

A lot is known, a lot is unknown...

Stefano Zaffagnini · João Espregueira-Mendes

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When Jon Karlsson asked us to be the Guests Editors of a KSSTA issue on anterior cruciate ligament (ACL), we thought that the subject would have been not really original and appealing because thousands of studies have previously been published on this topic, since ACL is probably the anatomical part of the knee that has been analysed the most. All the aspects of ACL have been studied, and we guessed that it was quite difficult to find something truly new to present.

However, we were totally wrong and while we were approaching the selection of the articles for this special issue, we remembered the words of an ancient Greek philosopher stating “the only true wisdom is in knowing you know nothing.” This is totally correct also for what concerns the ACL and during the selection of the articles, we realized that the meaning of those words is still relevant and should always be born in mind when you are involved in scientific research.

As researchers, we should always keep our inner flame burning to increase our knowledge and improve our therapeutic and surgical skills and consequently the patient’s satisfaction.

S. Zaffagnini (✉)
II Orthopaedic and Traumatologic Clinic (Sports Traumatology Dept.), University of Bologna, Istituto Ortopedico Rizzoli, via di Barbiano, 1/10, 40100 Bologna, Italy
e-mail: s.zaffagnini@biomec.ior.it

J. Espregueira-Mendes
Orthopaedic Department, Minho University,
Clínica Espregueira-Mendes, Estádio do Dragão,
4350-415 Porto, Portugal
e-mail: jem@espregueira.com

J. Espregueira-Mendes
Saúde Atlântica Clinic, Dragão Stadium, F.C., Porto, Portugal

On the other hand, a surgeon could be defined as “an artist of the body” and we should have an original spirit in managing different pathologies and to leave our fantasy free to explore different ways and treatment modalities and improve in this manner the knowledge in this field and consequently the clinical results that can be achieved.

In selecting the articles for this special issue, we observed that there were still several interesting questions to be addressed to improve ACL injury treatment.

Injury prevention, anatomy, biomechanics, kinematics of ACL can be analysed through different approaches by using new technologies and obtaining information not only in vitro but even in vivo.

Latest technologies will permit us to increase the quality in terms of diagnosis. There is in fact an increasing need to obtain objective and accurate measurements of knee kinematics and laxity; the definition of specific laxity parameters will allow orthopaedic surgeons to better evaluate the knee injury and consequently decide the optimal strategy to customize the surgery for each patient, the so-called individualized concept.

Only when we will have defined the most reliable methods to evaluate the knee biomechanical behaviour before and after the surgery, we will be able to decide the best surgical strategy for the patient and to evaluate the different factors influencing the clinical results after ACL reconstruction. The real deal is to have an answer in the definition of what is normal and to obtain not only a non-symptomatic knee but also a normal functioning joint in a pre-injury level athlete.

As Lord Kelvin stated in the XIX century “if you cannot measure it, you cannot improve it.”

Different aspects that should be analysed in detail and that could significantly enhance our results after ACL reconstruction are related to the biological processes that happen during the neoligamentization and to the factors

that during surgery and during the rehabilitation process can promote better healing of the graft.

In the next years, we are really sure that the biology and nanotechnology will improve the maturation of the graft and will speed up safe return to pre-injury level, including sports.

On the other hand, if the technology and biology will permit us to achieve better kinematic and biological performance of the reconstructed knee, we must always realize that the goal is not to treat a knee or replace a ligament, but we have to restore the quality of life and the patient's functional capacity to the pre-injury level.

Therefore, we must analyse and treat not only one particular part of the injury, but we need to consider the patient as a global unit. All the aspects of the patient—psychological, mental, cultural level, working capacity, expectations—should be taken into account, and all the methods that allow a faster, easier and safer patient's recovery should be analysed and included in the healing process.

The recovery after surgical procedure should include the best solutions from biological, anatomical, kinematic point

of view not only directly addressing the joint but also including rehabilitation, muscle performance, muscle control, neuro-plasticity of the body and the psychological satisfaction of the patient.

It is easy to understand that this is not a simple task, and moreover, to reach this goal, it will be necessary to involve different highly specialized people and skills. Therefore, this issue aims to show the recent knowledge there is in terms of ACL injury treatment, including not only the surgery but also the biology, the anatomy, the biomechanics and the rehabilitation process.

In fact, all these aspects should be evaluated in order to obtain a significant improvement in the treatment of ACL injuries.

This does not only have a narrow view focusing on only one aspect (the surgery), but we must always use a comprehensive protocol in order to achieve the real patient's satisfaction and complete anatomical and biomechanical recovery.