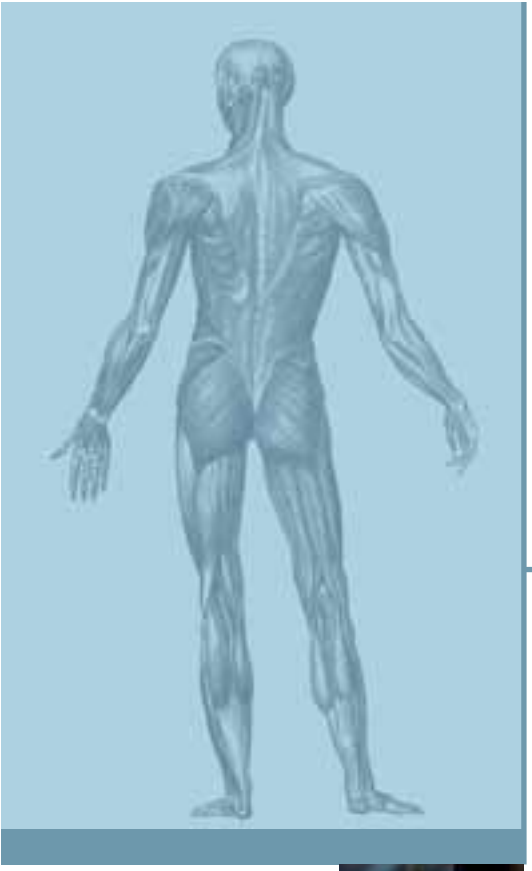
MEDICINE Matters

IN THIS ISSUE

JUNE 2004 – No.9

PUBLISHED BY UEFA'S FOOTBALL DEVELOPMENT DIVISION



EDITORIAL

CONGRATULATIONS

By Dr Urs Vogel

UEFA is celebrating its golden jubilee this year. On behalf of all the members of the Medical Committee, I would like to congratulate UEFA most sincerely and also to express our pride in serving this Pan-European organisation as specialists in our field of expertise.

EURO 2004 in Portugal is now almost upon us. In this edition of *Medicine Matters*, Medical Committee member Dr Mogens Kreutzfeldt describes the rich and varied work of a team doctor. Without the support of specialists on the staff, the performances demanded are barely possible. In order to ensure that unforeseen emergencies can be dealt with using the right methods and procedures any time, anywhere, a great deal of preparation is required. To that end, the necessary equipment and medicaments must be constantly within reach.

When a team travels abroad, this can lead to difficulties at the customs. Customs officials may well object to a doctor's entering the country with an emergency bag, firstly because it contains medicaments that are on the list of banned substances and secondly because it may be forbidden to enter the country with medicaments that are not for one's personal use. There have also been instances where colleagues have had to empty the small oxygen cylinder kept in a resuscitation kit before boarding a flight because the airline did not allow the full cylinder to be carried on board. When we travel abroad in our capacity as team doctors, we therefore have to make a number of preliminary inquiries if we wish to avoid unpleasant surprises.

In recent years, the administrative problems have continued to grow, particularly with the advent of new statutory antidoping rules in a number of countries. Our responsibilities towards our teams and delegations oblige us to take a lot of equipment with us that we are happily often able to bring back home again unused.

At all events, to treat players and handle possible emergencies, the medical staff is, as a rule, dependent on medicaments and apparatus they carry themselves. In some cases, a sponsor from the pharmaceutical industry may also have been found in the team's own country who insists on the use of a particular brand. **There certainly is a need for action here in order to regulate this issue on a transfrontier basis.** The travelling team would have to be granted a **special status** in the foreign country, as the law of the country clearly has to be obeyed! Perhaps the originating country could be called upon to provide specific guarantees for its travelling teams.

We doctors can only draw attention to the problems. The solutions will have to be worked out by lawyers and the legislator.

The UEFA Medical Committee is responsible for its own area of expertise at EURO 2004. Exact injury statistics will be kept for the period of preparation and the matches themselves. Intensive doping tests will also be conducted both in and out of competition.

