EUROPEAN ATHLETICS

COACHING SUMMIT SERIES

Performance Nutrition

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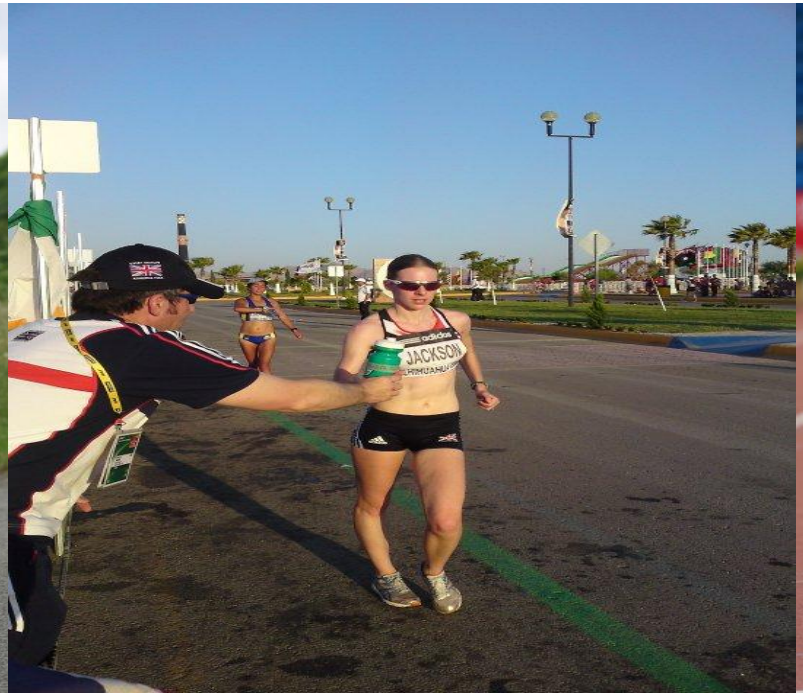
Performance Nutrition for Race Walking…

Session aims:

- Review consensus on nutrition and athletic performance
- Share experiences in delivering a nutrition education programme to race walkers



Impact of Poor Nutrition…

Coaches and athletes now recognise that an unbalanced and inadequate nutritional intake can lead to:

- lethargy
- irritability
- poor training
- poor competition performance
- increased risk of injury and illness
- gains or losses in LBM

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From a Nutritional Perspective Key Issues…

- There should be ***no conflict*** between eating for health and eating for performance.
- Nutrition has its biggest impact in allowing the athlete to ***train consistently*** and ***effectively*** to produce the desired adaptations in response to training.
- **RECOVERY: REFUELLING, REHYDRATION, REPAIR**

