%) that occurred in the first phase of the rehabilitation program, tendinitis (11 patients, 9%) and muscle aches (37 patients, 29%: 17% popliteus, 2% gastrocnemius, 9% hamstrings) that occurred in the other two phases.

### CONCLUSIONS

The results of this study show that patients involved in the accelerated rehabilitation program after ACL reconstruction, are able to walk with a correct pattern within 38 days from surgery. The protocol includes one month of swimming-pool exercises in phase 1 and an isokinetic test after 3 months and the start of field training after about 3 months, for about one month. The end of the program occurs after 4 months from surgery and the patients returned to their sport activity within 4 months (range 3-7) from surgery.

The relatively high Standard Deviation of the data is due to the individual variability in the number of therapies and to the fact that 21% of the patients interrupted the protocol before complete recovery.

**Works Key:** Rehabilitation Program, Anterior Cruciate Ligament Reconstruction.



## WRIST AS A LOADING JOINT IN GYMNASTICS. RADIOLOGY AND MRI STUDY

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### INTRODUCTION

Artistic Gymnastics use upper extremity as a loading member in an important number of specific movements. The wrist, as the distal joint which contacts directly to the floor or apparatus, is going to develop a specific pathology, not very well studied in relation with other parts of the musculo-skeletal system.

### OBJECTIVE

The description of radiographic and MRI findings in the wrist study of a group of elite gymnasts and its correlation with technical aspects.

### MATERIAL AND METHOD

We studied 10 gymnasts (5 girls and 5 boys) who are in the national teams at this moment, and two else (1 girl and 1 boy) who have retired 8 years ago. We did AP and Lateral plain radiographs and a RMI study of their most affected wrist.

### RESULTS

The radiographs of active gymnasts show distal radius physal stress reaction and small carpal fractures as typical findings. Veterans' radiographs show barely findings. MRI study show subcondral bone sclerosis and degenerative aspects of triangular fibrocartilage (TFC), more evident in men, as well as bone edema along the loading line of the joint. Veterans' radiographs have wide epiphysis without bone structure alterations, degenerative signs in TFC and carpal bones sclerosis.

### CONCLUSIONS

Wrist as a loading joint in gymnastics have a specific pathology due to the age and overload they suffered, and degenerative injuries as the result of the competitive period. A longitudinal study is necessary to know the incidence of these injuries in the sport activity.

**Key words:** wrist, gymnastics, sport injury.

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## EVALUATION OF A PATELLOFEMORAL PAIN RATING SCALE

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### PURPOSE

To (a) develop a valid disease-specific questionnaire to diagnose and quantify anterior knee pain and (b) to evaluate the sensitivity and specificity of the questionnaire.

### METHODS

The Orthopaedic 8 Arthritic Hospital (Toronto, Canada) questionnaire assesses subjective symptoms, clinical examination and radiographic findings, with a total score of 100. The evaluation of the questionnaire was based on a cohort of 140 symptomatic knees with different pathologies. The study was organised in two parts. Part one was a retrospective study involving 23 patients (25 knees) with known patellofemoral pathology before and after tibial tubercle transfer. Scores were compared to those from established questionnaires for knee pathology (Fulkerson and Lysholm Scores). This part of the study was used to establish a standard for known patellofemoral syndrome. The second part of the study involved 105 patients (115 knees) who underwent arthroscopy for various indications or were clinically diagnosed and treated for patellofemoral syndrome. Assessment included the new questionnaire and the Outerbridge classification. The various pathologies were

compared using the Hospital for Special Surgery's Score.

### RESULTS

Using the designed questionnaire, we are able to discriminate between patellofemoral and non-patellofemoral pathology ( $p < 0.0001$ ). None of the other questionnaires were able to achieve this. The sensitivity of the assessment was 76%, the specificity 89%. Positive and negative predictive values were 0.93 and 0.66 respectively. There was a positive correlation between the severity of patellofemoral disease and the test score ( $p < 0.0001$ ).

### CONCLUSION

The questionnaire assists in diagnosing patellofemoral pain syndrome. Patients with score less than 50 were likely to suffer from patellofemoral syndrome, whereas scores greater than 50 denoted meniscal tears or ligament injuries. The lower the score, the worse the clinical and pathological findings for the patellofemoral group.

