How can Strength and Conditioning prevent injuries

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Unfortunately all athletes can get injured, whether it is due to being exposed to continuous high training loads, poor overall conditioning for their sport, or just plain bad luck!

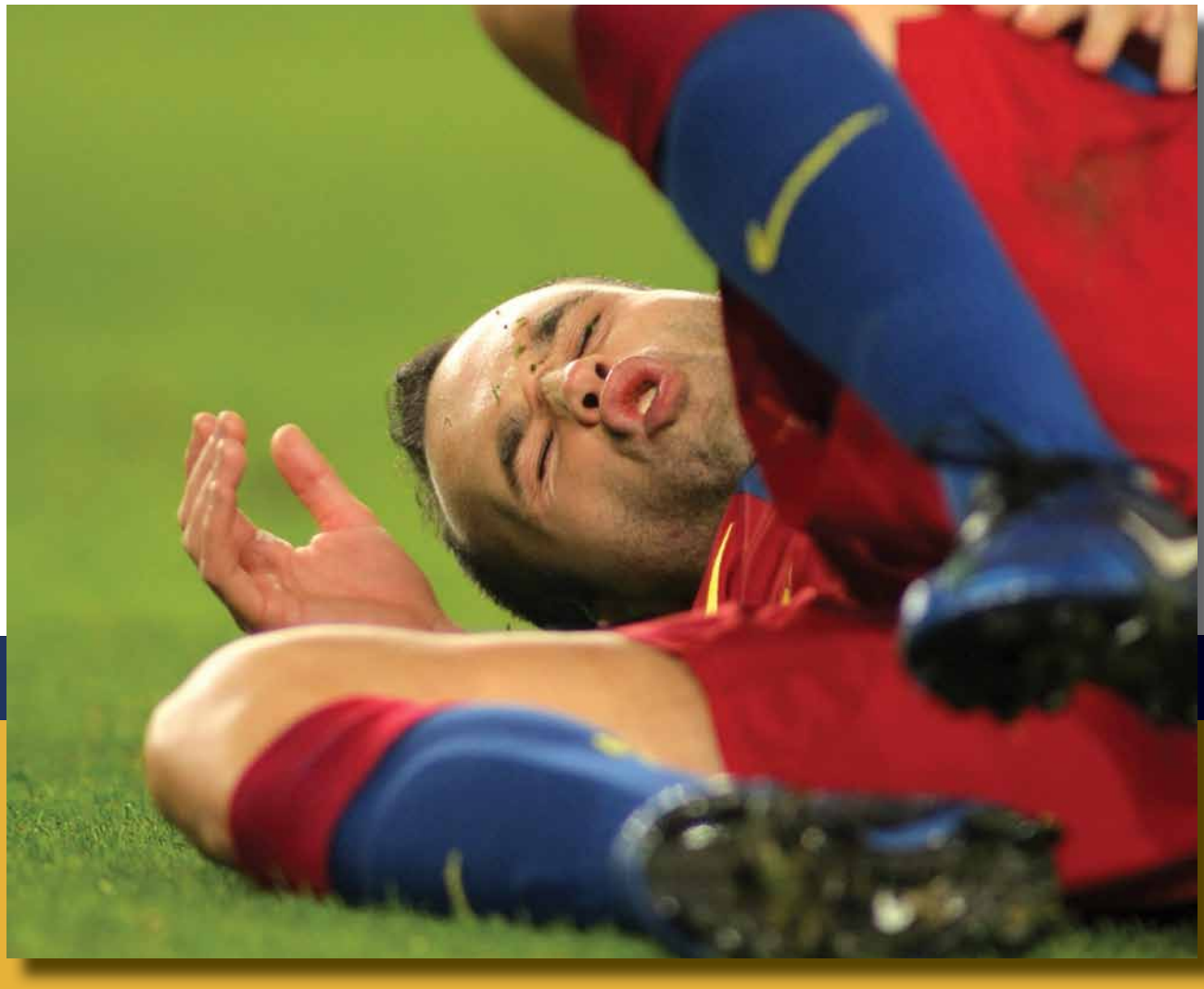
No matter what we do as athletic trainers, sport coaches or as strength and conditioning coaches, we can't prevent injury; we can only reduce the incidence. Winning or top performance is the aim of any professional sports person, and without being on their sporting field they don't have the opportunity to compete. Therefore the main priority for the strength and conditioner is to make sure the player is fit to play and reduce any injury they could experience!

Strength and conditioning is only one component of reducing injury in athletes. Although the primary reason for resistance training in sports is strength and power improvements and athletic performance enhancement, it has also been widely used for rehabilitation and injury-prevention purposes (Askling et al., 2003; Bahr et al., 2006; Árnason et al., 2008).

There are countless examples of athletes with great strength that underperform because poor movement skills prevent weight room strength from translating to performance strength. Likewise, plenty of endurance athletes, especially runners, are either chronically injured or underperform because of movement deficiencies. Efficient movement is a constant give and take between ***mobility*** and ***stability***, with each segment of the body and its unique movement capabilities influencing all the other segments. When mobility and stability are in balance, and all segments are synchronized, movement is graceful and potentially powerful. When they are not, the result is often injury or disappointing performance.

Every athlete from any sport needs to have both mobility and stability (strength, skill and control) in every single joint in their body. Mobility should come first; then the athlete should work on developing strength, stability and speed in those mobile ranges of motion. Next the athlete should develop mobility in various sport positions. Eventually you can make up your own loaded mobility positions that are required for your own sport. The majority of non-contact injuries in sports happen at joint end range of motion under eccentric loading. So get your athletes into end ranges of motion for their sports and load them while they do mobility/strength work.

Information from current research has also shown that muscle strength has an important role for the outcome and the ability to return to sport, in particular, after anterior cruciate ligament (ACL) surgery (Wells et al., 2009), and eccentric strength training has, for example, been shown to reduce the risk of hamstring



strains (Árnason et al., 2008). Strength training has also been recommended for reducing pain in patients with impingement syndrome and decreasing the risk of shoulder injuries in overhead activity athletes (Niederbracht et al., 2008). Recent studies have also suggested that strength training alone (Askling et al., 2003; Árnason et al., 2008;) and together with neuromuscular training (Olsen et al., 2005; Myer et al., 2005; Myer et al., 2008) could both enhance athletic performance and reduce the rate of injuries.

Finally when drawing up an injury prevention programme it is important to recognise the injury pattern characteristics of the sport before it is possible to design effective prevention programmes (Parkkari et al., 2001). It might also be necessary to know the specific demands for the individual player, such as the player's position and the demands (including injury profile) of that specific position, the player's physical weaknesses and strengths and muscular fitness. As prevention programmes apparently have the simultaneous potential to enhance athletic performance (Askling et al., 2003; Hewett et al., 2005), it might be interesting to combine an injury-prevention programme with a strength and conditioning programme to facilitate compliance with preventive action among athletes.

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