EDITORIAL

Dear Colleagues,

Since the new Board of EFOST has been elected, efforts of the federation was focused especially on growing EFOST faster and collaborating with national societies. We are all in charge in order to support our President. National society representatives should try to spread EFOST to their own members more than ever.

On the other hand I would like to inform you about the latest news from Board at Large Meeting which was held in Brussels one month ago. In order to improve e-Newsletter we need more materials; case reports, series, key notes, techniques, pearls etc. Please do not hesitate to contact me or Dr. Mann if you have any ideas for EFOST NL. Also Dr. Maffulli encourages you to submit your scientific papers for official journal of EFOST (Muscles, Ligaments and Tendons Journal). E-journal is free for subscription and will be sent to EFOST members as from the first issue. Please visit the website of MLTJ (http://www.mltj.org/).

As is known, the DJO Team Physician Travelling Fellowship is a sports traumatology fellowship program proposed initially by EFOST and creates the opportunity for two orthopedic surgeons to make an exchange travel between Europe & USA, focused on the role of team physicians and the medical organization of sport clubs. Congratulations to new selected DJO-EFOST Fellowships; Dr. Rocco Papalia and Dr. Dror Lindner. They will visit sports medicine centres and share experiences with high level sport medical teams and also attend and assist to medical care to athletes. The fellowship programme will consist of US trip; San Francisco AAOS - AOSSM Specialty Day, Minneapolis, Iowa city, Cleveland, Pittsburgh, Denver and Europe programme; Poland, Germany, Italy, Portugal, The Netherlands two weeks before London WSTC 2012. I advise young orthopaedic surgeons who are interested in sports traumatology to keep in touch with us for 2014 fellowship programme.

Let’s meet at 6th World Sports Trauma Congress & 7th EFOST Congress in London!...

Enjoy with the Winter Newsletter!..

Prof. Mahmut Nedim DORAL, M.D.
EDITORS NOTE

Gideon MANN, M.D.
Editor

The Winter 2012 Issue of our Newsletter is now on the web. The Ninth Volume, has been designed to allow our members an insight to EFOST, to provide information on upcoming meetings and events, to spread the knowledge on available courses and fellowships and to access updated scientific information and reviews of current literature abstracts.

We are launching additional sections in our Newsletter: An interview with a leading person in our field, a clinical case with detailed debate and with key person opinions and shortly "Tip and Pearls" from our members.

Could we possibly encourage you, our faithful members, to send in interesting material of your own: Interesting arthroscopic or surgical pictures, surgical tips you use, an interesting case you have encountered or a solution you have discovered when a problem came up, and others may benefit from knowing it.

We, the EFOST Board and Newsletter Editorial, wish you a beautiful, peaceful and productive year for 2012.

Prof. Gideon Mann, M.D.

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Dear EFOST Colleagues and Friends,

Slightly more than one year of Presidency. Times run so fast. During this year, EFOST developed dramatically.

By laws have been modified to bring fresh energies and allow our members to be much more involved in EFOST development and works in progress.

Thanks to the whole board (executive and at large) for their efforts to achieve their tasks.

It is now a cutting edge in EFOST maturation.

Regarding communication: the diffusion network improves through the National Societies which serve as a relay toward their own members. Our facade, the web site is presently under re-construction to make it more interactive and more friendly. Visit and use it regularly: http://www.efost.org/

Look at this winter issue in details: it provides scientific data, an interview of Per Renstrom, legend in Sport Traumatology and a lot of informations about the upcoming events.

The first goal is to make our next 7th EFOST meeting a very successful one. It will be combined with the 4th World Sport Trauma Congress. It does not interfere with any other one.

Save the dates on your agenda: London, UK October 2012 from 17th to 20th
The Programme Committee chaired by Mike Carmont, Roger Hackney and myself continues to work hard to propose an outstanding scientific programme. We expect it very attractive with sessions from head to toes and from injury to return to sport.

The numerous and worldwide high quality faculty (Moises Cohen, Philippe Neyret, John Bergfeld, Niek Van Dijk, Elisabeth Arendt, Toni Miniacci, Gilles Walch, Jan Victor and so many I do apologize as I can’t nominate all) will be accompanied by famous top level athlete lectures each day. Check regularly the last draft on [http://www.wstc2012.com/](http://www.wstc2012.com/)

Our cooperation with International Societies concerned by orthopaedic sport traumatology become closer and closer (AOSSM, ISAKOS, APKASS, SLARD, EFMSA, FIMS, ESTES, ESSKA, ECOSEP, FIFA). They will run their own session during the congress.

Our very active conference organizer, GCO, makes a unique proposal: Take the opportunity to register at a **half price on March 1st** (250 days before the meeting at 250£ for 25 hours)

The DJO Global-EFOST fellowship just started at the AOOSM specialty day during the American Academy. I remind you it is a team physician exchange programme. Just have a glimpse on the first page of this issue: it highlights the chance for the fellows to visit such famous medical sport centers.
MLTJ, our brand new official EFOST publication is already at its second issue. Muscle Ligament and Tendon Journal publishes and spreads scientific reviewed articles. The Editorial Board is chaired by our Vice President Nicola Maffulli

You receive MLTJ by e-mail for free. Just click on the link to reach high quality articles and promote it by simple e-mail transfer.

We strongly ask our members to submit their manuscripts to MLTJ.

Regarding education, we are on the way to organize different courses under EFORT patronage about the « Aging Athlete » and « Trauma in Performing Arts ».

I do wish to enhance our collaboration with GCO on a long term basis. A strong proactive PCO stabilizes and promotes EFOST. It is a partner each National Society will take advantages of.

I, once more, thank all our members for their tireless support to keep this society active. New and constructive suggestions are always welcome. Your personal involvement and input will allow EFOST to move a step beyond the cutting edge.

We are myself and the whole Board available for any request or information coming from National Society or individual. Don’t hesitate to keep in touch!

See you in London anyway.

EFOSTly yours

François Kelberine MD

EFOST President
WORLD SPORTS TRAUMA CONGRESS & 7TH EFOST CONGRESS 2012
17-20/10/2012
London, UK

www.wstc2012.com
RESPECT TO THE EXPERTS

INTERVIEW WITH PER RENSTRÖM by G. Adamczyk

Prof. em. Dr. Per Renström, M.D., Ph.D

Prof. Per Anders Hjalmar Renström received his certificate as medical doctor at Göteborg University in Sweden in 1972. He finished his residency in orthopedic surgery in 1977 and defended his Ph.D. thesis in 1981 with a book on below-knee amputees. Up to 1988, Dr. Renström worked at the Department of Orthopedics at Sahlgren University Hospital in Göteborg, Sweden. In 1988 Dr. Renström and his family relocated to the University of Vermont in Burlington, Vermont, USA, where Dr. Renström worked as full professor in Orthopedics and Sports Medicine up to 2007 before returning as professor of Orthopedic sports medicine to the Karolinska Institutet and head of Sports Medicine at the Department of Orthopedics at the Karolinska University Hospital, Stockholm, Sweden. Per Renström is since January 2007 professor emeritus at the Karolinska Institutet.

