YOU ARE WHEN YOU EAT: TIMING IS EVERYTHING

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When it comes to nutrition, it's not only what your athletes eat and drink but when they eat and hydrate is equally as important.

ASSESSING THE STUDENT-ATHLETE

Performance nutrition is the study of nutrients and their timing to support physiological processes that occur in the body.

When assessing the student-athlete, everything must be individualized. Things to consider include:

- Demographics that have shaped current lifestyle habits including family dynamics, racial and cultural background, and home location
- Personal preferences
- Allergies and intolerances
- Finances and food security
- Gameday routines
- Needs based on sport, gender, age, weight, composition, position/event within sport

If available, utilize technology to better assist in assessments of student-athletes. Examples include:

- Metabolic cart
- Polar
- Body composition tools (DXA, BodPod, BIA, Skinfold calipers)
- Stadiometer/scale

Macronutrient ranges based on body weight which vary according to training period, intensities, goals:[1,2,3]

- Carbohydrates: 3-12 g/kg
- Protein: 1.2-2.4 g/kg
- Fat: 1g/kg

WHY "WHEN" MATTERS

Frequent meals and snacks support availability of nutrients involved in exercise metabolism[4,5], by:

- Increasing energy availability
- Improving overall performance
- Reducing lean mass loss during hypocaloric states
- Increases anaerobic power and lean mass
- May aid in body fat reduction
- Increasing nutrient availability, specifically carbohydrates, proteins, and fluids to improve performance and facilitate recovery
- Ingestion of larger meals immediately before exercise may lead to GI distress

NUTRIENT TIMING

Delivery of nutrients at specific times can be utilized to support training adaptations related to muscular development, glycogen replenishment and recovery.[6]

- **Fat:** Limited data in timing of dietary fats for exercise performance[7]
- **Micronutrients:** Limited data related to micronutrient timing and derived ergogenic benefits[8]
- **Carbohydrates:** The closer we approach practice/competition, the simpler and less compex is favorable
  - **Special timing considerations:** Carbohydrate loading[2,9]
    - **24 hour protocol:** 3-minute bout of intense exercise followed by 10g/kg of carbohydrates for the next 24h
    - **72 hour protocol:** 48 hours of tapered training while consuming 10-12 g/kg of carbohydrates; 24 hours of rest while consuming 10-12g/kg of carbohydrates
- **Protein:** Protein turnover occurs throughout the day due to varying metabolic needs and training stimuli[3,10]
  - In athletes, goal is to maintain positive net protein balance or positive nitrogen balance to support glyocgen replenishment
  - Due to varying digestion[11,12,13] of protein sources, types of protein may be recommended at specific times based on goals
- **Fluid:** Like carbohydrates, suboptimal hydration levels can limit performance[1,2,14]
- Reduced GI distress related to ingestion of larger meals

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