What are plyometric exercises?

Plyometrics are exercises that enable a muscle to reach maximum strength in as short a time as possible. The highest incidences of injury are when the joint is decelerating. Plyometric training not only teaches the body to produce force more effectively but also to control and absorb forces safely.

Why are plyometric exercises important?

A concentric muscle contraction is muscle activation that increases tension on a muscle as it shortens. Eccentric muscle contraction occurs as the muscle fibres lengthen. In activities such as jumping the muscles accelerate for power, then decelerate to absorb the force therefore changing their function between eccentric and concentric. The aim of plyometric training is to decrease the amount of time between the eccentric muscle contraction and the concentric contraction.

What does plyometric training do in sport?

Explosive force that requires the movement between eccentric and concentric muscle work is important in sports, such as in running and jumping, where there is direction change within the muscle which must occur rapidly and the muscle must be strong through both phases. Specific functional exercises that emphasize this rapid change in muscle contraction must be used to prepare the athlete for sport specific activities. Exercises such as maximum height jumping and lunges need to control the degree of movement and load the muscle eccentrically which over time strengthens the stabilizing muscles and lessens the degree of force on the ligaments in the joint. Training is therefore important so that the muscles can function to provide the explosive force as well as the stabilizing function.

Why do plyometric exercises help to reduce injury rates?

With explosive sports, the muscle is moving between eccentric and concentric movement and controlling the joint load. Training the muscles to perform both the explosive force as well as the stabilizing function will help to decrease injuries. This training is also important for athletes returning to sport following an injury and should be included in any rehabilitation program.

References:

Exercises are from the FIFA 11+ program available at http://f-marc.com/11plus/exercises/