Prof. Renström has been very active in research in Orthopedic sports medicine including clinical studies on management, surgery, rehabilitation and prevention of injuries occurring in sports and physical activity, basic research in biomechanics of knee and ankle ligaments and the healing of Achilles tendon injury, as well as research in amputation and prosthetics. He has been author of over 340 full scientific publications, including 174 original scientific publications in peer reviewed journals. Per is the author or editor of 16 books and 72 full chapters in books and proceedings.
GA: What was your personal reason to become sports traumatologist, why have you chosen this specialization?

PR: It's very easy, I have been a “sport idiot” since I was born, so when I grown up, sport was everything alive. I mean, we had no television at that time and nothing. So, I played football 3 to 4 hours a day and I did some other sports too: ice-hockey and handball and track-and-field. So, that took all my time and I became an expert, I listen to remember all games? So I did it wrong games, I knew every result. So I became extremely for sports.

So, when I grew-up I wanted to become a physical education teacher or a coach, but then I realized that I’m below the hook (?), below the status that satisfied me. And then I switched to medicine, and when I was in medicine I always wanted to become a sport – medicine person, but that was not available at that time, so my friend Lars Peterson and I formed those specialty and we started that at the beginning of seventieth.

GA: So what will be your advice for young doctors now, because you have started in a very special time and you have created this discipline? Nowadays it’s well developed and what will be your advice for the beginners: should they start from orthopedic, should they start from being a sports physician or researcher?

PR: Well, I’m a little bit old fashion, so I believe, that some interest in sport is necessary. You know, to really be here, to take the advantage, that your hobby becomes your profession, that’s we have a great advantage to be interested in sport so heavily, to know the sport and also we can do a medical aspects. Then, what you are asking is a very difficult question, because, I believe more and more, that sport medicine will become more and more general. So you have to differentiate, whether you want to be more-and less a team doctor or surgeon- like doctor. So team doctors will take care of the team and manage them, that’s the very important sport medicine function and then I also believe, that there’s a huge need for surgeons doing sport operations, but they don’t have to be that sport medicine involved.
GA: Do you believe that one should be on a bench; one should spend time with a team?

PR: I’d love it, I love it, and I think so. Because, if you are on the bench, that’s the special feel to be on the locker room. If you haven’t been in the lock room and understand the language in the lock room, what’s going on, you have a handicap when you treat sport medicine people. You may always operate on them, but you should not really treat them and manage. If you have never been there, you don’t really understand them.

GA: Could you tell me few words describing a good sport physician? Should he be patient, or should he be aggressive or man of compromise?

PR: I do believe strongly, that you should understand the language, because athletes and sport people express themselves a little bit differently, that other patients do, so you must understand the language of sport when they come, otherwise when they come you will misinterpret them when they come, if you will not understand them. You must also understand the load, the requirements, how hard it is to practice and do the sport; you must understand some of requirements of sports things.

GA: And if you had a chance, what would you change in the modern sport medicine. What is in your opinion the most dangerous thing or the most inconvenient that happened last years, the evolution of the medical approach to the sport?

PR: There are two things from the medical point of view, in the sport medicine that I will focus on. Surgery is not difficult, you know, we have enough experience in surgery and that is not problem. Problem is basically in prevention, that’s the main thing for the future. One must much more concentrate on it. But the second biggest problem is return to the sport, because people today send them back far much too early. We have no good criteria, how to return to sport and the people, who are not experienced, send them back too fast. So we see a lot of complication due to this fact.
GA: That was actually my next question. Being in the sport we face quite often the coach – club and sportsmen demand of the very fast return to competition. So one of the problem is, that we, doctors, we feel honored when our patients returns back as early as it is possible, but on the other hand there’s the pressure. So, should we as a doctors follow this atmosphere created by presidents of clubs or federations, or should we be more decided and strict and allow the sportsmen to really recover and come back when he is fit?

PR: We must follow the medical principles.

GA: So, how have you managed this problem?

PR: When I become team physician, I was a team physician for one of the best clubs in Sweden for fifteen years and then I was in the national team, then I said to the coach before: I would be happy to be team physician for your team, but I also expect you to respect my decisions and I will respect you to follow them and if you don’t respect my integrity, I will quit. So basically you have to trust me, if there’s no trust, I cannot be your team physician.

GA: But do you believe that one can compete on the top level, being healthy? Do you believe, that we might develop prophylactic program that will secure, protect the sportsmen?

PR: Injuries are part of sports and we have no way today to really get rid of it. But what we have to do is that we have to require rules that really follow, what can be done. Look at football for example. Now they have changed the rules and injuries went down dramatically. So we have all the time to research what we see and what we can change the rules and I think that’s very important that we do that and prevention studies must be much bigger part of what we are doing, not only surgery.

GA: You were the president of many societies and you probably don’t remember, but we met in Warsaw during the first Congress of Polish Sports Traumatology Society twelve years ago and you said to me, that we have to sacrifice a lot and that we are extremely bad fathers (it was your own expression) and you had years, when you were 48 week-ends apart from home? And you’ve asked me whether I’m willing really to have such as kind of life? Do you still think, you did sacrifice anything?
PR: Well, I didn’t sacrifice as much as many other people, I was fortunate, because I was a doctor of local team and my wife wanted also to have a career, so we had parallel careers. So she has told me, that I have also to take the kids. So I took them down to every match we’ve played so several times my kids were with me, so they were sitting behind my bench every home match for fifteen years, so they made part of a sport culture and the team accepted them all the time there. So I’ve managed to travel with my kids to the tennis and when my wife did a PhD I took six years off for research, more or less, to take my kids with me. So I compensate it with them every time.

GA: So, you were lucky then. When I was a team physician in our national volley team, it was absolutely forbidden.

You were president ISAKOS. To organize such a meeting like this, ISAKOS Congress, you got to deal with sponsors and such a things. Do you think, such a big meetings like that are the occasion for the critical approach of our surgical subjects? If you follow, survey the program of last five ISAKOS meetings you might find so many methods which are now a matter of big criticism, e.g. transtibial guides for ACL. And after few years we realize that it was not the best method one might chose. Evidently, there was a pressure from producers. It is a huge responsibility, because the conclusions from ISAKOS meeting will lead thousands doctors from around the world to use certains methods or instrumentarium. After few years we realized, that it is not the best method one might chose, but hundreds thousands of people were operated. Do you feel such a pressure, when doing scientific program?

PR: You are right.

GA: Sorry, do you feel, that such a big Congress is a really chance for a real honest discussion?

PR: No, the big Congress is off there (?), but the good part, is that you have everybody from the whole world here, leading people from the world and you have different aspects, that’s the first point. The second thing is that things change, they always come forward at the Congress, that you can’t meet home. You know, for example, the transtibial technique was designed by Jon Guillquist in fifteen - twenty years ago. We realized, some of us, that was not good, but he was such a heavy person that many people started to use it. Now, several studies showed clean, that he was wrong, but it
takes to the world ten to fifteen years to change something. That’s acceptable. The bad part during such a big Conferences is that you can’t discuss so much during the sessions, because people there’s no time for that, but you may discuss between the sessions, you may meet people, you seat like this and discuss like us now. But they shouldn’t be so often, I think that every two years that’s ideal to have such a Congress to happen. Then people might have a new material to come out with. Then you may have minor, specialized conferences in between, to answer one research question, I think that’s good too, like you know we have in tennis, discuss the shoulder

GA: I remember, that during the Second Congress of PTTS in Warsaw, you gave a lecture that do approximate, that about 70% of procedures you’ve performed in your life now you consider as a, as a... I wouldn’t say mistakes, but something that shouldn’t be done. So, after such a long professional life. Not after, you are still active. But this is the problem that bothers me also, when I’m reviewing my old patients, after years, I see almost only (I wouldn’t say only mistakes) but important part of the data does not defend itselfs. Do you have the sensation, that it makes part of our job

PR: I don’t think so, I don’t feel so bad about it, that’s the fact. You know, every time has it’s knowledge, we had to accept, what we knew at this time. My criticism, that you knew too, is that basically that we unexperienced surgeons when we are younger, we are sometimes not really mature but we do not understand all the things around the procedure. So we tend when we were young surgeons to do procedures, that we are not mature for. I remember I did in seventieth some big things I would hardly do it later and it took me twenty years before I really realize, how complex are they. So young surgeons have the very long learning curve, and unfortunately too many of them learn by their own mistakes. It takes at least minimum ten years to understand orthopedics. And that’s the problem.

