Nutrition & Athletic Performance Position Paper: Review of key changes

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Outline

- Background and structure of the paper
- Key changes
  - 1) Energy Availability
  - 2) Carbohydrate Guidelines
  - 3) Protein Guidelines
  - 4) Extras
- Wrap-Up

How many Nutrition & Athletic Performance joint position papers have been published by DC, ACSM and the Academy (ADA)?

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3

Nutrition & Athletic Performance Position Paper, 2000 & 2009

Med Sci Sports Exerc. 2000 Dec;32(12):2130-45.

Joint Position Statement: nutrition and athletic performance. American College of Sports Medicine, American Dietetic Association, and Dietitians of Canada.

American College of Sports Medicine; American Dietetic Association; Dietitians of Canada.

Erratum in

Med Sci Sports Exerc 2001 Jan;33(1):following table of contents.

Abstract

It is the position of the American Dietetic Association, Dietitians of Canada, and the American College of Sports Medicine that physical

Med Sci Sports Exerc. 2009 Mar;41(3):709-31. doi: 10.1249/MSS.0b013e31890eb86.

American College of Sports Medicine position stand. Nutrition and athletic performance.

American Dietetic Association; Dietitians of Canada; American College of Sports Medicine, Rodriguez NR, Di Marco NM, Langley S.

Abstract

It is the position of the American Dietetic Association, Dietitians of Canada, and the American College of Sports Medicine that physical

Nutrition & Athletic Performance Position Paper, 2016

- Authors:
  - DC: Kelly Anne Erdman, MSc, RD, CSSD
  - Academy: Travis Thomas, PhD, RD, CSSD
  - ACSM: Louise Burke, OAM, PhD, APD, FACSM

Nutrition & Athletic Performance Position Paper, 2016

- 12,000 words, AND style
- 150 [157] references (Mar 2006-Nov 2014: EAL Questions)
- # Tables & Figures
- **Evidence-Based Analysis**
- Academy of Nutrition & Dietetics Evidence Analysis Library (EAL)
- 11 EAL Questions in Table 1
  (Grade I= Good, II= Fair, III= Limited, IV= Expert Opinion Only, V= Not Assignable/No Evidence)

Paper Highlights

- Defining an athlete - "recommendations for active adults and competitive athletes"
- One diet does not fit all: Nutrition goals and requirements for athletes are not static and therefore should be periodized and take into account the needs of daily training sessions and overall individual goals

Paper Highlight #1
Energy availability (EA)

- Defined as the amount of energy available to the body to perform all other functions after the cost of exercise is subtracted

Calculations of Energy Availability

EA = (Energy Intake – Exercise Energy Expenditure) / FFM = kcal/kg FFM per day

Table I. Examples of energy availability calculations.

Example	Body weight (kg)	Body fat (%)	FFM (kg)	EI (kcal · day^{-1})	EEE (kcal · day^{-1})	EA = (EI – EEE)/FFM (kcal · kg FFM^{-1} · day^{-1})
Low energy availability	61.5	13.5	53.2	1422	520	17
Weight loss	61.5	13.5	53.2	2382	520	35
Weight maintenance	61.5	13.5	53.2	2914	520	45
Carbohydrate loading	61.5	13.5	53.2	3192	0	60

Abbreviations: FFM = fat-free mass; EI = energy intake; EEE = exercise energy expenditure.

Ideal ≥ 45 kcal/kg FFM

Manore et al, 2007

The joint position paper highlights the carbohydrate mouth rinse as having a performance benefit for…

A) exercise lasting < 45 min
B) sustained exercise 45-75min
C) endurance exercise > 2.5 hr

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Paper Highlight #2
Excerpt from Table 2

	Situation	Carbohydrate Targets
DAILY NEEDS Light	 Low intensity	 3-5 g/kg/d
Moderate High	~1h/day 1-3 h/day	5-7 g/kg/d 6-10 g/kg/d
Very High	> 4h/day	8-12 g/kg/d
ACTIVE FUELLING General Carb Loading	 Events > 90mins	 7-12 g/kg/24h 36-48 h prior 10-12 g/kg/d
Speedy Refuelling Pre-Event Fuelling	< 8h between 2 sessions > 60 mins	1.0-1.2 g/kg x first 4 h 1-4 g/kg x 1-4 h prior
During Brief Exercise During High Intensity	< 45 min 45-75 min	Nothing **Mouth Rinse** + small amt
Endurance Ultra Endurance	1-2.5 h > 2.5-3 h	30-60 g/h **Up to 90 g/h**

Carbohydrate mouth rinse

- Beneficial to enhance workouts/pacing strategies effect
- Hold sports drink 5-10s then spit
- Taste receptor cells throughout the mouth
- Activate several brain regions “Central Governor”
- Elicit arousal, motivation, control of motor behaviour
- 2-3% performance enhancement; greater recruitment of intramuscular motor units; mostly steady-state, time trial events
- Negative effects?

Jeukendrup 2013, Curr Sports Med Reports

Increased Exogenous Carb Intake

- Formerly thought maximal carb oxidation 60g/h
- Events > 2.5-3 h, may tolerate up to >90g/h with "mixed" forms (e.g. glucose + fructose)
- Fructose is transported and absorped via a different mechanism to glucose
- Maltodextrin & dextrose (chains of glucose, often derived from corn)

Jeukendrup 2010

Paper Highlight #3
Protein

- Recommendations no longer broken down for strength- and endurance-based athletes
- 1.2-2.0 g/kg BW
- Protein quality
  - Milk-based ptn highlighted (leucine content)
  - Milk2Go Sport (higher leucine)
  - Special mention of protein supplements
- Focus on multiple protein hits throughout the day
  - Optimal muscle adaptation to training: 0.3 g/kg q 3-5 hr/day

Optimizing Muscle Adaptation

70kg athlete = 21 g protein q 3-5 h

- Eggs, cheese, toast, fruit, juice
- Greek yogurt or cottage cheese, fruit
- Wrap/sandwich, milk, fruit, veggies
- Tuna & crackers or wrap sandwich
- Steak, potato, vegetables, salad, water or milk
- Cereal, milk, almonds

Fat

- No updates
- Continue to follow public health guidelines: 20% to 35% of total energy intake
- High fat, low carb diet?
  - "Claims that extremely high-fat, carbohydrate-restricted diets provide a benefit to the performance of competitive athletes are not supported by current literature."

Only a limited number of ergogenic aids are mentioned in the position paper, which of the following supplements is not highlighted:

A) Glutamine

B) Creatine

C) Beta-alanine

D) Nitrate

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Extras
Supplements/Ergogenic Aids

- NPHN/NPH, DIN not adequate
- These companies do not test for all WADA banned supplements – impossible!
- Commercial, third-party auditing programs = the best we have right now

HPSNZ Disclaimer

This is not a formal review of the Inner Armour supplement, rather it is meant for the purposes of Otago Rugby Football Union members only. While the ORFU nutritionist offers education and advice on nutritional supplements, the decision to use supplements, and the choice of products, rests with you. You should remember that you are personally responsible for checking all supplements you take to ensure they are permitted under your sport's or WADA anti-doping rules/codes. The ORFU nutritionist, employees and/or agents will not be responsible or liable for any loss which may arise from, or in connection with, your decision to use supplements.

Certified Specialist in Sports Dietetics (CSSD)

- Created by the Commission on Dietetic Registration (Academy)
- Created for RDs who specialize in sport with extensive experience → 1500 hrs experience in the past 5 yrs
- "the premier professional sports nutrition credential in the US and is available internationally, including Canada"
- Mention of the IOC diploma course

THE END
THANK YOU!