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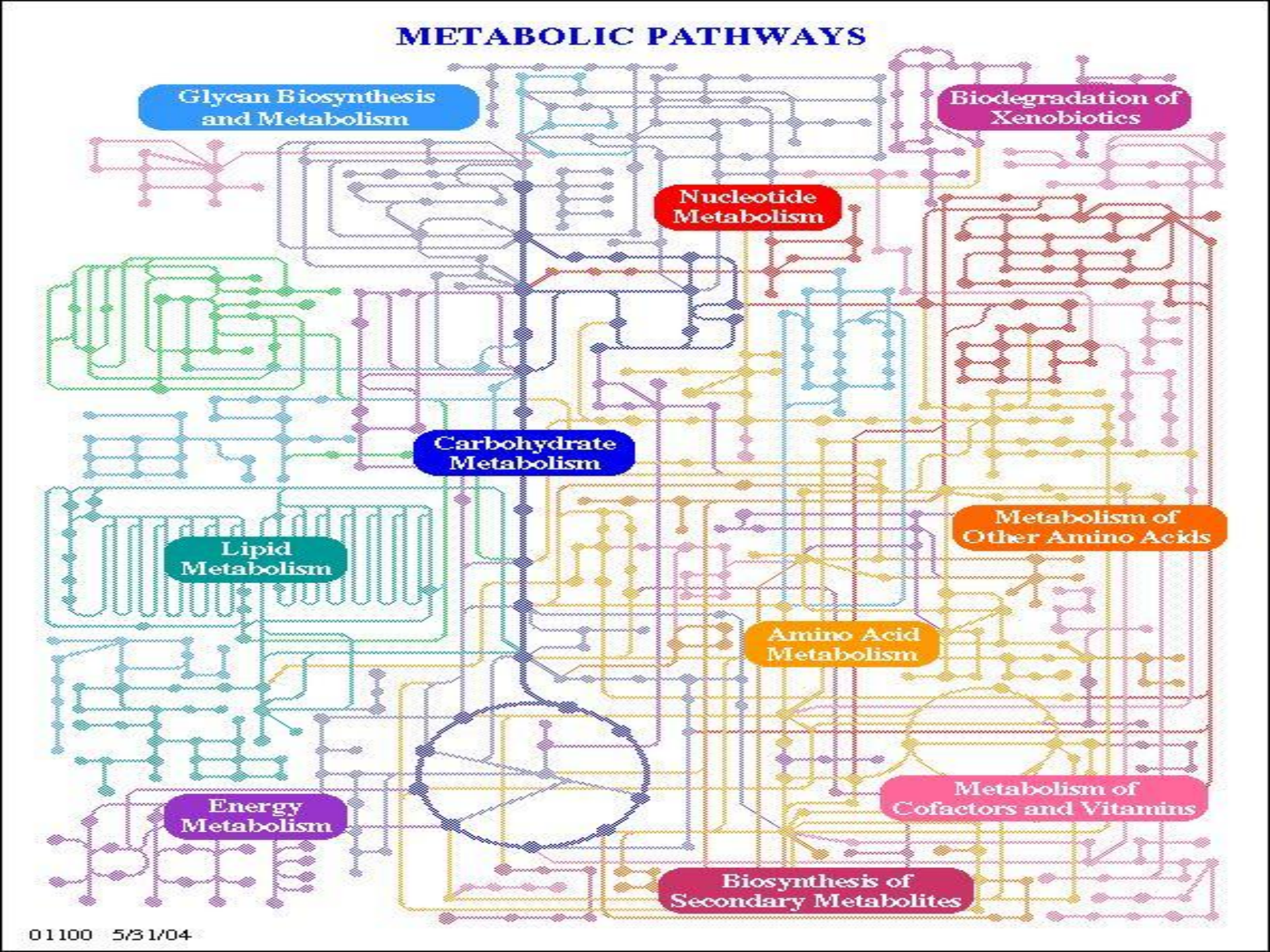
METABOLIC PATHWAYS
Glycan Biosynthesis and Metabolism
Biodegradation of Xenobiotics
Nucleotide Metabolism
Carbohydrate Metabolism
Metabolism of Other Amino Acids
Lipid Metabolism
Amino Acid Metabolism
Metabolism of Cofactors and Vitamins
Energy Metabolism
Biosynthesis of Secondary Metabolites
01100 5/31/04