We should have much better coaching in our surgical education. But people are so anxious to got forward. To be out there for six - seven years , they think, they know everything. But the day you think you know everything, you know very little. The day start you realize that it is very difficult and you don’t know as much, then you started to know something.
GA: What consider coaching, that’s the big task for such a societies like ISAKOS. Nowadays we realized, that are such a differences in between different parts of the world. I have an impression, when I look at the program of our Congress you have the some speakers talking about different topics in different session, very limited number of names, that exchange from session to session. What is your opinion, how could we develop cooperation and could we really include other countries and other part of the world into the common effort to improve the sport medicine. Do you think is possible?

PR: Absolutely, absolutely. You know, the first time I gave a talk on national meeting, I was here, in Brazil in 1978. And then it was the first World Congress in Sports Medicine, was the FIMS, and we have prepared, we had the first stuff, Lars Peterson and I in the room were 24 people. That’s so many orthopedic surgeons come from the whole world for the sport medicine at that time. We were 24 – I will never forget it (smile).

GA: Unbelievable!

PR: That’s the way it was in seventy eight.

GA: Kind of a “early bird session”

PR: Yes, yes, you have to realize, how much it has developed and basically I have today complained here, some if big names gave too many talks and I’ve said – you have to give to other people a chance. But other people can always have a chance, if they have done something. You don’t come here to tell, how do you operate. You come here to tell of your science, the outcome of your procedure. You can not say: That’s the way I do operate. That’s, what I did 30 years ago. Today you have to tell them: these are results, of what I’m doing, and there’s limited number of people, who have results. But I tell you once more – you wait another ten years and we will have many more specialized speakers speaking here and nobody will have more than 2-3 talks. For the next time I will strongly work for, that nobody will say more than 4 talks. I’m working constantly on that and we are aware of that, but if you have a question from the floor, who can answer that? There are not that many speakers around who know the stuff and ISAKOS wants the best in the world. You have to give younger the chance, but they still have to perform.
GA: What is your opinion about the woman sport. Due to the political correctness we try to include woman into as many sports as we can but I myself see a big difference. Shouldn’t be for scientific societies a task to be more realistic, to defend them?

PR: But women today dominate the medical schools, about 70% of people coming to medical schools in Sweden and US are women, but they choose dermatology, general practice, where you don’t have courses. So you have much less women in surgery then the others, and in Sweden we have 150 out of..., we have 7, 8, 9% of woman orthopedic surgeons, and they can not travel so much, because of the kids. But if you will wait twenty years there will be a lots of woman here, that’s only the question of time in my mind, because if you have 70% of women in medicine, they will take most of the disciplines and they will come.

GA: And my last question: That’s the first interview in my life so tell me, which important question I’ve missed? Knowing, that we will meet, what do you think, that I should ask you? What is your comment about that? That’s e-journal of EFOST, not purely scientific.

PR: Basically, what is the future of our field that is the question, that you always should have. Future of sport medicine, you know

GA: Specialization?

PR: That’s the part of the future. In Europe we don’t have that, In States now, they have that. For Chris Harner it took ten years to be ranked as the first in States. In Europe the Europeen Union has a special Committee looking into this.

GA: Do you think, that sports traumatology should become a separate specialization or subspecialization?

PR: I personally I’m not sure,. I hardly think so, at this point I don’t think so. Perhaps it will change in the future but today I think we are good as it goes. Now we have pretty good in Sweden, we go to basic disciplines: orthopedics, general surgery, medicine or whatever, and then, when you have a specialization it take you about a year to become superspecialist in sport medicine. We need to have a base, and the base is the same, you need to have orthopedic specialty
GA: You think orthopedic,

PR: Yes, today, but I think you should allow the sports medicine people to develop as general practitioners. We need general practitioners as a team doctors. The team doctors don’t need to be surgeons.

GA: Absolutely, I believe

PR: General practitioners should serve as a team doctors, but they should know some about orthopedic too. They should have sport medicine specialization, but they should have orthopedic surgeons as consultants.

GA: Sports is a team discipline, is a team work. And what is a problem of ISAKOS, is that it is such a society, that we have very limited participation of other important person: no coaches, no physicians, not many physiotherapist, we separate our Congress from the real sport?

PR: Yes, but this was one of the most difficult things to discuss, because ISAKOS is basically both surgical society and sport society. So this is not only sport. Sports medicine is one leg. You have arthroscopy, arthroscopic technique, for instance shoulder, knee etc.. So that’s surgical techniques are so common. That’s tradition, they want to have orthopedic surgeons there. We’ve managed to have sports medicine also it’s part. We’ve realized it is not only sports medicine group. I remember, when we have discussed having me as a President ten years ago, fifteen years ago, question come: Can we have sports medicine specialist as President of ISAKOS? Because before there were only surgeons, pure surgeons. I was the first mixt specialist. You have to realize, coaches could never follow our discussion. We need here however our physiotherapist, that’s what we have started now, today there are plenty of them in here. Perhaps we should bring nurses perhaps.

GA: And physical preparation trainees

PR: Yes, absolutely. and one group, that we really share a lot with are basic scientist. The talks about stem cells here...
GA: Yeah, were given by surgeons

PR: Ooough, phenomenal, we have to learn much more. You know, we are still expensive, but we are getting financial order and it took fifty years to come here. When I was a President of ISAKOS and I come for the Congress in Florida I came for my own travel, my own money. We have got no money at that time, that was it, we are developing.

GA: Yea, but what I see, instead of opening the society we a little bit close it, instead of enlarging we focus very much and it becomes a surgical Congress with a big income from producers of surgical equipment and there’s certainly not enough science.

PR: But you can not dilute it too much, you must have a focus on something, people must know the pitfalls of the surgery, sports medicine, you have to be very well educated by the world congress, you know. This is not for beginners, but for very well educated people.

GA: Absolutely, but if we see the proportion, if you’ve said, that the future, the most important factor will be prevention – how much was about it?

PR: Prevention – we had a specific Congress about the prevention, so prevention should be the part of it, not dominating. There are parts of sport, but they should have their own symposia, you know – about the prevention, ACL study group, etc. But you know – the mixture – the doctors should know, to become more and more toward it, the doctors should follow the patients from the start to the end today. When you have injury being seventeen, the doctor should know, what will be when you are sixty, and have arthritis. The same patient. I think, that probably will be the future.

GA: Thank You, You were great.

