



TECHNICAL ISSUES IN INJURY PREVENTION

One of the most important lessons for me in sports medicine was experienced when I was a young Sports Doctor in Australia just 'cutting my teeth'. I had a patient, a young tennis player who was apparently an up and coming champion. He had elbow pain that had defied conventional treatment for months and even my own well-placed cortisone injection gave him only temporary relief. It was obvious that we were missing something, so asked a few colleagues for advice. It was suggested to me that I seek an opinion from a physiotherapist who was also a qualified tennis coach. We set up a session which was to be the initial consultation, a technical session on the tennis court which had the potential for video analysis if needed. Since the elbow pain was at its worst with overheads and serves, my patient was asked to perform a few serves. Straight away, after two or three serves, my colleague said "his ball toss is too far back", and started to make a few technical changes. By the end of that session, my patient's elbow pain had diminished dramatically. After two more sessions, he was pain free - and probably serving more effectively.

The lesson was obvious. Without technical analysis and prudent technique changes, my patient's elbow pain was never going to go away. In all sports, but especially in technical sports, making a diagnosis is only a fraction of the challenge. The key to treatment is identifying the predisposing factors and making appropriate changes. Understanding sports specific technique is a major part of this process.

My own sporting background is in the decathlon, which has a number of particularly technical events. Even something as simple as sprinting, however, is very technical. It has long been recognised that a sprinter with abnormal pelvic biomechanics is more likely to suffer from hamstring injuries than a sprinter with better technique. Treatment of chronic or recurrent hamstring strains in a sprinting athlete therefore must include technical analysis and, if necessary, technical retraining. Pole-vaulters with poor technique have a higher incidence of back pain than those with pristine technique. Javelin throwers with technical problems have more elbow, shoulder and back problems than technically correct 'spear-chuckers'. Triple-jumpers who 'block' between phases suffer more ankle, shin and knee problems than those who don't. Every technical event can be analysed in this way. It must be remembered however that a javelin thrower with a poor technique and resultant back pain, may have a musculo-skeletal reason for his or her poor technique. A classic example of this is the thrower who 'collapses' on delivery, because of a limitation of internal rotation in the hip joint of the front or 'blocking' leg. They won't be able to make technical changes until their available hip rotation has been increased by appropriate mobilisation techniques.

Ball sports have technical issues that can impact upon the injury profiles of those sports. In Australian Rules Football, there is a high incidence of overuse groin injuries. Only now are researchers starting to look at the biomechanics of a typical kick, and looking at biomechanical traits that may lead to abnormal stresses across the pelvis. In rugby, a game in which tackling plays a large role, the incidence of shoulder injury can be diminished by teaching correct and safe tackling technique. In gridiron, the incidence of catastrophic spinal injury was significantly decreased in just one season, because of rule changes implemented to outlaw the 'spear' tackle. Researchers had identified that this technique of tackling was responsible for the large majority of such spinal injuries, and acted accordingly. This is a rather extreme example of technique impacting on injury, but a good one nonetheless.

In individual professional sports, injury can significantly impact upon the earning capacity of the athlete. I have already given an example of a tennis player whose faulty overhead and serving technique was putting strain on his elbow. Identifying the technical flaw and changing it appropriately went a long way towards healing the injury. This example is repeated again and again in the world of tennis. Golf is another technical sport in which poor technique can increase the chance of injury. David Duval was at one stage the number one ranked player in the world. At that stage his swing had been criticised for being unorthodox. His dramatic fall down the world rankings since his win in the British Open has been well documented, and has had a lot to do with a chronic back problem. Once again there is a correlation between technical issues and injury, although in this case it appears that the resultant changes in his swing have also affected his performance. Hopefully this will only be temporary.

Summary

The take-home message is this. To make a diagnosis and to institute a course of treatment is only part of the battle for doctors and other sports medicine practitioners. In technical sports, all of the potential predisposing factors need to be looked at and adjusted if necessary. In many cases sports specific technique is the most important of these. Therefore a good sports medicine practitioner needs an understanding of the requirements of the specific sport involved, and also needs to be able to access resources to make the technical changes that are necessary.

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