In this issue, there are a number of interesting articles. One compares the injury rate of teams who have a long winter break with that of teams who have no winter break at all. Another addresses the diagnostic methods and different causes that have to be taken into account in cases of haemarthrosis of the knee. Finally, another author presents a modified surgical procedure for the treatment of footballer's groin injury. There are wide divergences of opinion among the experts in this connection. I need only refer to the controversies surrounding "tendinoses" of the m. gracilis and m. adductor longus insertions. Papers on the theme of "pubalgia" are therefore particularly welcome.

I am convinced that once again *Medicine Matters* contains much valuable information, and would like to thank the authors for their contributions.

COVER

The fragility of the knee: Mahamaddou Diarra (Olympique Lyonnais).

PHOTO: FLASH PRESS

The hotels and training centres have been carefully chosen and prepared. The stadiums are simply magnificent. The fans and the media are flocking to Portugal confident of enjoying a feast of football. But are the players, at the end of a gruelling season, in shape to provide it? Mogens Kreutzfeldt, head physician of the Danish national team and member of UEFA's Medical Committee, underlines the importance of providing top-class medical care in order to under pin top-class football.

"MEDICINE MATTERS" IN PORTUGAL

During the EURO 2004 final tournament all the national teams will be making extraordinary efforts to safeguard health and to guarantee optimal mental and physical conditions for the players in the squad. The main objective for the team physicians and the paramedic staff is not only to protect the health of the playing and coaching staff but also to maintain and improve physical capacity as the tournament goes on.

Physiological science and injury risk assessments have demonstrated the need for the benefits of an experienced and well-functioning medical staff and have proved their relevance to successful results on the pitch. No team can reasonably aspire to the title in Portugal without a competent health sector working closely with coaches, fitness trainers, physiological scientists and dieticians.

Ways of attaining these objectives vary from country to country, as there are significant differences in medical traditions, culture and the basic principles for injury therapy and rehabilitation. Having said that, certain principles related to sports medicine are accepted and adopted on a worldwide basis, forming the foundations of good practice for all football physicians. In telegraphic form, these can be stated as:

- Training methods established in close cooperation with coaches and fitness trainers.
- Prevention of injuries and illness.
- Treatment and therapy, combined with respect for ethical and moral aspects, in addition to rehabilitation procedures after injuries.

In the case of the Danish national team, the medical staff for the final tournament will comprise a physician, who heads the medical team, a masseur and two physiotherapists, one of whom is a Dane – a fully qualified chiropractor – currently working for AC Milan. The other Italian connection is provided by Jens Bangsbo, the Danish physiological scientist currently working at Juventus as assistant to head coach Marcello Lippi. In Portugal, he will be assigned the specific


AFP/JN LARSEN

Denmark (Jesper Gronkjaer, No. 8) and the other finalists will be making every effort to safeguard the players' health.

European Championship final rounds are very demanding on the players.

task of helping the coaching staff, having previously drawn up physiological profiles of all the squad members and conducted tests. He will also help with rehabilitation of injured players, implementing guidelines laid down by the team physician.

Last but not least, a renowned Danish chef will be joining the expedition, with responsibilities for correct diet and nutrition, once again, in cooperation with the team physician. Food and fluid intake will be based on recommendations made by dieticians within the Danish Sports Federation.

Of course, most of the physicians – and the coaches, for that matter – are well aware that players will be coming from various leagues and embarking for Portugal at the end of a long season. The players selected are unlikely to have major physical problems, but it is essential to have previously established contacts with their team doctors in order to be able to monitor their state of health. In my case, I have gone out of my way to get to know all the team physicians and we have had good and fruitful communication during the spells between national team matches, when I have an opportunity to assess the players first-hand.

Preparation time, everyone agrees, is of the essence. The Danish squad will get together for a training camp on Monday 24 May – two days prior to the UEFA Champions League final. Every player will undergo a physical and biochemical test, including laboratory, ECG and cardiovascular examinations. A medical profile will be drawn up, including information on past injuries and operations; illnesses; allergies; medication; and conditions such as asthma in case medical certificates need to be drawn up and approved by UEFA with a view to complying with doping control regulations. Each player will also have a thorough dental check-up before the tournament and will be given in-depth information about diet and nutrition.

During the tournament, each member of the medical staff will be given specific daily duties and responsibilities. The routine includes a meeting between the head coach and myself every morning, with a view to giving him an up-to-the-minute report on each and every player.
On the basis of this, we decide between us which players should, for example, participate in only one of the two training sessions or which of them should have individual training programmes. Injured players are, of course, the responsibility of the medical staff and/or the fitness trainer.