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The Official Journal of European Federation of National Associations of Orthopaedic Sports Traumatology (EFOST) and of the Italian Society of Muscles, Ligaments and Tendons (I.S.Mu.L.T)

MLTJ (http://www.mltj.org/) is an international open access quarterly peer reviewed journal, published in English. (Editor in Chief: Nicola Maffulli)
1. Recurrent Ankle Sprains:

Recurrent Ankle Sprain is by far the most frequent complication of an acute ankle sprain [1, 2]. Defined as the inability to walk on uneven terrain or 3 sprains within 6 months [3], this complication will occur in around 25% of the more severe, grade II and III sprains [4] (Fig. 1).

Figure 1: Chronic Mechanical Instability of the Ankle (CMI) as demonstrated by Stress Radiography.
Mechanical Instability may or may not accompany Functional Instability and thus the so called “Stable Instability” is not rare. “Stable Instability” is most often caused by detachment of nerve fibers in the lateral ligament causing proprioception loss with mal-positioning of the ankle on landing and possibly a delay in reacting to a twisting force [4]. Other causes of "Stable Instability" have been discussed elsewhere [4].

Prevention of this complication is first of all aggressive rehabilitation with possibly taping or bracing for a few weeks or months after the injury [5, 6]. Some may argue for early surgical intervention in acute grade III Ankle Sprains, though this is certainly not the main stream in most Centers [7, 8].

2. Osteochondritis Dissecans:

This complication is not very frequent, occurring probably in 2 to 5% of the more severe grade II and III sprains [9]. On the Medial Talar Dome the radiological appearance is more diffuse, rounded, and often cystic, compared to the “split” lateral appearance.

In the Medial Talar Dome lesions, approximately half are congenital and non-traumatic in origin [10], though they may become symptomatic after injury. The lateral “splitting” lesions are generally post traumatic, though accumulative injury could occasionally replace a single traumatic event.

Treatment is conservative, excluding presence of a large loose body or continued symptomatology in late cases (Fig. 2).
Figure 2: Traumatic Medial Osteochondral Fracture of the Talus, which occurred in soccer. This case was treated by early Arthroscopic Debridement and Abrasion Chondroplasty.

3. Avulsion Fracture of the Fifth Metatarsal Base:

This frequent injury should be always suspected. It is caused by the violent protective contraction of the Peroneus Brevis Muscle, though other structures have also been blamed [11] (Fig. 3).

Figure 3: An Avulsion Fracture of the base of the 5th Metatarsal Bone.

Treatment is strictly conservative, using an elastic support only, unless the Avulsion is grossly displaced. Non union could rarely develop necessitating late surgical intervention (Fig. 4).

Figure 4: A non-union of an Avulsion Fracture of the Fifth Metatarsal in an Olympic Judoka.
4. **Syndesmotic Injury:**

Syndesmotic Injury or “High Ankle Sprain” may accompany a severe sprain or may become apparent when symptoms continue, unproportionally troublesome, following a relatively mild injury [12, 13].

The incidence of the injury is reported between 1% [14] to 18% [15] of Ankle Sprains, a variation which obviously points out an inaccuracy in diagnostic methods. Usually, occurrence is estimated at around 10% of acute severe sprains [16-18].

Physical examination includes the Compression Test [14] and the External Rotation Test [19]. Imaging includes primarily plain radiographs which may demonstrate widening of the Syndesmotic Interval to over 6 mm or less than 1 mm Tibia Fibula overlap in any view, which may disclose the injury on the primary radiograph [20] (Fig. 5).

![Figure 5: Mortise view of the ankle in an Olympic Judoka injured in an external rotation maneuver of his left ankle.](image)

It is important, of course, to compare “pathological” results to the other ankle.

The dynamic imaging using Radiography, Computerized Tomography or Dynamic Sonography is performed for final verification of the injury. Dynamic Sonography (or ultrasound) has been shown to be accurate, reliable and harmless [21].
Treatment in Sprains with no Diastasis is attempted by non weight bearing followed by partial weight bearing until symptoms have resolved. Platelet Rich Plasma could be injected under ultrasound surveillance [22, 23]. Surgical stabilization should be considered on full ruptures with diastasis seen on imaging. Chronic instability, when symptomatic, should be allowed reconstruction (Fig. 6).

![Figure 6: Chronic Syndesmotic Instability reconstructed using the Gracilis Tendon.](image)

Bony avulsions in syndesmotic injury have been reported in 10% to 50% of cases [15, 24, 25]. These may require late arthroscopic debridement (Fig. 7).

![Figure 7: Bony Avulsion of the Syndesmosis with loose bodies. This case arrived late and was treated by Arthroscopic Debridement.](image)
5. Sub-Talar Joint Instability and the Sinus Tarsi Syndrome:

This is an entity not easy to diagnose, and probably still ill-defined [26]. When a Bony Fragment is detached it may be seen on a CT, though rarely on an x-ray (Fig. 8 & Fig. 9) as may a fracture of the Lateral process of the Talus which could also consist as a normal variant especially when bilateral (Fig. 10 & Fig. 11).

![Figure 8](image1.png)

**Figure 8**: A Sub-Talar loose body disclosed a Sub-Talar Injury after a fall from a ladder.

![Figure 9](image2.png)

**Figure 9**: Avulsion Fractures in a professional football player caused by stress of the Sub-Talar Ligaments or Chip Fractures off the Calcaneum or Talus may represent damage, acute or chronic, to the Sub-Talar Joint.
Figure 10: A variant of the Lateral Talus appearing as a fracture of the Lateral process of the Talus, in a top Olympic girl gymnast.

Fig. 11: Fracture of the Lateral Process of the Talus

Instability of the Sub-Talar Joint could be suspected clinically and then evaluated radiographically (Fig.12). An overlap of this condition with the Sinus Tarsi Syndrome represents chronic damage to the Sub-Talar Joint [27, 28]. In the Sinus Tarsi Syndrome MRI is probably the imaging modality of choice [27].

Sub-Talar Instability may be addressed surgically by one of the Tenodesis procedures (Fig. 13) while the Sinus Tarsi Syndrome may be addressed by physical therapy, orthotics [29] and in more persistent cases by a local steroid injection [30]. In chronic and persistent cases, surgical debridement should be advised [27, 31-33].
6. Biforcate Ligament Injury:

The Biforcate Ligament enforces the mid foot, attaching the Anterior Calcaneal Process to the Cuboid and to the Navicular bones. The ligament may be torn, when the injury is often undiagnosed, or an avulsion fracture of one of the three bones may occur [34, 35].

The first line of treatment is conservative, while surgical debridement may be used if a symptomatic ossicle remains anterior to the Calcaneum (Fig. 14).
Figure 14: Avulsion of the Biforcate Ligament with a bony fragment torn off the Anterior process of the Calcaneum.

7. Mid Foot Sprain:

The term Mid Foot Sprain is used for Sprains occurring distal to the ankle joint in the mid foot; the Biforcate Ligament as discussed above, the Chopart Joint or mostly minor injuries to the Listfranc Joints. These may include the Lateral or the Medial aspects of the foot [34].

Diagnosis is clinical, followed by conventional radiology which is often negative. Scintigraphy often discloses the location of the injury and CT may disclose minor fragments after a self reduced subluxation.

