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Nutritional and Loading Interventions to Increase Recovery And Decrease Injury

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OVER 60% OF ALL INJURIES SUFFERED BY ATHLETES ARE ONE OF FIVE TYPES OF MUSCULOSKELETAL INJURIES

OVERUSE	OVER STIFF	UNDER STIFF	IMBALANCE	TRAUMA
• Volume of training or competition at a high mechanical load is too high • Commonly this manifests as stress fracture or tendinitis	• When the tendon is stiffer than the muscle is strong • Commonly this manifests as muscle pulls	• When a ligament is not stiff enough to prevent laxity • Commonly this is seen in women who rupture their ACLs	• When there is a difference in strength or stiffness in the muscles across a joint • Commonly this is seen in noncontact rupture of the ACL	• When there is a traumatic injury to a bone, tendon, or joint • Commonly seen in impact sports and are difficult to avoid

LOADING TO MINIMIZE MUSCULOSKELETAL INJURY

- Consider incorporating protective or health sessions into training
  - Short (5 min.) sessions to target bone, cartilage and tendon
  - Separate these from other training by 6hrs
  - Incorporate slow/isometric movements to decrease tendon stiffness
- Split long training sessions into 2 separate training bouts to minimize fatigue-related injury

USE NUTRITION TO SUPPORT MUSCULOSKELETAL ADAPTATIONS

- Consider giving athletes gelatin or hydrolyzed collagen an hour before training or competition
  - The rise in pro-collagen amino acids peaks one hour after taking a gelatin supplement
  - 15g of gelatin taken one hour before 6 minutes of jump rope activity increases collagen synthesis in young males

USE REST WISELY

- Inactivity can increase tendon stiffness (Arruda 2006)
- Therefore, following injury or breaks in training, slowly ramp up training load and intensity
- Complete rest is often not the answer. Intermittent periods of activity with 6-8 hours rest is often better (Robling 2000)

REFERENCES
Arruda EM, Calve S, Dennis RG, Mundy K, Baar K (2006) Regional variation of tibialis anterior tendon mechanics is lost following denervation. J Appl Physiol 101:1113-1117.
Robling, A. G., Burr, D. B., and Turner, C. H. Partitioning a daily mechanical stimulus into discrete loading bouts improves the osteogenic response to loading. J Bone Miner Res 15:1596–1602; 2000.