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Nutrition and Long Term Athlete Development

Kevin Iwasa-Madge

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Purpose

- Explore communication approaches that coaches can use with athletes to promote behaviour change, based on their level of development

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REVIEW ARTICLE

Open Access



A Proposed Conceptual Sport Nutrition Approach for Athlete Development and Assessment: The Athlete Nutrition Development Approach

Kevin Iwasa-Madge^{1*} and Erik Sesbreno^{2,3,4}

Table 2 Overview of common assessment tools for consequences of dietary intake, including markers being observed, measurements taken, and tools used

Type	Markers	Measures	Tools
Physiologist	Sex	Height	Scale
	Stature	Weight	Stadiometer
	Fat mass	Body fat	DEXA
	For lean mass	Body fat	DEXA
Hematologist	Red blood cells	Hemoglobin	Complete blood count
	Red blood cells	Hematocrit	Complete blood count
	Red blood cells	Hemoglobin	Complete blood count
	Red blood cells	Hemoglobin	Complete blood count
Clinical-physical	Malnutrition	Weight loss	Physical exam by expert
	Disordered eating	Weight loss	Physical exam by expert
	Disordered eating	Weight loss	Physical exam by expert
	Disordered eating	Weight loss	Physical exam by expert
Clinical-psychological	Eating disorders	Subjective score	Eating Disorder Examination 17.0
	Disordered eating	Subjective score	Eating Disorder Examination 17.0
	Disordered eating	Subjective score	Eating Disorder Examination 17.0
	Disordered eating	Subjective score	Eating Disorder Examination 17.0
Hydration	Urine concentration	Urine color	Urine color chart
	Urine concentration	Urine color	Urine color chart
	Urine concentration	Urine color	Urine color chart
	Urine concentration	Urine color	Urine color chart

Athlete Nutrition Development Approach

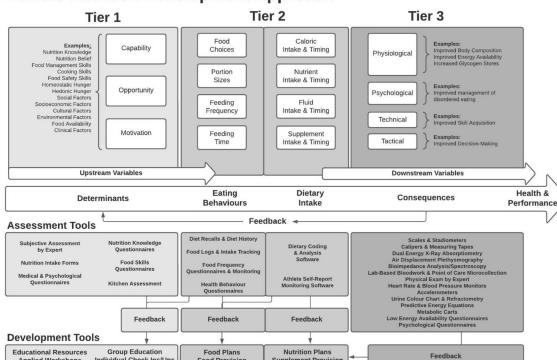
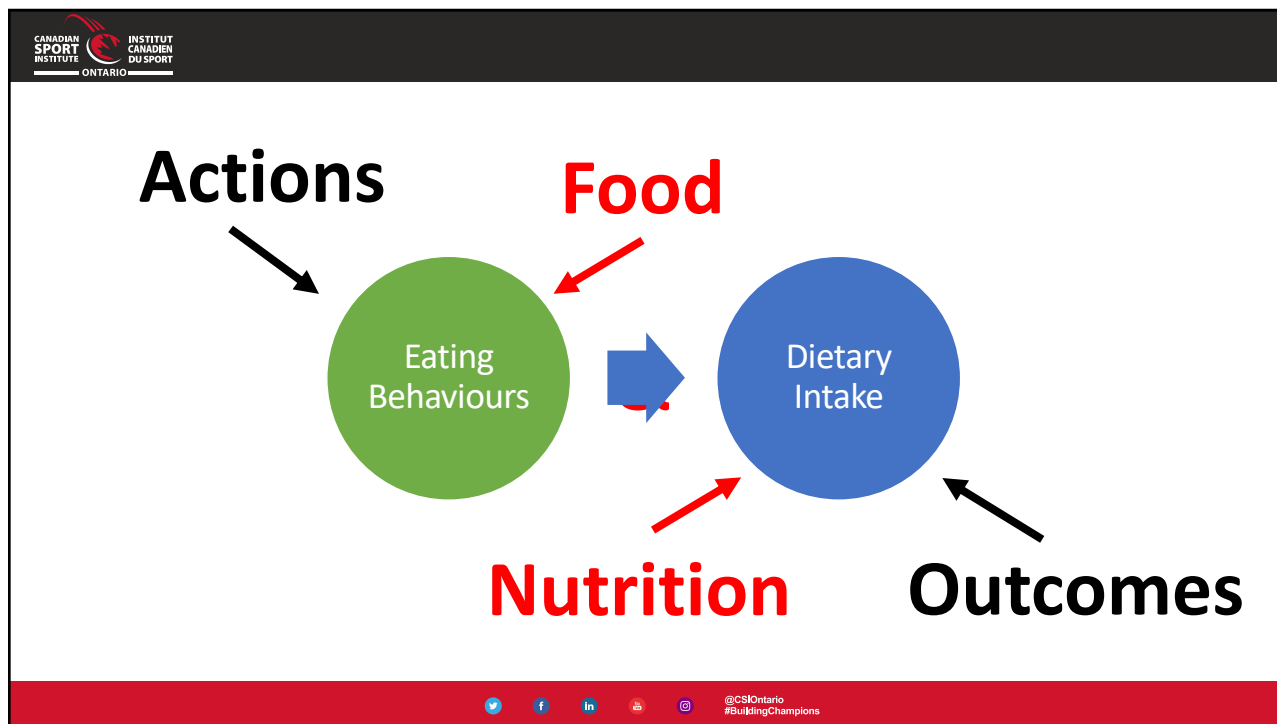


