Volleyball Biodynamics

Volleyball is a **plyometric activity** that requires a lot of strength, endurance and stability, and the muscles can get strained if fatigued. It can also lock the joints of the knee when the muscles do not perform appropriately, leading to significant stiffness and inability for the muscles to contract.

LOW BACK

Significant **low back extension** in the jump serve means your extensors need to be strong in eccentric control as you flex the spine to serve or dig. Injuries include low back sprains, strains and disc herniations.

SHOULDER

Shoulder abduction and external rotation is extreme for ball control and power during serves as well as to spike. Rotator cuff tears, impingement syndrome as well as labral tears can result.

CALF

Calf injuries can occur after a jump serve as all of your forces are propelling your body forward. The body then has to decelerate, which means a quick step forward to catch your weight. Injuries include calf strains as the body eccentrically (controlled lengthening) loads the lower leg in that first step.

KNEE

Planting the foot and **twisting** can injure the ACL or MCL ligaments, as well as the menisci. This can also strain quads, as muscles have to quickly absorb forces in landing (eccentric contraction) and then push off to move in a different direction (concentric contraction).

FEET

Toes and **feet** can be susceptible to lacerations from items found in the sand. Hot sand can cause blisters on the feet and toes.

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Information reviewed by Karena Wu, DPT, MS, COMT, CSCS, CKTP, CI, FMS & SFMA Certified, physical therapist at ActiveCare Physical Therapy in New York City, and member of the medical board of the Association of Volleyball Professionals (AVP).