

Virtual Learning

Knee joint coordination during single-leg landing in
different directions

Biomechanics of Sports

5/5/2020



Lesson: 5/5/2020

Objective/Learning Target:

1. The student will learn about knee joint coordination during single leg landing in different directions.

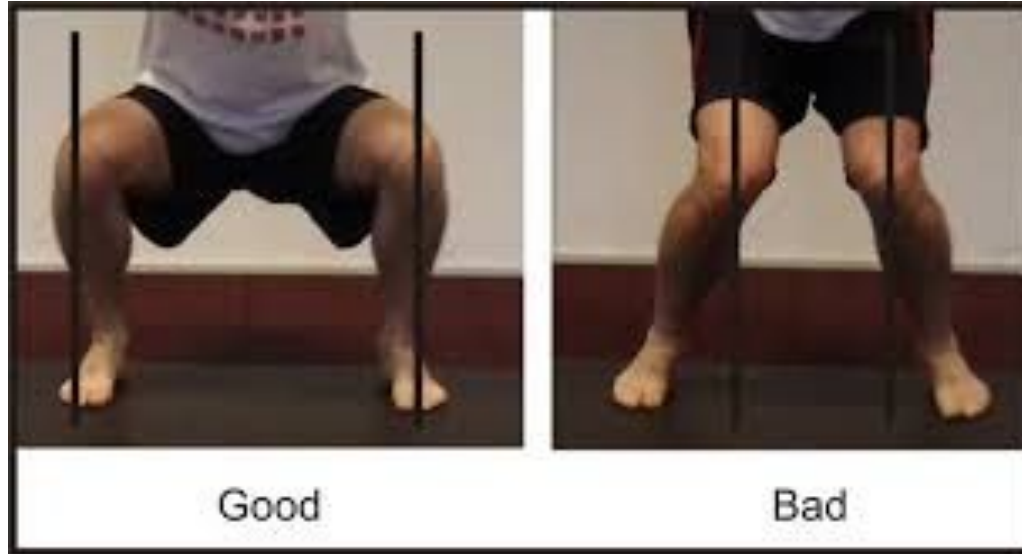
Controlled Scenario

Knee joint coordination during jump landing in different directions is an important consideration for injury prevention.

When an athlete jumps without contact in a controlled landing, meaning no contact from another person or barrier prior to landing.

In the following scenario, the individuals knees track inside of the foot landing base in as controlled of a landing scenario.

Knee tracking on landing with both legs



Landing Variables

Different variables have a substantial effect on injury prevention when landing.

Variables are not only recognized in the individual but also in the environment.

Environmental Variables

- Landing Surface - Hard, Slippery, Soft, Uneven, etc.
- Shoe wear - Barefoot, Soft heel shoe, hard heel shoe, Shoe fit, etc.

Uncontrolled Scenario

The following scenario is more real world application in the sport specific to Volleyball in which balance of the athletes is compromised with physical contact of an object (ball) or objects (netting) and other athletes.

Each athletes landing is compromised putting them in potential risk of injury.

Athletes landing in these scenarios are prone to their feet landing in different directions compromising other parts of their lower leg limbs.

Application of two foot landing in Volleyball



Other findings in landing on two feet

The non-dominant limb seemed to have better coordination than the dominant limb during multi-direction jump landing.

Therefore, dominant limbs appear to be at a higher injury risk than non-dominant limbs

Real world application question

Should athletes in basketball going up for a lay up be taught to jump off of two feet or one foot in consideration to findings on landing principles?

Which landing technique has a higher prevalence of injury?