Unless the Listfranc Joint is subluxed, treatment is generally conservative.

8. Avulsion Fractures of the Fibula:

The ATFL Injury may cause an Avulsion Fracture of the Fibular Tip. This Avulsion Fracture, though insignificant in itself, may cause late peroneal irritation and thus may eventually necessitate surgical removal.
9. **Post Traumatic Synovitis of the Ankle:**

Continued pain in the Ankle following an Ankle Sprain may be not accompanied with a detectable pathology of any of the above mentioned complications. Post Traumatic Synovitis has thus been described as a separate entity, and when conservative treatment does not suffice, arthroscopic Synovectomy has been described as the final treatment [36] (Fig. 15).

![Figure 15: An 18 year old volleyball player, sustained a right severe ankle sprain 8 months previously. Pain continued, not defined in origin. US and MRI disclosed and ATFL Tear and Antero Medial Synovitis with Impingement.](image)

10. **Meniscoid Lesions of the Ankle:**

Following a more severe Ankle Sprain, Reactive Synovitis or tissue remnants may scar over forming dense scar tissue and formation of a Meniscus looking structure in the lateral posterior or syndesmotic aspect of the injured ankle. These may cause internal painful soft Tissue Impingement.

The Meniscoid Ankle Lesion is an ill defined entity describing a soft tissue structure of the ankle, characterized by organized or less organized Synovial or Fibrous Tissue, seen by Arthrography, MRI, Arthroscopy, or less so by open surgery (Fig. 16 & 17).

A similar structure in the posterior ankle was described by Hamilton in 1988, occasionally tearing and causing Mechanical Symptoms as Catching or Locking [40, 41] (Fig. 18).
A variation of this formation is the Ferkel's Phenomena, describing scar tissue and Synovitis in the Antero-Lateral gutter of the ankle causing impingement and pain [42].

This could be well demonstrated by Arthrography or CT Arthrography and excised arthroscopically when needed (Fig. 19).

![Figure 19: Ferkel's Phenomena demonstrated by CT Arthrography and by Arthroscopy, before and after excision](image)

Meniscoid Lesion of the ankle may lend themselves to effective Arthroscopic removal (Fig 20 & 21).

![Figure 20: An 18 year old female Olympic gymnast suffered an ankle sprain,](image)
followed by symptoms of pain and catching. On Arthroscopy a large Synovial Lesion was seen hanging from the posterior syndesmosis and an organized, torn, Meniscoid Structure was seen in the posterior ankle.

Figure 21: These were excised by Arthroscopy

Summary

We have discussed in brief 10 complications of Ankle Sprain. These have included;

1. Recurrent Ankle Sprains
2. Osteochondritis Dessecans
3. Avulsion Fracture of the Fifth Metatarsal Base
4. Syndesmotic Injury
5. Sub-Talar Joint Instability and the Sinus Tarsi Syndrome
6. Biforcate Ligament Injury
7. Mid Foot Sprain
8. Avulsion Fractures of the Fibula
9. Post Traumatic Synovitis of the Ankle
10. The Meniscoid Lesions of the Ankle.
The clinical presentation, diagnosis, imaging modalities, conservative and surgical treatment have been briefly discussed.

REFERENCES:

ABSTRACTS OF INTEREST FROM THE CURRENT LITERATURE

gathered by Dr. Debi Ronen
Chair Dept. of Orthopaedic Surgery, Barsilai Hospital, Ashkelon, Israel

Diagnosis of Periprosthetic Joint Infection: The Utility of a Simple Yet Unappreciated Enzyme

Javad Parvizi, Christina Jacovides Valentin Antoci, Elie Ghanem

Background. The white blood-cell count and neutrophil differential of the synovial fluid have been reported to have high sensitivity and specificity in the diagnosis of periprosthetic infection following total knee arthroplasty. We hypothesized that neutrophils recruited into an infected joint secrete enzymes that may be used as markers for infection. In this prospective study, we determined the sensitivity and specificity of one of these enzymes, leukocyte esterase, in diagnosing periprosthetic joint infection.

Methods. Between May 2007 and April 2010, synovial fluid was obtained preoperatively from the knees of patients with a possible joint infection and intraoperatively from the knees of patients undergoing revision knee arthroplasty. The aspirate was tested for the presence of leukocyte esterase with use of a simple colorimetric strip test. The color change (graded as negative, trace, +, or ++), which corresponded to the level of the enzyme, was noted after one or two minutes.

Results. On the basis of clinical, serological, and operative criteria, thirty of the 108 knees undergoing revision arthroplasty were infected and seventy-eight were uninfected. When only a ++ reading was considered positive, the leukocyte esterase test was 80.6% sensitive (95% confidence interval [CI], 61.9% to 91.9%) and 100% specific (95% CI, 94.5% to 100.0%), with a positive predictive value of 100% (95% CI, 83.4% to 100.0%) and a negative predictive value of 93.3% (95% CI, 85.4% to 97.2%). The leukocyte esterase level correlated strongly with the percentage of polymorphonuclear leukocytes (r = 0.7769) and total white blood-
cell count ($r = 0.5024$) in the aspirate as well as with the erythrocyte sedimentation rate ($r = 0.6188$) and C-reactive protein level ($r = 0.4719$) in the serum.

**Conclusions.** The simple colorimetric strip test that detects the presence of leukocyte esterase in synovial fluid appears to be an extremely valuable addition to the physician's armamentarium for the diagnosis of periprosthetic joint infection. The leukocyte esterase reagent strip has the advantages of providing real-time results, being simple and inexpensive, and having the ability to both rule out and confirm periprosthetic joint infection. However, additional multicenter studies are required to substantiate the results of our preliminary investigation before the reagent strip can be used confidently in the clinic or intraoperative setting.

*Diagnosis of Periprosthetic Joint Infection: The Utility of a Simple Yet Unappreciated Enzyme.*

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**Five-Year Outcome of Characterized Chondrocyte Implantation Versus Microfracture**

**Johan Vanlauwe, Daniel B.F. Saris, Jan Victor, Karl Fredrik Almqvist, Johan Bellemans, Frank P. Luyten, TIG/ACT/01/2000&EXT Study Group**

**Background.** Characterized chondrocyte implantation (CCI) results in significantly better early structural tissue regeneration than microfracture (MF), and CCI has a midterm clinical benefit over microfracture. This study was undertaken to evaluate the 5-year clinical outcome of CCI in a randomized comparison with MF for the treatment of symptomatic cartilage defects of the femoral condyles of the knee.

**Study Design.** Randomized controlled trial; Level of evidence, 1.

**Methods.** Participants aged 18 to 50 years with a symptomatic isolated International Cartilage Repair Society (ICRS) grade III or IV cartilage lesion of the femoral condyles between 1 and 5 cm$^2$ were randomized to either CCI or MF. Clinical outcomes were measured up to 60 months after surgery using the Knee Injury and Osteoarthritis Outcome Score (KOOS). The main outcome parameter
was change from baseline in overall KOOS (oKOOS). Adverse events were monitored.

