Sport Specific Nutrition Strategies for ACL Injury, Surgery, and Rehabilitation

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Overview

- Nutrition needs vary according to athlete
- Adjust nutrition as activity increases
- Focus on varied diet
- Nutrient density matters

Calories

- Initial increase in needs by ~20% following surgery
- Crutching expends three times more energy than walking
- Decrease in activity during recovery time decreases caloric needs
- Consuming only 80% of needs during recovery decreases muscle protein synthesis by 20%

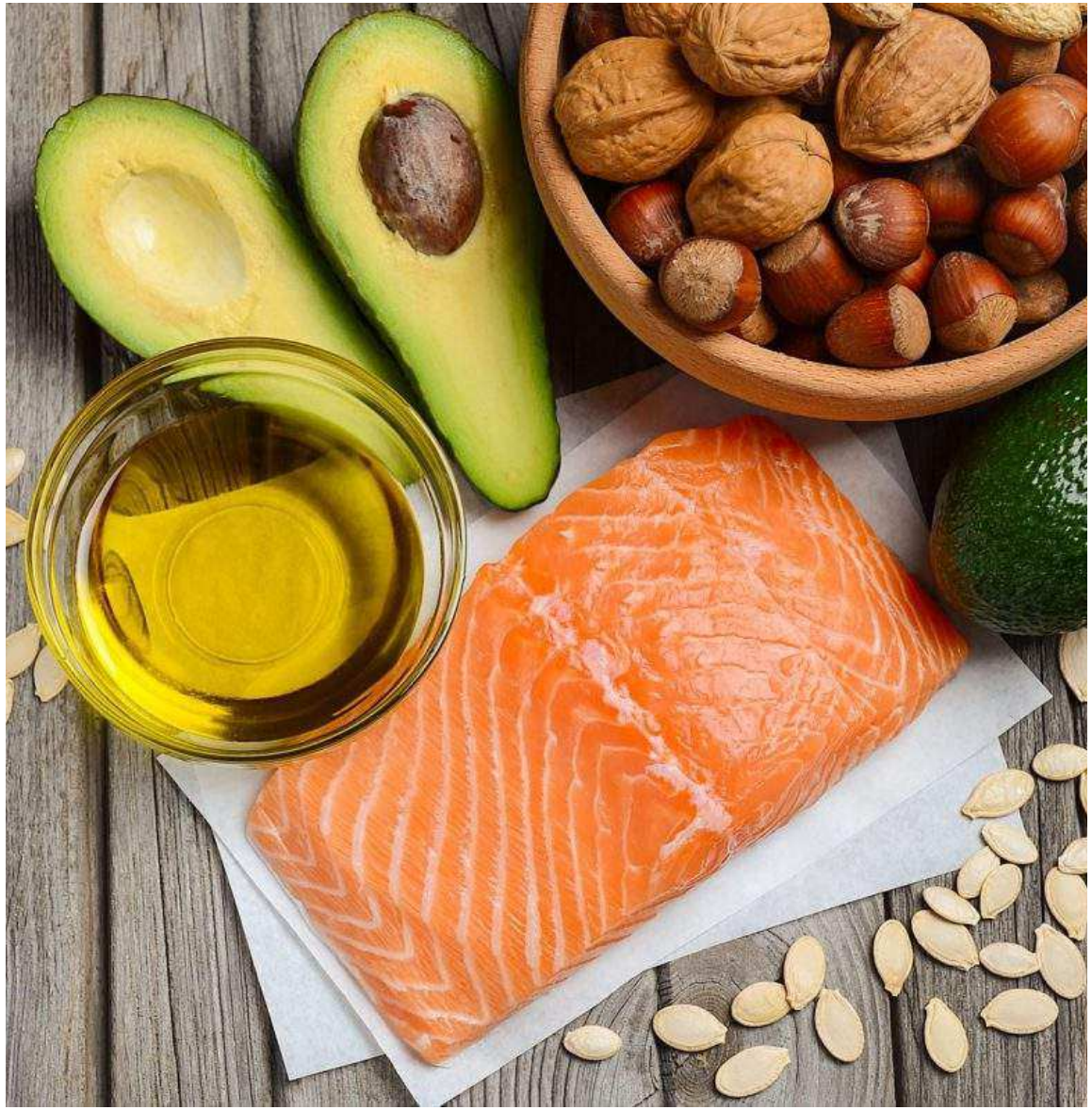
Carbohydrates

- Anti-inflammatory properties
- Sources: whole grains, fruit, and vegetables
- 3-5 g/kg BW/day
- May slightly decrease to prevent excessive weight gain during the recovery period

Fat

- Omega-3 fatty acids may help reduce muscle loss and prevent inflammation
- Sources: nuts and nut butter, seeds, avocado, oily fish, flaxseed oil, extra virgin olive oil and omega-3 fish oil

- Example: Having an athlete snack on almonds compared to dried fruit would have more of an anti-inflammatory effect.



Protein

- Emphasize high leucine protein foods (~3 grams per serving)
  - Combats anabolic resistance when muscle protein synthesis is disrupted
  - Examples: nuts and seeds, soybeans, cod, tuna, chicken, steak, beans, cheese
- 1.6-2.5 g/kg BW/day
- Consume every 3 hours, after rehab session, and before bed to promote healing
- Study:
  - Cod protein elicits a more immediate resolution of inflammation than casein.

Fiber

- Pain medications following surgery may cause constipation
- Sources: prunes, prune juice, whole grains, fruits, vegetables

Hydration

- Remind athletes to stay hydrated while they are healing
- Athletes are used to drinking before, during, and after exercise and may now skip thinking it is unnecessary
- Out of their routine

Vitamins and Minerals

	Purpose	Sources
Vitamin A	Cell growth and development	Sweet potato Spinach Carrots
Vitamin C	Wound healing Tissue repair	Broccoli Citrus fruits
Vitamin D	Bone health Immune function	Salmon Tuna Mushrooms
Calcium	Skeletal structure and function	Milk and other dairy products Broccoli Seeds
Copper	Red blood cell formation Immune function Bone health Regeneration of elastin	Nuts and seeds Leafy greens Lobster
Zinc	Wound healing Protein synthesis Immune function	Meat Shellfish Legumes

Supplements

Supplement	Purpose
Tart cherry juice	Anti-inflammatory and antioxidant support
Fish oil	Anti-inflammatory
Casein	Prevent muscle breakdown
Gelatin or gelatin-based foods	May support collagen synthesis
Branched chain amino acids (BCAAs)	Re-establish new muscles, tendons, and ligaments
Collagen	Boost muscle mass and relieve joint pain

What to Avoid

- Nutrient deficiencies
- Alcohol consumption
  - Impairs wound healing by reducing anti-inflammatory response
- Pro-inflammatory omega 6's (vegetable oils, saturated, and trans fats)
  - Omega 6 : Omega 3 ratio should be low to enhance anti-inflammation
- Added sugar
  - Promote inflammation
  - Not burning off as much energy

Conclusion

- Nutrition is just as important if not even MORE important during injury, rehab, and post-surgery
- Encourage a variety of nutritious foods to promote healing
  - Discourage fad diets, eliminating food groups, etc.
- Monitor weight
  - Consider swelling, muscle loss, fat mass gain
- Refer them to a Registered Dietitian/Nutritionist
  - Board Certified in Sports Dietetics preferred (CSSD)