



Landing injuries in sport

Sports that involving jumping and landing such as football, netball, basketball and volleyball are among the most common in Australia and also the source of a high proportion of major injuries. Research shows that the most frequent cause of major injuries in landing (Steele 1990, Grimmer *et al* 1990). Such injuries might include knee ligament injury, ankle sprains or lower limb fractures. It is sometimes suggested that some of these injuries could be prevented by addressing common errors that occur when landing. Some of these errors include:

- Landing with knee too straight (hyper-extension)
- Landing with poor balance (ie rolling ankle or overbalancing)
- Landing with poor alignment of the hip, knee and foot (right)
- Lack of strength in quads, gluteals and calf (the major landing muscle groups)
- Poor timing of onset of landing muscles (it has been shown that for good control these muscles need to be activated just prior to or within milliseconds of the foot hitting the ground)
- External forces (ie land on another player's foot, tackled during landing)

It is clear that some factors cannot be addressed through training (such as external forces). However coaches, parents and players can contribute to injury prevention by helping young players develop balance and landing skills. It is thought that if some of the ideas are introduced as early as possible than they may have the largest impact. The NSW Sports Injury Report, 1997, reported that the injury rates reach a peak at the age of 14-16 for boys and girls. This suggests that training before that age may be beneficial.

What about developing these landing skills in adults? We believe that sport-specific movements can be taught at any stage and that it might be possible to reduce injury rates by introducing a good proprioception and landing training program in adult sport teams.

Some of the ideas for reducing landing impact include:

Box Jumps



Use a small bench or box. With your players standing on the bow (to replicate a jump from height), ask them to jump off, land on two feet and then run forwards. You are looking for a soft, quiet jump with adequate knee bend. This can be progressed to landing on one foot, landing and then running forward to receive a ball, and landing with eyes closed.

Wobble Board Training

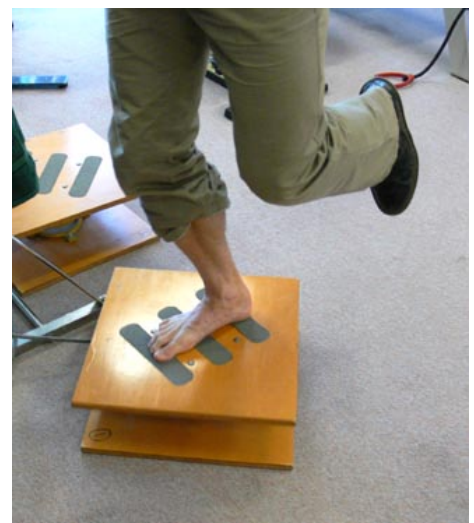
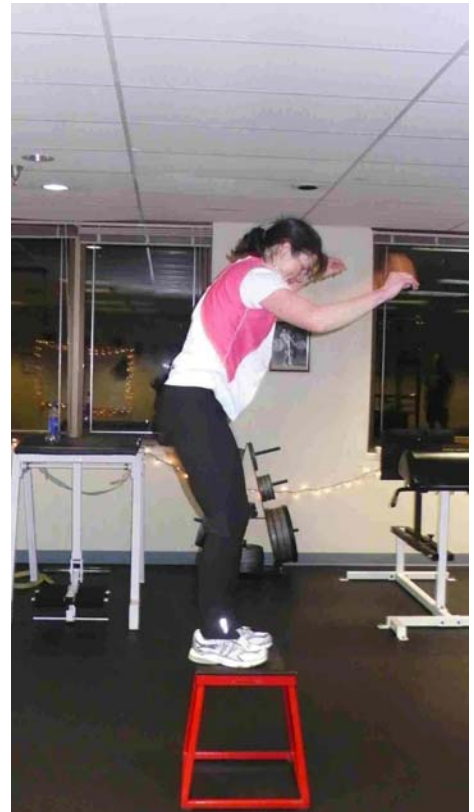
A wobble-board is a round wooden platform with a hemisphere underneath (or spring) to create an unstable surface. Drills can include rolling the board around while throwing catching an ball, with or without eyes closed, etc.

Hopping drills

Ask your players to hop forward 10 times in a row. Those with poor balance or endurance/strength will be obvious because they will achieve poor distance and may lose control. They may need to start at drills like hopping on the spot and catching a ball or with eyes closed. Progress to hopping side-to-side and then backwards and forwards.

There are many more options for training balance and landing. When these concepts are applied to a particular sport it is usually not difficult to think of sport-specific landing drills.

This area is worth serious consideration at all levels of sport, but we caution that no-one should begin a new exercise regime without consultation from your Physio or health professional.



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