**Results.** Fifty-one participants were treated with CCI and 61 with MF. On average, clinical benefit was maintained through the 60-month follow-up period. The average change from baseline in oKOOS was not different between both groups (least squares [LS] mean ± standard error [SE] 18.84 ± 3.58 for CCI vs 13.21 ± 5.63 for MF; P = .116). Treatment failures were comparable (n = 7 in CCI vs n = 10 in MF), although MF failures tended to occur earlier. Subgroup analysis revealed that CCI resulted in better outcome in participants with time since symptom onset of less than 3 years, which was statistically significant and clinically relevant (change in oKOOS <3 years mean ± SE 25.96 ± 3.45 for CCI vs 15.28 ± 3.17 for MF; P = .026 vs oKOOS >3 years mean ± SE 13.09 ± 4.78 for CCI vs 17.02 ± 4.50 for MF, P = .554). Other subgroup analyses such as age (cutoff 35 years) did not show a difference. Female patients showed more failures irrespective of treatment.

**Conclusion.** At 5 years after treatment, clinical outcomes for CCI and MF were comparable. In the early treatment group, CCI obtained statistically significant and clinically relevant better results than MF. Delayed treatment resulted in less predictable outcomes for CCI. These results provide strong evidence that time since onset of symptoms is an essential variable that should be taken into account in future treatment algorithms for cartilage repair of the knee.


**Effect of Two Rehabilitation Protocols on Range of Motion and Healing Rates After Arthroscopic Rotator Cuff Repair**

**Bong Gun Lee, Nam Su Cho, Yong Girl Rhee**

**Background.** To compare range of motion and healing rates between 2 different
rehabilitation protocols after arthroscopic single-row repair for full-thickness rotator cuff tear.

**Methods.** Sixty-four shoulders available for postoperative magnetic resonance imaging (MRI) evaluation after arthroscopic rotator cuff repair were enrolled in this study. Aggressive early passive rehabilitation (manual therapy [2 times per day] and unlimited self–passive stretching exercise) was performed in 30 shoulders (group A) and limited early passive rehabilitation (limited continuous passive motion exercise and limited self–passive exercise) in 34 shoulders (group B). A postoperative MRI scan was performed at a mean of 7.6 months (range, 6 to 12 months) after surgery.

**Results.** Regarding range of motion, group A improved more rapidly in forward flexion, external rotation at the side, internal and external rotation at 90° of abduction, and abduction than group B until 3 months postoperatively with significant differences. However, there were no statistically significant differences between the 2 groups at 1-year follow-up (P = .827 for forward flexion, P = .132 for external rotation at the side, P = .661 for external rotation at 90° of abduction, and P = .252 for abduction), except in internal rotation at 90° of abduction (P = .021). In assessing the repair integrity with postoperative MRI scans, 7 of 30 cases (23.3%) in group A and 3 of 34 cases (8.8%) in group B had retears, but the difference was not statistically significant (P = .106).

**Conclusions.** Pain, range of motion, muscle strength, and function all significantly improved after arthroscopic rotator cuff repair, regardless of early postoperative rehabilitation protocols. However, aggressive early motion may increase the possibility of anatomic failure at the repaired cuff. A gentle rehabilitation protocol with limits in range of motion and exercise times after arthroscopic rotator cuff repair would be better for tendon healing without taking any substantial risks.

*Effect of Two Rehabilitation Protocols on Range of Motion and Healing Rates After Arthroscopic Rotator Cuff Repair: Aggressive Versus Limited Early Passive Exercises.*  
Predictors of Radiographic Knee Osteoarthritis After Anterior Cruciate Ligament Reconstruction

Ryan T. Li, Stephan Lorenz, Yan Xu, Christopher D. Harner, Freddie H. Fu, James J. Irrgang

Background. Evidence suggests that single-bundle anterior cruciate ligament (ACL) reconstruction does not reliably prevent the development of knee osteoarthritis (OA). This study was conducted to determine the overall prevalence of and risk factors for the development of radiographic knee OA after single-bundle ACL reconstruction.

Study Design. Case control study; Level of evidence, 3.

Methods. There were 249 individuals who had undergone primary single-bundle ACL reconstruction included in this retrospective cohort study. Follow-up radiographs were scored by a single orthopaedic surgery sports medicine fellow using the Kellgren-Lawrence (KL) scale to determine the degree of OA in the medial, lateral, and patellofemoral compartments. Radiographic OA of the involved knee was considered to be present if, compared with the noninvolved knee, there was at least a 2-grade difference in the KL score in at least 1 compartment or a 1-grade difference in at least 2 compartments. Predictors of OA that were explored included patient age, sex, body mass index (BMI), smoking status activity level, meniscectomy before or concurrent with ACL reconstruction, chondral injury present at the time of ACL reconstruction, graft type and source, tibial and femoral tunnel positions, need for revision, and length of follow-up. Univariable and stepwise multivariable logistic regressions were used to identify factors that were associated with radiographic knee OA.

Results. Thirty-nine percent of the patients had radiographic OA an average of 7.8 years after surgery. Female sex, BMI, time from injury to surgery, medial and patellofemoral compartment chondrosis, prior medial or lateral meniscectomy, concurrent medial meniscectomy, and length of follow-up were associated with radiographic knee OA after ACL surgery. Stepwise multivariable logistic regression indicated that prior medial meniscectomy (95% confidence interval [CI], 1.39-6.85), grade 2 or greater medial chondrosis (95% CI, 1.27-6.73), length of follow-
up (95% CI, 1.07-1.24), and BMI (overweight 95% CI, 1.08-3.84; obese 95% CI, 1.34-7.80) were the best set of predictors of knee OA.

**Conclusion.** Despite reduced laxity and instability and improved activity and participation, individuals who have undergone ACL reconstruction are still at high risk for developing knee OA compared with the general population. The strongest predictors of knee OA after ACL reconstruction were obesity and grade 2 or greater chondrosis in the medial compartment. These results may aid in identifying patients at risk for OA after ACL reconstruction.


**Increasing Incidence of Shoulder Arthroplasty in the United States**

_Sunny H. Kim, Barton L. Wise, Yuqing Zhang, Robert M. Szabo_

**Background.** The number of total shoulder arthroplasties performed in the United States increased slightly between 1990 and 2000. However, the incidence of shoulder arthroplasty in recent years has not been well described. The purpose of the present study was to examine recent trends in shoulder hemiarthroplasty and total shoulder arthroplasty along with the common reasons for these surgical procedures in the United States.

**Methods.** We modeled the incidence of shoulder arthroplasty from 1993 to 2008 with use of the Nationwide Inpatient Sample. On the basis of hemiarthroplasty and total shoulder arthroplasty cases that were identified with use of surgical procedure codes, we conducted a design-based analysis to calculate national estimates.

**Results.** While the annual number of hemiarthroplasties grew steadily, the number of total shoulder arthroplasties showed a discontinuous jump (p < 0.01) in 2004 and increased with a steeper linear slope (p < 0.01) since then. As a result, more total shoulder arthroplasties than hemiarthroplasties have been performed annually.
since 2006. Approximately 27,000 total shoulder arthroplasties and 20,000 hemiarthroplasties were performed in 2008. More than two-thirds of total shoulder arthroplasties were performed in adults with an age of sixty-five years or more. Osteoarthritis was the primary diagnosis for 43% of hemiarthroplasties and 77% of total shoulder arthroplasties in 2008, with fracture of the humerus as the next most common primary diagnosis leading to hemiarthroplasty.

