

PART D

INJURIES OF THE LOWER EXTREMITY

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PREFACE

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THE WORLD CUP

No other sporting event enralls the public around the world as much as the FIFA World Cup does. In 2022 it is Qatar's turn for glory.

As result of the long preparation for the FIFA World Championship, our collection on “lower extremity injury”, Part D, is particularly rich. The lower limb: hip, thigh, knee, leg, ankle and foot are closely related in functional activities and all must be considered when we focus on treating injuries of one particular joint because each serves to accommodate for deficiency in the other.

We started with the Groin Pain chapter and this is one of the most intriguing topics in football sport medicine. It was first mentioned almost a century ago, became a hot topic in research recently, but it is still considered as a “no man's land” among the wider sports community. In this first chapter you will find different papers covering groin pain risk factors, clinical and radiology diagnostic approaches, conservative treatment and finally surgical indications with description of different operative techniques. Painful hip pathology in athletes is anatomically close to the anterior groin. In an age of intensive growth, some cases of asymptomatic and radiologically not identified minor hip dysplasia after intensive overload with sports training in young age can become painful and progressively aggravated with sport. For that reason, hip joint examination must be a part of comprehensive clinical examination when we encounter an athlete suffering groin pain.

It is clear that the Aspetar Groin Pain Team in past few years brought the sports medicine audience a unified approach to diagnosis—the “Doha Consensus”. This added clarity and consistency. To progress further will require similar efforts in terms of: terminology, precise pathophysiological diagnosis and treatment protocol.

The hamstrings are the most frequently injured muscles in sports that involve high-speed running and in elite football 12% of all injuries are hamstrings injuries. They have a high re-injury rate, ranging from 14-63% in the first year of return to play. In this chapter, we share with you several wonderful studies from the Aspetar Physiotherapy Department, including the now-famous message “*Bye Bye MRI*” meaning that MRI findings can't predict time return to play after acute hamstrings injury and the Aspetar hamstring protocol is now widely accepted.

With the intensity and professionalism of sport today, knee injuries are more prevalent then ever before. In European emergency departments 8% of all injuries are knee injuries related to sport and recreation.

I recall that in 1980, I had just finished my residency program in orthopedic surgery and was looking to do a fellowship in the athlete's knee which I hoped would include becoming adept and then expert at arthroscopy. The only educational experience available to a surgeon interested in knee arthroscopy was to visit one of few knee arthroscopists around the world for personal operating room training. I remind our readers that throughout the 1970s very few surgeons performed arthroscopy of the knee. It was considered unnecessary because its detractors argued that the exposure of the arthrotomy (cutting the knee open) led to superior results. Arthroscopy was popularized by surgeons in private practice who had neither academic credentials or the support of their local or national Orthopedic Societies.

It was via the sports arena, from athletes, trainers and the press who covered sport that arthroscopy gained its support—because of the lower levels of morbidity, quicker recovery and the much more convenient day procedures. From that enthusiasm and innovation, it was inevitable that the 1980s would be a decade of unbridled enthusiasm for knee arthroscopy and rapid growth in the number of procedures performed and the places these procedures were being performed. Joint arthroscopy went from almost no one doing it to almost everybody doing it in a very short period of the time. Surgeons advanced in skill from doing only diagnostic arthroscopy to being able to apply arthroscopic techniques to most of the established open surgical procedures of the knee. Arthroscopic ACL reconstruction became the gold standard.

Support from industry — the companies that supplied the instruments and jigs was enormous. Then we saw the motor skill laboratory with first knee model simulator and well established educational workshops exploded around the globe. With the advent of CT scanning and later MRI for colleagues in many parts of the world, many senior surgeons felt there may have been a loss of the skillful clinical examination of the knee in this newer generation.

Not everything was rosy as there were critics of the so-called ‘medicoindustrial complex’ and the potential conflicts of interest (doctors owning hospitals or related imaging or pathology facilities) that were permitted in some jurisdictions. I have heard this time (late 1980s to early 1990s) referred to as a period of “*the complete victory of technologies over common sense*”. The introduction of an artificial ligament for ACL reconstruction was a trend in that period that had catastrophic patient outcomes. With the greater emphasis on evidence-based medicine (1996 onwards) the rigorous scientific evaluation of our operative results imposed by hospital audits and editors of scientific journals led to a new stable period that I call “*The knee is not a toy – it is a human articulation*”. The beginning of the 21st century was when athletes knee treatment and science was marked by distinguished colleagues, clinicians and researchers, whom I encouraged to write for the *Aspetar Sports Medicine Journal*. Here we have a collection of outstanding papers.

The foot and ankle complex very often serves as the first line of contact between the environment (ground) and the body and as a consequence, the foot and ankle are very commonly injured in sport. The interaction between the ankle and subtalar joints allows for both static body and dynamic support for the ankle joint. This comprehensive chapter has captured the best current treatment options for sports injuries of the foot and ankle. Particular attention is devoted to practical and clear information with a coverage that encompasses the full range of ligament, bone and joint and tendon injuries. You will see special emphasis on advances in Podiatric and Rehabilitation techniques. I have been proud to witness how the *Aspetar* foot and ankle team approach to these nasty injuries has continually improved so as to achieve the best possible functional restoration in the shortest period possible.

In our daily clinical practice, knee cartilage lesions are troublesome injuries that cause pain, swelling and locking. I find that two categories of athletes ask our advice: young active sportspeople and middle age former elite athletes. Cartilage lesions in sport can be single and potentially isolated, but in most cases they are multiple and combined. In the knee they are very frequently associated with ACL tears, meniscal injury, or both. Several scientific papers report that untreated cartilage defects to progress in deeper lesions need 2 years. Advances in our knowledge on cartilage treatment in the past 20 years has been remarkable. The field of regenerative medicine has been characterized by rapid development in tissue engineering techniques. There is no better head of chapter to guide our excellent collection of papers on acute cartilage lesions in sport than Prof Mats Brittberg, who in October 1987 with Prof Lars Peterson was the first to perform an autologous chondrocyte implementation (ACI) in human knee.

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