**Key words:** knee; patellofemoral pain syndrome; outcome; questionnaire

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## MOVEMENT ANALYSIS IN UNILATERAL, SINGLE SHOULDER DISEASE USING FASTRAK 3-D TRACKING SYSTEM

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### PURPOSE

To ascertain whether the FASTRAK system is able to distinguish between normal and pathological shoulder joint movement. A before- and after study design was employed with the intervention being a shoulder injection. The non-symptomatic shoulder was used as control.

### METHODS

15 patients (13 male, 2 female), with a mean age at presentation of 47.53 years (range 31-69) were studied. Inclusion criteria were localised point of maximal tenderness at the acromioalvicular joint, positive anatomical abduction test and high arc impingement pain. Injection with 1 ml of 0.5% Bupivacaine and 10 mg of Triamcinolone into the ACJ under image intensifier guidance was undertaken.

1. Bilateral standardised shoulder FASTRAK before and two weeks after injection of the symptomatic ACJ for flexion/extension, anatomical abduction, scapular abduction and horizontal abduction.

2. Pain assesment via visual analogue scale pre- and post-injection.

3. Subjective treatment outcome after the injection 14 days post injection.

### RESULTS

T statistics was used for the data analysis. There was a significant restricted range of movement in the symptomatic shoulder pre- and post- injection ( $p=0.01$ , extension:  $-37.12^\circ$  /  $-44.15^\circ$ , anatomical abduction:  $124.7^\circ$  /  $139.6^\circ$ , horizontal abduction:  $123.58^\circ$  /  $143.94^\circ$ ). Flexion and scapular abduction were significantly increased ( $p=0.01$ , flexion:  $123.1^\circ$  /  $135.8^\circ$ , scapular abduction:  $132.74^\circ$  /  $147.5^\circ$ ) in the symptomatic shoulder post injection.

### CONCLUSION

FASTRAK allows the documentation of reduced range of movement in the shoulder, and can show that treatment has resulted in increased flexion and scapular abduction in shoulder pathologies involving the ACJ.

**Keywords:** Fastrak; Shoulder Joint; Range of movement; Diagnosis; Treatment Monitoring.

## STRESS FRACTURES IN ATHLETES: MRI EVALUATION

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The purpose of our study is to present our experience from the evaluation with MRI of 23 stress fractures in athletes, including and two winners at the Olympic Games of Sidney. The examination was performed with 1 T, Siemens Expert plus scanner and T1WI, PDWI and T2WI axial, coronal and sagittal images were obtained. There are two types of stress fractures: a) cortical bone, and b) cancellous bone. Our patients had stress fracture, 3 in the middle of the tibia, 1 in the neck of the femoral, 14 in the second and third metatarsal bone, 2 in the calcaneous, 2 in the base of the phalanges and

1 in the navicular bone. MRI clearly revealed the bone marrow edema, the edema of the soft tissues surrounding the fracture line. Only in 7 patients, we picked up the fracture line as a line of low signal intensity across the bone.

In conclusion, we believe that MRI is the method of choice in patients with pain and negative radiographic studies, not only for detecting the lesion but also to follow up these patients.

**Key words:** Stress fractures, athletes, MRI



## THE APPEARANCE OF ENCHONDROMATOSIS, PRIGMENTED VILLONODULAR SYNOVITIS AND LOOSE OSTEOCHONDRAL BODIES AS ARTHROSCOPIC FINDINGS OF KNEE INJURIES

Manavis Konstantinos, Natsis Konstantinos, Terzidis Ioannis, Beletsiotis Anastasios, Karathanasis Alejandro, Gigis Panagiotis

The aim of this study is to present the frequency of appearance of enchondromatosis, prigmented villonodular synovitis, and loose osteochondral bodies at a large numbers of arthroscopies. Between 1986-2000, 2,489 arthroscopies were made for different reasons to athletes and the general public. Loose osteochondral bodies were found in 48 cases (1,9%), 41 men (85,4%) and 7 women (14,6%) with a mean age 27,3 years (18-41) In 39 cases restricted to the femoral condyle and 9 cases to the patella. Enchondromatosis was found in 17 cases (0,6%), 14 men (82,3%) and 3 women (17,7%) with a mean age 28,5 years (27-37) The etiological mechanism was osteochondritis dissecans, osteochondral and chondral fracture, chondromatosis and osteoarthritis. Prigmented

villonodular synovitis was found in 10 cases (0,4%), 6 men (60%) and 4 women (40%) with a mean age 31,2 years (24-41). The main symptoms were pain of the knee (100%), swelling of the arthrosis (45,3), knee blocking (62,6%). The symptoms disappeared in 1-6 months with the arthroscopic treatment. To sum-up, the existence of osteochondral bodies due to various reasons, enchondromatosis and prigmented villonodular synovitis are rare pathological findings that can be confused with various other intra-articular pathologies.