Conclusions. The number of shoulder arthroplasties, particularly total shoulder arthroplasties, is growing faster than ever. The use of reverse total arthroplasty, which was approved by the United States Food and Drug Administration in November 2003, may be part of the reason for the greater increase in the number of total shoulder arthroplasties. A long-term follow-up study is warranted to evaluate total shoulder arthroplasty in terms of patient outcomes, safety, and implant longevity.


Procedural Sedation with Propofol for Painful Orthopaedic Manipulation in the Emergency Department

Ofir Uri, Eyal Behrbalk, Amir Haim, Ehud Kaufman, Pinchas Halpern

Background. The use of procedural sedation and analgesia to allow painful orthopaedic manipulations in the emergency department has become a standard practice over the last decade. Both propofol and midazolam/ketamine are attractive sedative regimens for routine use in the emergency department. We hypothesized that sedation with propofol as compared with midazolam/ketamine will save time in the emergency department. The purpose of the present study was to compare the recovery time, the total sedation time, and the adverse events of procedural sedation and analgesia induced with propofol as compared with midazolam/ketamine.

Methods. This prospective randomized study was conducted in the emergency
department of a tertiary care, university-affiliated medical center. All sedations and orthopaedic manipulations were performed by trained and approved orthopaedic residents assisted by a registered nurse according to the same protocol. Sedation time and adverse events were recorded in real time.

**Results.** Sixty adults (thirty-five men and twenty-five women) with a mean age (and standard deviation) of 45 ± 17 years were randomly enrolled in the study, with thirty patients being managed with each regimen. The average recovery time was 7.8 ± 3.7 minutes following sedation with propofol, compared with 30.7 ± 10.1 minutes following sedation with midazolam/ketamine (p < 0.001). The average total sedation time was 16.2 ± 3.8 minutes for the propofol group, compared with 41.6 ± 10.7 minutes for the midazolam/ketamine group (p < 0.001). The overall rate of respiratory and hemodynamic adverse events was 20% for the propofol group and 10% for the midazolam/ketamine group.

**Conclusions.** The use of propofol for an orthopaedic procedure requiring sedation in the emergency department expedites patient management and saves time in comparison with the use of midazolam/ketamine

*Procedural Sedation with Propofol for Painful Orthopaedic Manipulation in the Emergency Department Expedites Patient Management Compared with a Midazolam/Ketamine Regimen: A Randomized Prospective Study The Journal of Bone & Joint Surgery. 2011; 93:2255-2262*

**Low Range of Ankle Dorsiflexion Predisposes for Patellar Tendinopathy**

Ludvig J. Backman, Patrik Danielson

**Background.** Patellar tendinopathy (PT) is one of the most common reasons for sport-induced pain of the knee. Low ankle dorsiflexion range might predispose for PT because of load-bearing compensation in the patellar tendon.

**Purpose.** The purpose of this 1-year prospective study was to analyze if a low ankle dorsiflexion range increases the risk of developing PT for basketball players.
**Study Design.** Cohort study (prognosis); Level of evidence, 2.

**Methods.** Ninety junior elite basketball players were examined for different characteristics and potential risk factors for PT, including ankle dorsiflexion range in the dominant and nondominant leg. Data were collected over a 1-year period and follow-up, including reexamination, was made at the end of the year.

**Results.** Seventy-five players met the inclusion criteria. At the follow-up, 12 players (16.0%) had developed unilateral PT. These players were found to have had a significantly lower mean ankle dorsiflexion range at baseline than the healthy players, with a mean difference of $-4.7^\circ$ (P = .038) for the dominant limb and $-5.1^\circ$ (P = .024) for the nondominant limb. Complementary statistical analysis showed that players with dorsiflexion range less than 36.5° had a risk of 18.5% to 29.4% of developing PT within a year, as compared with 1.8% to 2.1% for players with dorsiflexion range greater than 36.5°. Limbs with a history of 2 or more ankle sprains had a slightly less mean ankle dorsiflexion range compared to those with 0 or 1 sprain (mean difference, $-1.5^\circ$ to $-2.5^\circ$), although this was only statistically significant for nondominant legs.

**Conclusion.** This study clearly shows that low ankle dorsiflexion range is a risk factor for developing PT in basketball players. In the studied material, an ankle dorsiflexion range of 36.5° was found to be the most appropriate cutoff point for prognostic screening. This might be useful information in identifying at-risk individuals in basketball teams and enabling preventive actions. A history of ankle sprains might contribute to reduced ankle dorsiflexion range.

Hip Arthroscopy for Femoroacetabular Impingement in Patients Aged 50 Years or Older

Marc J. Philippon, Bruno G. Schroder e Souza, Karen K. Briggs

Background. The purpose of this study was to investigate outcomes after hip arthroscopy in a consecutive series of patients aged 50 years or older and determine how long patients avoided total hip replacement.

Methods. Between 2006 and 2008, prospectively collected data were retrieved from our database on 153 patients aged 50 years or older undergoing hip arthroscopy for femoroacetabular impingement. Data collected included range of motion, Modified Harris Hip Score (MHHS), Hip Outcome Score (HOS) for activities of daily living, HOS for sports, and Short Form 12 score. Survivors were defined as patients not requiring total hip replacement (THR). Survivorship was analyzed by use of the Kaplan-Meier method.

Results. THR was required after the arthroscopic treatment in 20% of patients (31 of 153). At 3 years (with data available in 64 patients), patients with greater than 2 mm of joint space had survivorship of 90% whereas those with 2 mm or less had survivorship of 57% (P = .001). In the patients who did not require THR, the MHHS improved from 58 to 84. The HOS for activities of daily living improved from 66 to 87 (P = .001), and the HOS for sports improved from 42 to 72 (P = .001). The physical component of the Short Form 12 improved from 38 to 49 (P = .001), whereas the mental component did not change (54 preoperatively v 53 postoperatively, P = .53). Median patient satisfaction was 9.

Conclusions. On the basis of early results, patients with greater than 2 mm of joint space can expect improvement over preoperative status in pain and function after hip arthroscopy for femoroacetabular impingement. In patients aged 50 years or older with 2 mm of joint space or less and low preoperative MHHSs, early conversion to THR was seen.
Complications following anterior cruciate ligament reconstruction in the English NHS

Simon S. Jameson, Daniel Dowen, Philip James, Ignacio Serrano-Pedraza, Mike R. Reed, David Deehan

Background. Unlike the English National Joint Registry (NJR) for arthroplasty, no surgeon driven national database currently exists for ligament surgery in England. Therefore information on outcome and adverse events following anterior cruciate ligament (ACL) surgery is limited to case series. This restricts the ability to make formal recommendations upon surgical care.

Methods. Prospectively collected data, which is routinely collected on every NHS patient admitted to hospital in England, was analysed to determine national rates of 90-day symptomatic deep venous thrombosis (DVT), pulmonary thromboembolism (PTE) rate, 30-day wound infection and readmission rates following primary ACL reconstruction between March 2008 and February 2010 (13,941 operations, annual incidence 13.5 per 100,000 English population).

Results. 90-day DVT and PTE rates were 0.30% (42) and 0.18% (25) respectively. There were no in-hospital deaths. 0.75% (104) of the consecutive patient cohort had a wound complication recorded. 0.25% (35) underwent a further procedure to wash out the infected knee joint and 1.36% (190) were readmitted to an orthopaedic ward within 30 days.

Conclusions. This is the first national comprehensive study of the incidence of significant complications following ACL surgery in England. This should allow meaningful interpretation of future baseline data supporting the development of a national ligament registry.