Tests that all players must undergo.


AFP/RIOPA

Special attention must be paid to the intensity of training.

Before breakfast, each player has to report to the massage/therapy room to have his weight and pulse rate monitored. Both parameters are highly relevant in evaluating hydration status and the degree of recovery from training or match-play exertion. Weight and pulse rate are also measured before and after every training session.

One of the chef's duties is to prepare the fluid – in hot conditions, this could be as much as 4 litres per player during a training session or match – and the fresh fruit which need to be available to the players at all times. In this respect, it is important to have personalised bottles to minimise risk of infection. In cooperation with the coaching staff, the physios will fine-tune physical condition and supervise warming-up, cooling-down, stretching exercises and so on, implementing individual programmes whenever they are deemed necessary.

Team spirit within the whole expedition is also crucial. Medical appraisals are respected and never questioned by the coaching staff. This is important bearing in mind that Professor Jan Ekstrand, vice-chairman of UEFA's Medical Committee, has revealed in his new injury-risk study that, during a European Championship, some


BONGARTS

Hydration is crucial.

30% of the players will miss at least one training session or match through injury and that, given the intensive nature of the tournament, re-injuries are common due to haste and insufficient rehabilitation.

However well-organised an individual team may be, there is always a need for back-up medical facilities. We need to be reassured that the UEFA-accredited hospitals will offer 24-hour service; that we can contact local specialists in different fields; and that we have instant access to x-ray, MRI scan, ultrasound scan, laboratories and other facilities that we may need in order to be able to make the correct diagnoses as quickly as possible and therefore minimise recovery time after injuries. And, of course, we need to know that there is proper medical support in the stadium to help the team physician deal with minor or major injuries. This will be our 'insurance policy'. We hope we won't need to call on it, but we are certainly glad to know it's there.

INJURY RISK INCREASES WITHOUT A WINTER BREAK

National and international football organisations (FIFA, UEFA, The FA, etc.) are all concerned about health hazards in football. Research groups from FIFA, UEFA and The FA have evaluated injury risks and patterns in order to increase safety in football.

By Jan Ekstrand MD PD
Gary Lewin PT • Martin Hägglund PT • Markus Waldén MD
Linköping University, UEFA and The FA

Manchester United (Ryan Giggs, in red) was one of the clubs followed in 2001/02.

Introduction
UEFA recently began an in-depth study of professional football in different European countries. One of the initial aims was to assess whether the difference in the number of league matches in European countries was reflected in different injury risks.

The purpose of the present study was to compare the incidence of injury in teams from countries that have a winter break both before and after the break and then compare these figures to teams from countries that do not have a winter break. The aim was to then determine whether the injury rate increases in the second part of the season compared to the first part.

Material and methods
The following eleven UEFA Champions League teams were followed prospectively during the 2001-2002 season:

- Arsenal and Manchester United from England
- Paris Saint-Germain, Stade Rennais and Lens from France
- AC Milan, Internazionale and Juventus from Italy
- Ajax and PSV Eindhoven from the Netherlands
- Real Madrid from Spain.

Exposure to training and matches with the club and with national teams was registered in minutes for each player. The team doctor reported all injuries that caused the player to miss at least one match or training session.

Results
Teams from the French, Italian, Dutch and Spanish premier leagues all had a winter break

Winter conditions may also increase the risk of injury.

in the second part of December. As a mean, the break from training was eight days (range 7-14) and 12 days (range 8-17) for matches. Teams from the English Premier League did not have any winter break at all.

Teams without a winter break had a significantly higher injury risk during the second part of the season (January to May) compared to teams from leagues with a winter break (14.8 versus 7.8 injuries/ 1000 H of exposure versus, p< 0-05). There was no difference in injury rates between teams with and without a winter break during the pre-break part of the season, neither was there a difference during the period directly after the break (January to March). However, during the end of league play (March to May), the injury rates were significantly higher in teams that did not have a winter break compared to teams with a break (25.8 versus 6.5 injuries/ 1000 H of exposure, p< 0.01).