The eatwell plate

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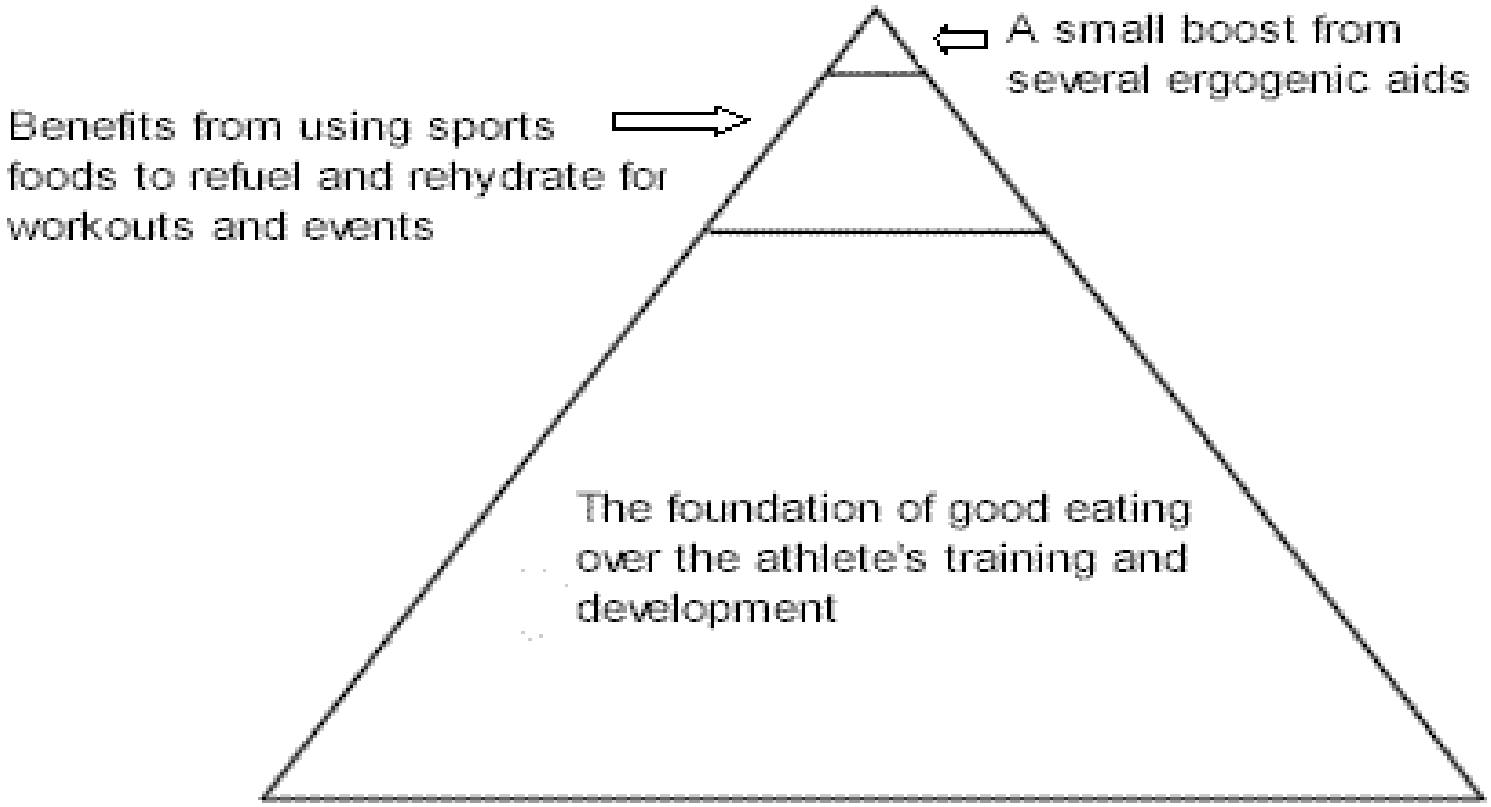
food.gov.uk

Use the eatwell plate to help you get the balance right. It shows how much of what you eat should come from each food group.

Ref: Australian Institute of Sport website (2003)