**Key words:** enchondromatosis, prigmented villonodular synovitis, loose osteochondral bodies, arthroscopy.

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## INTRA-ARTICULAR INJURIES OF THE KNEE THAT MIMIC MENISCAL INJURIES, DIAGNOSED ARTHROSCOPICALLY

Terzidis Ioannis, Manavis Konstantinos, Natsis Konstantinos, Beletsiotis Anastasios, Karathanasis Alejandro, Gigis Panagiotis

In 2489 arthroscopies that were made between 1986-2000, 61 cases 37 of which (60,7%) men and 24 (39,3%) women with different pathological disease as regards their clinical examination the symptoms were confused for meniscal tears. More analytically, there were found a) chondromalacia patella in 16 cases, 9 (56,3%) women and 7 (43,7%) men (Grade I:3, Grade II: 8, Grade III:3, and Grade IV: 2), b) osteochondritis dissecans in 6 cases (5 men, 1 woman), c) inverted?, in 5 cases (3 men, 2 women), d) synovitis in 5 cases (3 men, 2 women), e) plica in 9 cases (7 men, 2 women), f) chondral lesion in 14 cases (11 men, 3 women) and g) hypertrophic bursa in one

case (1 woman). All injuries were treated arthroscopically and the symptoms disappeared in 1-6 months. To sum-up, there is a considerable number of pathological disease that during the clinical examination appear to be meniscal tears thus creating confusion and leading to misdiagnosis. Arthroscopy as a diagnostic and as a therapeutic method helps considerably this obscure area.

**Key words:** intra-articular injuries, menisci injuries, arthroscopy

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## THE FREQUENCY OF APPEARANCE AND THE TYPE OF THE TEARS OF THE TWO MENISCI OF THE SAME KNEE, DIAGNOSED ARTHROSCOPICALLY

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The aim of this study is to present the frequency of appearance and the type of the tears of the two menisci of the same knee diagnosed arthroscopically. 53 (2,1%) cases with tear of the two menisci of the same knee, 46 men (86,8%) and 7 women (13,2%) were observed in 2489 arthroscopies that were made between 1986-2000. 33 cases (62,3%) cases concerned the left and 20 (37,7%) the right knee. It was observed in the medial meniscus: a) radial tears in 7 cases that were combined with degenerative tear of the lateral meniscus (4 cases), b) bucket handle in 20 cases 12 of which were combined with the same type tear of the lateral meniscus, c) oblique tear in 9 cases 4 of which were combined with bucket handle and 3

with degenerative tear of the lateral meniscus, d) horizontal tear in 6 cases 2 of which were combined with degenerative, 2 with bucket handle, 1 radial and 1 horizontal tear of the lateral meniscus, e) degenerative type in 11 cases 9 of which were combined with the same type of the lateral meniscus. To sum up, there is a variety in the combination of the tears of the two menisci. Bucket handle tears are found more often (22,6%), degenerative tears much less (17%) and the rest tears appear almost in the same frequency.

**Key words:** both menisci tears, frequency, knee joint, arthroscopy.

## ACUTE LATERAL ANKLE INJURIES IN TRACK & FIELD ATHLETES: A NEW CLASSIFICATION

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### PURPOSE

To introduce our ankle sprains classification method based on objective criteria.

### MATERIALS - METHODS

170 acute lateral ankle ligament injuries were examined. These cases were initially classified in the usual clinical way. In addition we estimated the full rehabilitation time and measured the following: a. active range of motion by goniometry, b. ankle oedema with the figure of 8 (eight) method, c. distance between the posterior articular surface of the tibia to the nearest point of the talus, from the anterior drawer stress x-rays (for 3rd degree cases). We compared all our measurements to the healthy side.

### RESULTS

74 (43.5%) cases were categorized as first grade, 53 (31.1%) second and 43 (25.4%) as third degree. In those cases that

were classified, on clinical grounds, as third degree, we conducted anterior drawer stress x-rays, and reclassified them according to these findings in two subgroups, IIIA & IIIB.

When oedema is measured there is substantial difference ( $p < 0,05$ ) between grades I, II and IIIA, although there is no statistical difference between IIIA and IIIB. However, when active ROM is measured there is significant statistical difference (SSD) between all grades (I, II, IIIA, IIIB). The above signify the difference between grades IIIA and IIIB.