Conclusion

The Premiership in England and the SuperLiga in Portugal are the only two major professional leagues in Europe that do not have a winter break in the middle of the football season. The premier leagues in Italy, France, Spain and the Netherlands all have a mid-season break in late December with 1-2 weeks of rest from training and matches.

This study supports the idea of a mid-season break from a medical point of view. Teams without a winter break had a higher injury risk during the second part of the season compared to teams from leagues with a winter break. The difference in injury rates is not evident in the period immediately following the winter break but rather at the end of the league season. During the last three months of the league season, the injury risk was four times higher in teams without a winter break compared to teams with such a break.

Correspondence to:
Professor Jan Ekstrand
Linköping University
Solstigen 3
S-589 43 Linköping
Sweden
Tel: +46 13 161648
Fax: +46 13 161892
Email: jan.Ekstrand@telia.com

AS Monaco-FC Nantes: French clubs benefit from a winter break.

The knee is the most important joint in the career of a football player, whose injuries play a determining role in the quality of life. When studies on football injuries are reviewed, it is seen that knee and ankle injuries are much more common than other injuries. These studies also show that the injuries that bring an end to an active sports life are knee injuries. The first serious symptom of damage to the knee is hemarthrosis, which is blood in the knee, seen most commonly following acute injury where there is tearing of the vascular structure.

ACUTE TRAUMATIC HEM

By Prof. Mehmet S. Binnet – Member of the UEFA Medical Committee

Acute hemarthrosis following a knee injury requires careful evaluation as most cases involve damage to the anterior or posterior cruciate ligament, chondral fracture, dislocation of the patella, meniscal tear and intercondylar eminence fracture (especially among youth players). Further lesions can be observed singularly as well as subsequently or together. Knee ligaments are often injured during football and other sports in which sudden stress that disrupts the knee ligament is likely. But hemarthrosis may also occur from non-contact injuries.

In this category, sudden changes of direction or sudden pauses are the most commonly seen injury mechanisms. The severity of the lesion may vary from a mild sprain, in which none of the ligamentous fibers are disrupted, to a complete disruption of a single ligament or a combination of ligaments or only damage to articular cartilage.

Physical examination should be carried out in the stadium just after the injury. Since severe swelling, tense effusion and muscle spasms make examination and precise diagnosis difficult, examination should be carried out immediately after the injury. When performed at a much later time, evaluation is much more difficult and may, under some circumstances, require anesthesia. The initial pain usually subsides rapidly. The hemarthrosis occurs rapidly, usually within one to six hours. A tense hemarthrosis may prevent full extension and should be evacuated. The range of motion of the joint, especially full extension, should be compared with that of the opposite uninjured knee. Muscle spasm and guarding and hemarhtrosis in the acutely injured knee may mask instability during clinical examination.

Standard clinical examination should include:

a) Varus/Valgus stress test to rule out collateral ligament injury.
b) Anterior drawer test with the knee flexed to 15-20° (Lachman test). This test is more accurate than a standard "drawer test" because the acutely injured knee is more comfortable in this slightly flexed position, the force produced by hamstring spasm is negated and "blocking" action of the posterior horn of the medial meniscus

DIFFERENTIAL DIAGNOSIS OF ACUTE HEMARTHROSIS:

Rupture of anterior cruciate ligament	70-72%
Patella dislocation	10-15%
Peripheral meniscal tears	10%
Osteochondral fracture (without patella dislocation)	2-5%
Others – posterior cruciate ligament injury, capsular tear, etc.	5%

ARTHROSIS OF THE KNEE

that is present when the knee is at 90% is eliminated.

c) Contraction of the quadriceps muscle with the knee flexed to 15-20° (anterior subluxation of the tibia). The natural action of the quadriceps muscle is to pull the proximal tibia forward. When the anterior cruciate ligament is damaged or absent this anterior subluxation is observed.

d) Posterior drawer test with knee at 90° flexion to rule out posterior cruciate ligament injury.

e) Pivot shift test characterised by forward subluxation of the lateral tibial plateau on the femoral condyle in extension and spontaneous reduction in flexion. The patient is in supine position on the examining table. The knee is extended with the foot held in internal rotation and valgus stress applied to the knee. As the knee is flexed, the tibial plateau will reduce with a "shift".