The value of sports nutrition strategies

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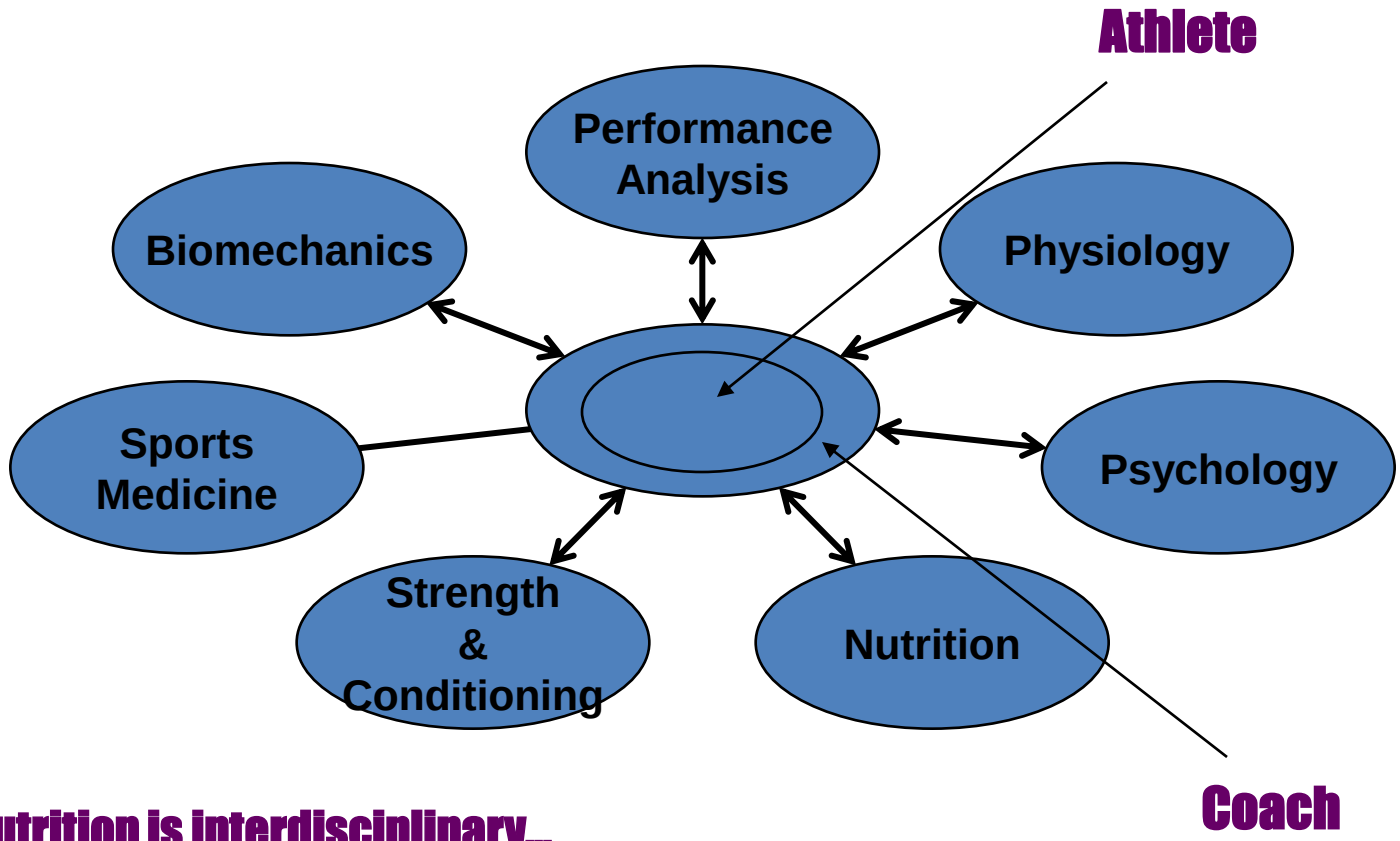
The Appliance of Science...



Sports nutrition is interdisciplinary...

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IOC Consensus Statement 2003...

- ***Amount***, ***composition*** and ***timing*** of food intake...
- Good nutritional practices help athletes ***train harder***, ***recover quickly*** and ***adapt effectively***...
- Adopt ***specific nutritional strategies***...
- Diet that provides adequate energy from consumption of a wide variety of ***commonly available foods*** can meet requirements....
- Timing of ***CHO*** and ***PRO*** may affect training adaptation...
- Athletes should be ***cautioned against indiscriminate use of dietary supplements.***..

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IAAF Consensus Statement 2007…

- General recommendations can be made but should be implemented on an individual basis according to ***stage of maturation, sex, periodisation phase, training programme and competitive goals.***
- **Appetite and thirst** are not always good indicators of energy and fluid needs and as such athletes will benefit from ***personalised eating and drinking plans***.
- ***Low energy availability*** should be avoided.
- **Specialised foods** can help athletes achieve nutrition goals, but supplements do not compensate for poor food choices and athletes are cautioned against use of these products without conducting a ***risk-benefit analysis***.

