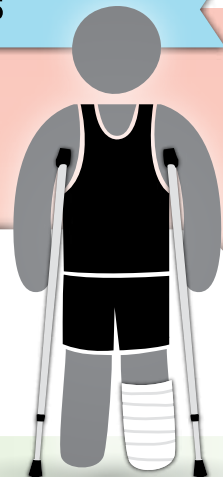




# NUTRITIONAL SUPPORT FOR INJURY RECOVERY AND RETURN-TO-PLAY

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Injuries are an inevitable part of sports participation. Nutrition may not be able to keep an athlete completely injury-free, but it can support and often speed up injury recovery. Poor nutrition will impair recovery and lengthen the time it takes an athlete to return to play.

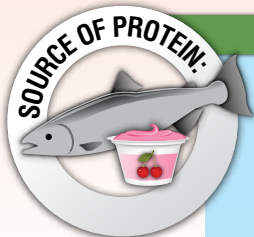


Nutrition intervention by the sports dietitian should occur immediately following an injury. The athlete should be screened for nutrient deficiencies, energy balance, lipid balance, optimal hydration and sleep habits. The nutrition plan should be tailored to an individual's phase of injury, resting metabolic rate (RMR), physical activity level and desire to minimize any gains in fat mass.

## GOALS OF NUTRITION INTERVENTION:

- Support muscle protein synthesis.
- Preserve muscle mass.
- Maintain energy balance.
- Prevent body fat accrual.

## NUTRITIONAL CONSIDERATIONS:



### PROTEIN

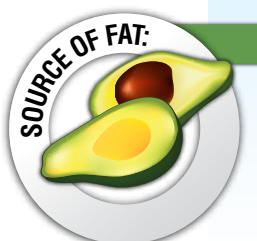
- Helps athletes heal and repair muscle tissue.
- Should emphasize proteins with a high leucine content (aim for ~3g leucine per serving).
- Daily protein intake should be between 1.6-2.5g/kg BW/day (depending on phase of injury).
- **Protein specifics:**
  - **Meal dose** = 20-40g (depending upon leucine content).
  - **Frequency** = every ~3-4h (4-6 meals daily).
  - **Type** = quickly digested, high leucine content during the day (whey protein, part-skim cheddar cheese and lean meats are great sources); slowly digested proteins prior to sleep (i.e. low-fat cottage cheese, low-fat Greek yogurt).



### CARBOHYDRATE (NEEDS UNIQUE TO EACH SCENARIO)

- Used for fuel so the protein eaten can be used to heal and repair muscle tissue.
- Needs are typically lower to prevent excess weight gain\*.
- Should include whole grains, fresh fruits and vegetables.
- **Carbohydrate recommendations** should be 3-5g/kg BW/day.
  - For a 170lb male = 232-386g/day (typical 4oz whole-wheat bagel = 60 grams).
  - Choose low glycemic index foods (i.e. whole grains).

\*The athlete should understand that some weight gain may be preferable to support a full recovery.



### FAT (NEEDS UNIQUE TO EACH SCENARIO)

- Essential for healing, recovery and decreasing inflammation.
- Should come from anti-inflammatory nuts and nut butters, seeds, avocado, oily fish, flaxseed oil, extra virgin olive oil and omega-3 fish oil.
- Pro-inflammatory omega-6 vegetable oils, saturated and trans fats should be limited.
- Omega-6/omega-3 ratio should be low to enhance anti-inflammation.



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MICRONUTRIENTS	SOURCES	FUNCTION
<b>Vitamin C</b>	Citrus fruit, red and green peppers, cantaloupe	Antioxidant, wound healing, tissue repair, immune function
<b>Vitamin A</b>	Sweet potato, spinach, carrots, tomatoes	Cell growth and development, immune function
<b>Vitamin D</b>	Sun exposure, oily fish, dairy products, fortified foods	Promotes calcium absorption and bone health
<b>Calcium</b>	Low-fat milk, fortified non-dairy milk, low-fat Greek yogurt, cheese, broccoli, kale, fortified orange juice	Supports skeletal structure and function
<b>Magnesium</b>	Almonds, sesame and sunflower seeds, cashews, peanuts, bananas	Nucleic acid and protein synthesis, improves absorption and metabolism of calcium and vitamin D, improves circulation
<b>Zinc</b>	Lean beef, crabmeat, chicken, cashews, fortified cereals	Wound healing, protein synthesis, immune function
<b>Copper</b>	Sesame, pumpkin and sunflower seeds, cashews, shiitake mushrooms	Assists with red blood cell (RBC) formation, immune function and bone health, regenerates elastin

## RESEARCH-BASED SUPPLEMENTS & NUTRITIONAL CONSIDERATIONS (0-8 WEEKS):

Ultimately, a nutrition plan that includes a well-balanced diet from a variety of whole foods is best for a healing athlete. Supplements may be beneficial to an athlete's nutrition plan in addition to meals and snacks. Athletes should meet with a sports dietitian to see how supplements can safely fit into their nutrition plan.

### FOODS THAT MAY SPEED RECOVERY FROM INJURY:

- **High quality omega-3 fatty acids:** found in cold-water fish such as salmon and tuna.
- **Branched chain amino acids (BCAAs):** 3g of leucine every 3-4 hours (found in 25-30g whey protein powder, 140g chicken or 170g fish).
- **Casein:** 20-25g prior to bed (casein protein powder, 1 cup of low-fat cottage cheese or 1½ cups Greek Yogurt).
- **Tart cherry juice:** 12oz - 24oz per day for anti-inflammatory and antioxidant support.
- **Gelatin or gelatin-based foods:** may support collagen synthesis.



### RESEARCH-BASED SUPPLEMENTS THAT MAY SPEED RECOVERY FROM INJURY:

- **Creatine monohydrate:** 10 g/day for 2 weeks, then 5 g/day (conditionally appropriate – unique to each scenario).
- **β-hydroxy-β-methylbutyrate (HMB):** leucine metabolite shown to provide anabolic and anti-catabolic properties on lean body mass – 3g/day (HMB calcium or free acid form).
- **Fish oil supplements:** 3-4g/day DHA + EPA recommended.



**Athletes should maintain a nutritious diet on a daily basis to maximize nutrient stores rather than ramping up their nutrition once an injury occurs.**