

Nutrition for Injuries and Healing

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Healing after an Injury

- **Inflammation** - Immediately and continues up to 5 days post-injury.
- **Proliferation (regeneration)** - 5 days to 3 weeks post-injury. Tissue rebuilding and repairing.
- **Maturation (fibrosis)** - 3 weeks to 2 years. Remodeling tissue structure.

NSAIDs (e.g. Ibuprofen) block inflammation, but would you want to block or delay this process? Nutrition can help reduce the pain associated with inflammation, while at the same time supporting the healing process.

MEAT vs RICE for Inflammation

Move, **E**xercise, **A**nalgesics, **T**reatment vs. **R**est, **I**ce, **C**ompression, **E**levation

MEAT supports the healing process, whereas RICE may impede it, depending upon the injury. Consult your healthcare practitioner to determine what is most appropriate for your particular injury.

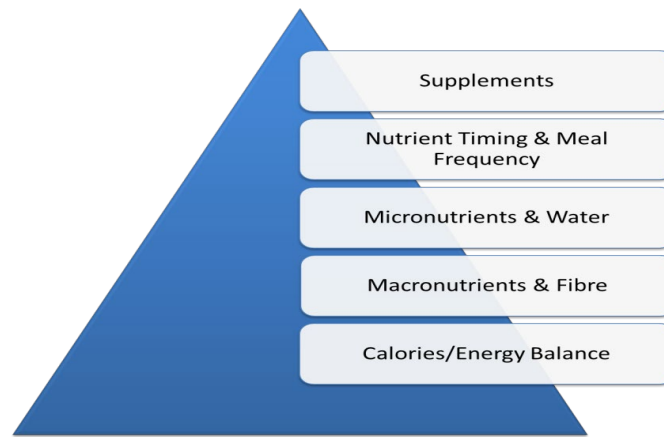
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How to prioritize your nutrition to heal from sports injuries:



Energy

Adequate calories (energy) are essential for maintaining ideal body weight, fueling activities (e.g. rehabilitation) and promoting recovery. Determining energy requirements can be done using online calculators, e.g. <https://tdecalculator.net/>

Keep in mind the 3 Ts When Meal Planning (Failing to Plan = Planning to Fail)

1. **Total** - Match your caloric intake with your energy requirements and goals.
2. **Type** - Focus on carbohydrates for energy, protein for repair and healthy fats to minimize inflammation.
3. **Timing**- Time your meals for optimum energy before rehabilitation sessions.

Macronutrients

<p>Carbohydrates</p> <p>Match fuel needs</p> <p>Low Intensity (e.g. Rehabilitation)- 3-5g/kg BM</p> <p>Carbohydrates include sugars and starches</p> <p>Their primary function is to provide energy for moderate-intense activity</p> <p>Key points:</p> <ul style="list-style-type: none"> • Consume low glycemic carbohydrates (e.g. whole grains, vegetables and fruits) as the primary sources of carbohydrates throughout the day 	<p>Proteins</p> <p>(1.5-2.5 g/kg body mass)</p> <p>Proteins are essential for muscle growth and repair</p> <p>Proteins can be categorized as:</p> <ol style="list-style-type: none"> 1. Complete - Animal sources, such as beef, poultry, pork, lamb, fish, eggs, dairy and plants such as quinoa and soy 2. Incomplete - Plants, such as grains, legumes, nuts and vegetables <p>Key Points:</p> <ul style="list-style-type: none"> • Include some protein with each meal (about 0.4 g/kg body weight or 20-40g) • If you are vegetarian, make sure to balance complementary protein sources, e.g. Rice and beans 	<p>Fats</p> <p>(about 1g/kg body mass)</p> <p>Fats and oils are categorized according to their saturation. The degree of saturation determines the melting point and stability of a fat</p> <p>Functions:</p> <ul style="list-style-type: none"> • Energy source (low intensity activity) and energy storage • Hormone production • Inflammation <p>Sources</p> <p>Saturated fats- Animal fats and coconut</p> <p>Monounsaturated- Avocados, olive oil, macadamia nuts</p> <p>Polyunsaturated:</p> <p>Omega 6 (Proinflammatory if out of balance)- Seed and vegetable oils, e.g. canola, corn, peanut, sunflower, safflower</p> <p>Omega 3 (anti-inflammatory)- Dark green leafy vegetables, flax/hemp seeds, walnuts, cold water fish, grass-fed beef, omega-3 eggs</p>
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Micronutrients

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Micronutrients include vitamins, minerals and phytonutrients. They are required in small quantities to ensure normal metabolism, growth and physical well-being, as well as to reduce inflammation.

When it comes to micronutrients: JERF- Just Eat Real Food

If your diet is 50-75% plant-based and includes healthy fats and adequate protein, you are likely to get the vitamins, minerals and phytonutrients you need without having to rely on supplementation. Consume a well-balanced diet based on whole, minimally processed foods.

Avoiding micronutrient deficiencies is essential to the repair process. Contrary to popular belief, this can be done without supplementation.

Nutrient Timing

Timing your nutrition is important to ensure that sufficient energy is available for performance, as well as for recovery and repair.

Key Points:

- Protein - 20-40g/meal, ideally every 3-4 hours.
- Carbohydrate - Meet total daily carbohydrate needs to support activity (fuel and recovery).
- Fats - No specific timing. Include healthy sources with meals.
- Pre- and/or post-exercise nutritional interventions - Protein and collagen prior to rehab exercises.
- Casein protein (~ 30–40 g) prior to sleep.

Supplements

Supplements for Sports Injuries and Repair

Muscle	Tendon	Bone
<ul style="list-style-type: none">● Protein (0.4g/kg per serving 3-4x/day)● HMB (3g/day)● Omega 3 (4g fish oil)● Creatine monohydrate (20g/day for 5 days)● Polyphenols (food)	<ul style="list-style-type: none">● Collagen (proline, glycine)● Protein- Leucine (20 g whey) Nitric Oxide(Blood Flow) <ul style="list-style-type: none">● Nitrates (beet root, Chard)● Arginine 8g● Citrulline Malate 8g	<ul style="list-style-type: none">● Protein and Carbohydrate● Calcium (700 mg/day)● D (per blood work)

Hydration

- Water is a carrier for nutrients and waste products. It aids in thermoregulation and helps to serve as a lubricant and shock absorber.
- Numerous factors affect water requirements and needs, e.g. climate, physical activity and diet.
- The Institute of Medicine of the National Academies recommends as a baseline that women consume an average of ~90 oz and men consume 125 oz of water per day.
- Urine color (dark vs light) is one way to monitor hydration status.

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Use the Healthy Plate as a Guide to Balanced Eating

Choose grass-fed, pasture-raised, local and organic/herbicide-free whenever possible.

The freshness and quality of food, and whether that food has been treated with hormones, antibiotics and/or herbicides, can greatly impact the food's effects on inflammation and health.