Fig. 1 The Athlete Nutrition Development Approach outlining a three-tiered approach that addresses the upstream determinants of eating behaviours (Tier 1), eating behaviours and dietary intake (Tier 2), and the downstream consequences of dietary intake (Tier 3), with the goal of improving athlete health and performance. Each tier includes an overview of the concepts and suggested tools for assessment and development. Figure created using Lucidchart

Table 3 Overview of common determinants of eating behaviours utilizing the Capability, Opportunity, Motivation-Behaviour system, with descriptions and examples

Category	Determinant	Description	Example
Capability	Nutrition knowledge	Understanding of the components and parts of a nutrient-dense meal	Understanding of nutrient density and energy density
	Ability to apply nutrition information	Ability to apply nutrition information to a meal	Understanding of nutrient density and energy density
Motivation	Nutrient needs	Understanding of nutrient needs and how to meet them	Understanding of nutrient density and energy density
	Ability to overcome barriers	Understanding of barriers to eating behaviours and how to overcome them	Understanding of nutrient density and energy density
Opportunity	Food availability	Availability of food choices	Availability of nutrient-dense foods
	Time availability	Availability of time to eat	Availability of nutrient-dense foods
Social context	Norms	Understanding of social norms and how to conform to them	Understanding of nutrient density and energy density
	Support	Understanding of social support and how to utilize it	Understanding of nutrient density and energy density
Clinical factors	Medical conditions	Understanding of medical conditions and how to manage them	Understanding of nutrient density and energy density
	Medications	Understanding of medications and how to manage them	Understanding of nutrient density and energy density

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Consider

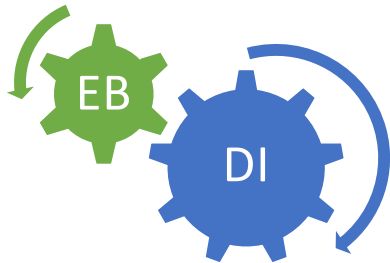
- When should we focus on **Food/Actions**?
- When should we focus on **Nutrition/Outcomes**?