A routine X-ray (anterior-posterior, lateral, tangential and tunnel view) should be obtained. If there are any lesions, first of all roentgenographic and magnetic resonance imaging view should be obtained after physical examination.

Management should start with a careful examination of the injured knee. Such an examination should provide diagnosis with 80-90% accuracy. In order to start the appropriate treatment, the right type of instability should be diagnosed. Now the goal of treatment is not only improving the functional capacity of the knee, but also protecting the structures of other fractions of the joint.

The first step in treatment after injury is to put the leg to rest. If hemarthrosis develops rapidly, arthrocenthesis should be performed under strict aseptic condition. Arthrocentesis relieves pain of capsular distention, documents hemarthrosis, alleviates possible detrimental effects of the blood on articular cartilage and, if fat globules are seen, this indicates a probable osteochondral fracture or tibia plateau fracture.

The knee should be bandaged with elastic bandage and cryotherapy should be carried out around the knee right away. Symptoms should be lessened with symptomatic anti-inflammatories and analgesics. The goal of treatment of traumatic lesions of the ligaments is the restoration of the anatomy and stability of the knee to the nearest pre-injury status as possible. The basis is to regain the movement ability of the footballer and a good extremity control. The functional treatment of knee ligaments is now motion. For this purpose hemarthrosis, the first serious symptom, may lead to negative results if the treatment is carried out carelessly. The final result of traumatic lesions of the knee ligaments depends on a thorough and precise diagnosis followed by early surgical correction when necessary and complete rehabilitation of the musculotendinious supporting unit.

Elastic bandages must be used.

NEW OPERATING TECHNIQUES FROM MUNICH FOR TREATING SPORTSMAN'S GROIN IN FOOTBALLERS

Even nowadays, weak groin and more particularly inguinal hernia operations are among the most important operations in the world. Athletes' future careers can be seriously affected by whether they receive the correct treatment with minimal absence from training. Footballers are exceptionally prone to inguinal hernias, or the initial form: a weak groin, also known as sportsman's groin or pubalgia (1).

By Dr Ulrike Muschaweck's Hernia Clinic, Munich

MINIMUM INTERVENTION, MAXIMUM BENEFIT

Groin injuries make up 5-7% of all football injuries (2). These injuries often cause chronic complaints and can limit or even end footballers' careers. Consequently sports medics around the world are becoming increasingly interested in aetiology and the treatment of groin injuries.

However, it is hard to diagnose these problems accurately and this task should be left to a specialist. The terms "sportsman's groin", "pubalgia", and "weak groin" cover all cases where there is no inguinal hernia but where the posterior inguinal canal wall has stretched and is exerting pressure on a sensitive nerve (5). This is the most common source of chronic and acute pain in the groin area. There is no visible inguinal hernia, but a slight swelling in the stretched posterior inguinal canal wall, which can be identified digitally and recorded using sonography (5).

The problem is caused by a weakness or abnomality in the posterior inguinal canal wall, which in turn causes the transversalis fascia to dilate slightly at the weak point, widening Hesselbach's triangle. If the athlete then tenses his stomach muscles during training, the swelling grows, which compresses the nerves that pass below the lower wall of the inguinal canal: the genital branch of the genitofemoral nerve **(Diagram 1).**

This compression can cause a burning or dull pain, which may extend to the inner thigh or scrotum and often spreads to the back. This is typical of this kind of nerve irritation.

As Hesselbach's triangle widens, it also causes the musculus rectus to retract upwards and medially. Consequently, tension increases in the musculus rectus at the pubic bone, which can trigger the complaint known as pubalgia, which is common among athletes **(Diagram 2).**

Possible treatments:
Unfortunately, the time between the onset of pain and a definitive diagnosis is still often very long: the average is 20 months (5). It must be stressed that an athlete with groin pain needs to see a specialist, preferably a surgeon who specialises in inguinal hernias.

After the diagnosis has been made, there is only a very short window of opportunity for conservative treatments.