Most importantly, when the stress x-rays results are analysed, SSD occurs when comparing grades IIIA and IIIB.

### CONCLUSIONS

As a conclusion we think that the following criteria can be safely used for more accurate classification of acute ankle lateral injuries, leading in specific treatment and earlier return in sports activities.

GRADE	ROM	OEDEMA (cm)	STRESS X-RAYS
I	3,65° (+3,96°)	0,25 (+0,31)	
II	8,45 (+4,78°)	1,608 (+0,66)	
IIA	14° (+5,58°)	2,19 (+0,47)	2,18mm (+0,65mm)
IIIB	20,88° (+10,24°)	2,32 (+0,27)	6mm (+0,78mm)



GRADE	Decreased ROM	Oedema	Stress radiographs
I	Up to 5°	Up to 0,5 cm	Not obtained
II	5° to 10°	0,5 cm to 2 cm	Not obtained
IIIA	More than 10°	More than 2 cm	Normal
IIIB	More than 10°	More than 2 cm	Joint laxity more than 5mm

Key words: ankle sprains, classification, criteria.

## ATHLETIC INJURIES IN SOCCER: ONE-YEAR STUDY OF A PROFESSIONAL TEAM

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### PURPOSE

To record the acute injuries and overuse syndromes in professional soccer, in order to study the incidence and injury rate in relation to exposure in games and practices.

### MATERIALS - METHODS

35 professional soccer players of Skoda Xanthi FC were observed on a daily basis for the 2000 - 2001 season.

### RESULTS

Fifty-one acute injuries and twelve overuse syndromes were diagnosed. Injury incidence was evaluated at 12.5 injuries per 1000 game hours and 3.7 injuries per 1000 practice hours. Injury rate was estimated at 1.45 injuries per player per year. 54.9% of acute injuries were graded as mild, 21.5% as moderate, 13.7% as serious and only the rest 9.9% were

severe injuries. The lower extremity was involved in 86.2% of acute injuries and in 83.3% of overuse syndromes, as expected. Strains were the most common injuries (52.94%) followed by sprains (27.45%). Hamstring strains were the most common diagnosis (9 cases, 17.6%), followed by adductors strains (8 cases, 15.6%) and ankle sprains (8 cases). Adductors tendinopathy was, by far (41.6%), the most common overuse syndrome.

### CONCLUSION

Soccer predisposes to acute injuries, by its nature, but up to 75% are mild and moderate. Overuse syndromes incidence, in professional level, is not as high as in other sports. Regular medical surveillance of a professional soccer team can minimize the severity of medical problems.

Key words: Soccer, athletic injuries, overuse syndromes.

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## THE APPEARANCE OF BONE BRUISES OF THE KNEE INJURIES WITH THE USE OF MRI

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The aim of this study is to determine the frequency of the bone bruises of the knee in combination with intra or/and extra articular injuries or as an isolated injury with the use of MRI. Between 1996-2000 we studied 189 MRIs of 132 men and 57 women with a mean age of 31,4 years (16-58). Bone bruises were diagnosed in 41 cases (21,7%) (32 in the lateral and 9 in the medial femoral condyle). 11 of the above cases were diagnosed by MRI as isolated injuries. 11 were associated with partial and 4 with complete rupture of ACL, 9 were associated with rupture of the medial collateral ligament and 6 with meniscal tears. From the clinical point view walking pain was the characteristic symptom in all patients with bone bruises diagnosed by MRI. Out of the 41 cases, 15 of them appeared as meniscal injuries, 9 of which had knee blocking without any other findings in the MRI. Arthroscopy was

performed in 21 patients: 11 cases with complete tear ACL (10 of which were confirmed), 6 cases with meniscal tear (all of which were confirmed), 3 cases with ACL partial rupture and 1 case in which only the bone bruise was reported in MRI, but a tear of the posterior horn of the medial meniscus was identified arthroscopically. As soon as the associated injuries were treated arthroscopically the symptoms of the bone bruise settled within 2-9 months (Mean 4,2 months). In conclusion, the bone bruise of the knee is A) is finding substantiated by MRI studies, B) it often causes confusion to the differential diagnosis, C) the arthroscopic treatment of the associated problems of the knee does not relieve the symptoms of the injury.

Key words: bone bruises, knee injury, MRI.

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