Complications following anterior cruciate ligament reconstruction in the English NHS. Volume 19, Issue 1, Pages 14-19 (January 2012) Arthroscopy
Patients' attitudes and factors in their selection of grafts for anterior cruciate ligament reconstruction

Sunny C. Cheung, Christina R. Allen, Robert A. Gallo, C. Benjamin Ma, Brian T. Feeley

Background. Surgeon recommendation is the primary influence for patients choosing a graft for their ACL reconstruction. However, it is unknown if demographic factors also play a role. We hypothesize that education, age, and living in an urban setting may influence a patient's graft choice.

Methods. Patients who had an ACL reconstruction from 2005 to 2009 were identified retrospectively, and received a written survey on their demographics and the factors affecting graft choice. They also rated their perception of those factors based on a Likert scale.

Results. Out of 471 surveys distributed, 151 responses were received. The mean follow-up time was 19 months (range, 1 to 63 months). Autograft was used in 57%. Surgeon recommendation was the primary factor in graft choice (63%). 87.4% of patients felt they made the right choice; only 4.6% would have picked a different graft if they could choose over again. More than half (51.7%) of patients did significant personal research, and used mostly medical websites (41.1%). 67.6% of patients were not adverse to allograft.

Conclusions. The primary factor for patients in graft choice was surgeon recommendation. Still, the use of medical websites was widespread, and patients in an urban environment were less likely to rely solely on their surgeon's recommendation. Older patients were more concerned with autograft donor site morbidity, and patients with a higher level of education were less averse to allograft.
In recent years, research studies into sports injuries have provided healthcare professionals with a better understanding of their etiology and natural history. On this basis, novel concepts in the diagnosis and management of these conditions are now being explored. This timely book offers a complete guide to the latest knowledge on the diagnosis and treatment of the full range of possible sports injuries. Individual sections are devoted to biomechanics, injury prevention, and the still emerging treatment role of growth factors, which foster more rapid tissue healing. Sports injuries of each body region are then examined in detail, with special attention to diagnostic issues and the most modern treatment techniques. In addition, pediatric sports injuries, extreme sports injuries, the role of physiotherapy, and future developments are extensively discussed. All who are involved in the care of patients with sports injuries will find this textbook to be an invaluable, comprehensive, and up-to-date reference.
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ChondroCelect®, the company's lead product for cartilage repair in the knee, received the European Marketing Authorisation on October 5, 2009 as the first centrally authorised Advanced Therapy Medicinal Product (ATMP). The product is a suspension of characterised viable autologous cartilage cells expanded ex vivo and expressing specific marker proteins.

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NAME OF THE MEDICINAL PRODUCT: ChondroCelect 10,000 cells/microlitre implantation suspension. QUALITATIVE AND QUANTITATIVE COMPOSITION: General description: Characterized viable autologous cartilage cells expanded ex vivo expressing specific marker proteins. Qualitative and quantitative composition: Each vial of product contains 4 million autologous human cartilage cells in 0.4 ml cell suspension, corresponding to a concentration of 10,000 cells/microlitre. PHARMACEUTICAL FORM: Implantation suspension. Before re-suspension the cells are settled to the bottom of the container forming an off-white layer and the excipient is a clear colourless liquid. Therapeutic indications: Repair of single symptomatic cartilage defects of the femoral condyle of the knee (International Cartilage Repair Society [ICRS] grade III or IV) in adults. Concomitant asymptomatic cartilage lesions (ICRS grade I or II) might be present. Demonstration of efficacy is based on a randomized controlled trial evaluating the efficacy of ChondroCelect in patients with lesions between 1-5cm². Posology and method of administration: ChondroCelect must be administered by an appropriately qualified surgeon and is restricted to hospital use only. ChondroCetect is solely intended for autologous use and should be administered in conjunction with debridement (preparation of the defect bed), a physical seal of the lesion (placement of a biological membrane, preferentially a collagen membrane) and rehabilitation. Posology: The amount of cells to be administered is dependent on the size (surface in cm²) of the cartilage defect. Each product contains an individual treatment dose with sufficient number of cells to treat the pre-defined lesion size, as measured at biopsy procurement. The recommended dose of ChondroCelect is 0.8 to 1 million cells/cm², corresponding with 80 to 100 microlitre of product/cm² of defect. Method of administration: ChondroCelect is intended solely for use in autologous cartilage repair and is administered to patients in an Autologous Chondrocyte Implantation procedure (ACI). The implantation should be followed by an appropriate rehabilitation schedule for approximately one year, as recommended by the physician. Contraindications: Hypersensitivity to any of the excipients or to bovine serum. ChondroCelect must not be used in case of advanced osteoarthritis of the knee. Undesirable effects: In a randomized, controlled study in the target population, 51 patients were treated with ChondroCelect. In these patients, a periosteal flap was used to secure the implant. Adverse reactions occurred in 78.4% of the patients over a 36-months postoperative follow-up period. The most common adverse reactions were arthralgia (47.1%), cartilage hypertrophy (27.4%), joint crepitation (17.6%) and joint swelling (13.7%). Adverse reactions collected from 370 patients included in a Compassionate Use Program are similar to those reported in the target population. Most of the reported adverse reactions were expected as related to the open-knee surgical procedure. The most frequently occurring reactions reported immediately after surgery include joint swelling, arthralgia and pyrexia. These were generally mild and disappeared in the weeks following surgery. Adverse reactions of special interest: Arthrofibrosis: In the compassionate use patients, a higher incidence of arthrofibrosis and decreased joint range of motion was observed in a subgroup of patients with a patellar lesion (8.2% and 13.1% respectively) compared to non-patellar lesions (0.6% and 2.6% respectively). Cartilage hypertrophy: In the majority of the 370 patients included in the Compassionate Use Program, a collagen membrane instead of a periosteal flap was used to seal the defect. According to current literature the incidence of cartilage hypertrophy can be reduced by using a collagen membrane to cover the lesion site instead of using a periosteal flap (Gooding et al., 2006; Niemeyer et al., 2008). When a collagen membrane was used to seal the lesion site after application of ChondroCelect, the incidence of cartilage hypertrophy was reported to be 1.8% compared to 25% in the randomized, controlled trial alone. Name of the MA holder: TiGenix NV, Romeinse straat 12/2, B-3001 LEUVEN, Belgium. Product authorization number: EU/1/09/563/001. Medicinal product to restricted medical prescription – restricted to hospital use only.
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The TRUTFIT CB Plug is not available for use in the United States and its territories.

Our focus is on one-step cartilage repair

The TRUTFIT CB Plug from Smith & Nephew is a purely synthetic scaffold designed for the treatment of isolated cartilage defects. The hydrophilic and porous attributes of this implant encourage migration of marrow cells from the subchondral bone layer to the repair site, as well as support the growth of healthy cartilage cells for tissue healing and regeneration. Two-year patient follow-up data shows progressive maturation of the repair tissue, and T2 mapping scores of the new cartilage approach the values of native cartilage.1,2

2. Spalding T, Camp-Sim MS, Dhillon N, Dunn K, Crame T, Thompson P. "TRUTFIT" Plugs in the knee - Do they fill the gap? Qualitative MRI and clinical results at 2 years, ICRS 2006, Poster P257.
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