If a 4-6 week course of high dose antiphlogistics, vitamin B6 and physiotherapy does not correct the problem, surgery is the only

Diagram 1

Diagram 2

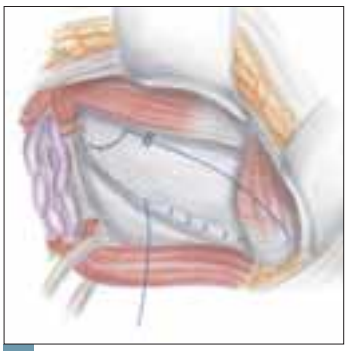


Diagram 3

Diagram 4

Dr Ulrike Muschaweck and his team.

remaining option. After this period, there is usually a risk of permanent nerve damage and therefore chronic groin pain.

What operating technique should be used for sportsman's groin? Which surgical techniques allow rapid recovery and the quickest possible return to high level sport?

Since late 1993 we have been operating on around 1,100 hernias per year in our highly specialised hernia clinic. Elite athletes make up around 7% of our clients, which is one of the highest figures in Europe. Until 2000, we only used the original Shouldice technique, which involves strengthening the abdominal wall using special sutures.

As a general rule, we do not use prosthetic mesh for athletes. Athletes still require full elasticity and movement in their abdominal muscles after the operation. Whichever operating procedure is used, a prosthetic mesh would result in localised stiffening of the abdominal muscles and, therefore, restricted movement. The muscular sheath then becomes less effective. We feel it is inadvisable to use mesh-based techniques with elite athletes, as they can bring a sporting career to a sudden end.

As athletes nearly always have a small, minor weakness in the posterior inguinal canal wall, a full-blown Shouldice operation – which involves cutting the intact posterior wall – would be going too far.

Having operated on over 2,000 athletes, we have developed a procedure in our clinic which reflects their specific needs. This less intrusive technique has been especially designed for athletes, and is known as "minimum repair". Here is a summary of the key features:

1. In athletes and patients with a small hernia, the posterior inguinal canal wall around the the weakness is firm and intact, so the minimum repair technique leaves the surrounding area intact and only opens up the affected part. After the operation, once the athlete is free of pain (2-3 days), he/she is free to resume normal training.

2. The genital branch of the genitofemoral nerve is monitored during the operation and if necessary, part of it is removed.

3. Tension in the musculus rectus at the pubic bone is reduced using special suture repairs beyond the pubic bone. With adequate preparatory work on the posterior inguinal canal wall, this suture creates virtually no tension **(Diagram 3).**

4. The lateral section of the musculus obliquus internus is important for the creation of a muscular fascia which protects the pampiniform plexus and nerves from mechanical irritation **(Diagram 4).** The remainder of the musculus obliquus internus and the ilioinguinal nerve which runs along it are unaffected.

The operation is always performed under local anaesthetic. The patient spends a day in the clinic and goes home in the evening on the day of the operation.

Two days after the operation, the patient can already resume gentle exercise such as jogging and cycling. Three to four days after the operation, elite athletes can begin training such as sprinting or ball training. Within five or six days of the operation there are no further physical restrictions.

The benefits of the "minimum repair" operating method for elite athletes are obvious: the extremely short convalescence period, and minimal post-operation pain guarantee a very rapid return to action.

This procedure therefore allows athletes, especially professional footballers, to make a very rapid recovery.

Bibliography

1) Muschaweck, U.: *Die Pubalgie im Sport.* In: Klümper: *Sport-Traumatologie* (handbook of sports and typical sports injuries). Landsberg: ecomed, (1998)
2) Westlin, N.: *Groin pain in athletes from Southern Sweden.* Sports. Med. Arthr. Rev. 5:280-4, (1997)
3) Taylor, D.C., Meyers, W.C., Moylean, J.A. et al.: *Abdominal musculature abnormalities as a cause of groin pain in athletes. Inguinal hernias and pubalgia.* Am J Sports Med. May-June 19(3), pp. 239-42 (1991)
4) Hackney, R.G.: *The sports hernia: a cause of chronic groin pain.* Br J Sports Med 27:58-62, (1993)
5) Berliner S D, *An approach to groin hernia,* Surg Clin North Am 64 (2): 203, 1984

IMPRESSUM

PRODUCTION
UEFA Publications Unit
Atema Communication SA – CH-Gland
Printed by Cavin SA – CH-Grandson

UEFA
Route de Genève 46
CH-1260 Nyon
Suisse
Téléphone +41 22 994 44 44
Téléfax +41 22 994 44 88
uefa.com

Union des associations
européennes de football