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Understanding the Mechanisms



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Downstream Considerations

Adaptation (Durable)

- Inc strength
- Inc conditioning
- Change in body comp
- Improved nut. status
- Improved bone health

Readiness (Transient)

- Glycogen loaded
- Improve concentration
- Optimal hydration
- CNS stimulation

DI (Dietary Intake)

Physiological/Psychological
Technical/Tactical
Adaptation & Readiness

Health
Performance

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Upstream Considerations

Determinants of Eating Behaviours

- Food Choices
- Portion Sizes
- Feeding Frequency
- Feeding Time

EB (Eating Behaviour)

DI (Dietary Intake)

Capability

- Nutrition Knowledge
- Cooking Skills
- Disordered Eating

Opportunity

- Socioeconomic Factors
- Food Availability
- Allergies/Restrictions
- **Coach Communication**
- Eating Disorder

Motivation

- Nutrition Belief

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We're building levels

Determinants of Eating Behaviours

ANDA

Health performance

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Consider

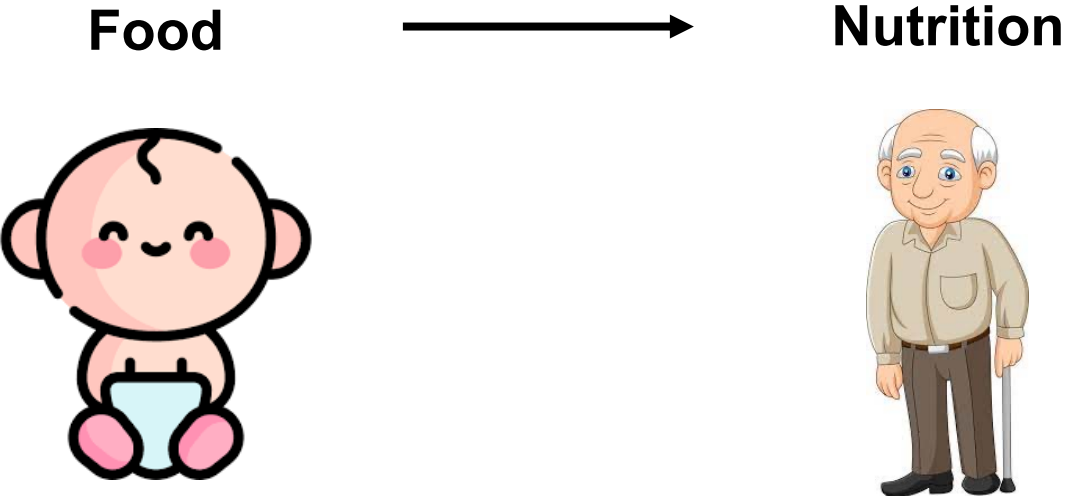
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Food → **Nutrition**




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Food → **Nutrition**



Stage	Age Group
FUNDamentals	Males 6-9 Females 6-8
Learn to Train	Males 9-12 Females 8-12
Train to Train	Males 12-16 Females 11-15
Train to Compete	Males 16-23+/- Females 15-21+/-
Train to Win	Males 19+/- Females 18+/-






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How do you focus on Food/Actions

- Address determinants
 - Increase capability, opportunity, and motivation
- Use food terminology
 - Fruit and veggies
 - Meat
 - Grains
 - Dairy
 - Etc.
- Be general and flexible with recommendations











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Don't...

- Be too specific – let them explore food and figure it out themselves
- Talk about nutrients without connecting back to eating behaviours
- Talk about downstream impact of dietary intake before they have the knowledge
 - I.e. **DO NOT** focus on weight or body composition with young athletes







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How do you communicate about Nutrition?

- Ensure they have appropriate COM-B first
- Use nutrient terminology
 - Calories
 - Protein
 - Carbohydrate
 - Antioxidants
 - Etc.
- Be specific on dosage and timing




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Don't...

- Use this style of communication with younger athletes
- Assume they have appropriate COM-B
- Try to sustain specific nutrition plans for extended periods of time



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Take Away

- Eating behaviours are actions
- Dietary intake is an outcome
- Coaches should tailor your language to the developmental level of your athlete
- Be mindful about whether you are using “food language” or “nutrition language”

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Questions?

Kevin Iwasa-Madge
Sport Nutritionist and Strength & Conditioning Coach
Canadian Sport Institute Ontario

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