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ACSM Position Statement…
Nutrition and Athletic Performance 2009

It is the position of the American Dietetic Association, Dietitians of Canada and the ACSM that physical activity, ***athletic performance***, and ***recovery*** from exercise are enhanced by ***optimal nutrition***.

These organisations recommend the appropriate selection of food and fluids, timing of intake and supplement choices for *optimal health and exercise performance.*

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Nutritional Dilemmas for Athletes…

- Timing of eating
- Quantity and quality of food and fluid to consume
- Training times around meal times
- Nutritional knowledge and skills
- Cooking skills and facilities
- Appetite suppression
- Post training fatigue
- Supplement choice
- Limited finances

To maximise performance athletes will strive to achieve an optimum sport-specific body size, body composition and mix of fuel stores.

Loucks, A.B. (2004) , J. Sp. Sci. 22; 1-14

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ENERGY BALANCE

Inadequate EI relative to EE compromises performance and negates the benefits of training

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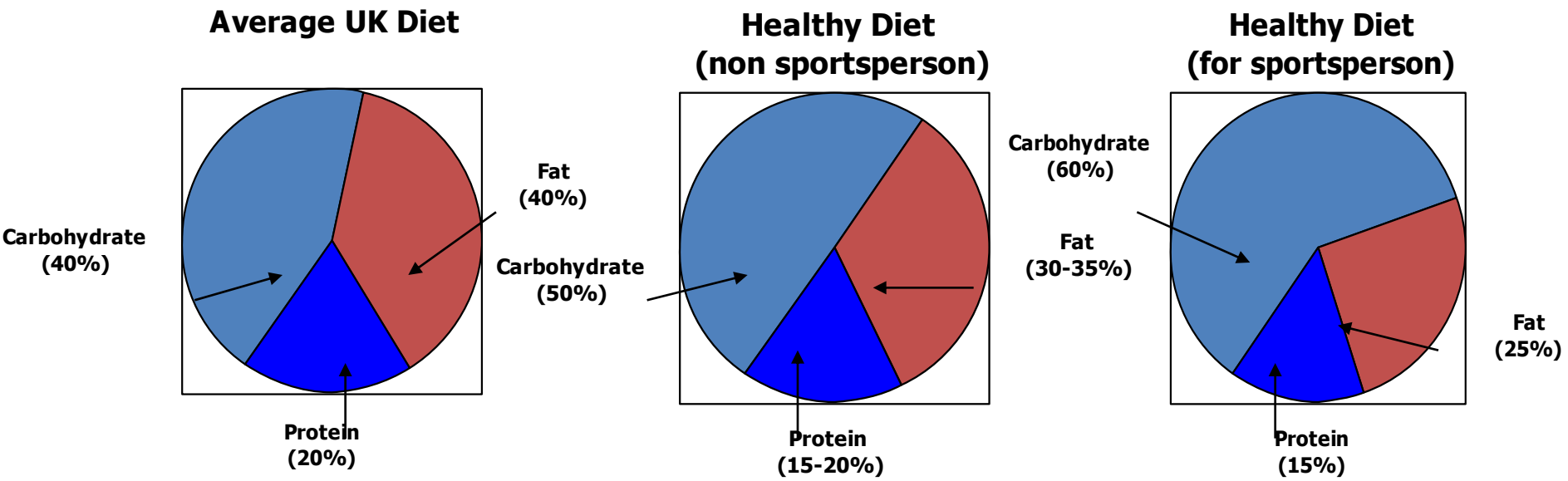
Macronutrient Energy Distribution...



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ACSM Position Statement…
Nutrition and Athletic Performance 2009

During times of high intensity training adequate energy needs to be consumed to maintain body weight, ***maximize training effect and maintain health.***

Body weight and composition can affect ***exercise performance*** but should not be the sole criterion for sports participation.

CHO are important to ***maintenance of blood glucose*** levels during exercise and to replace muscle glycogen a recommendation of ***6-10 g·kg^{-1}.***

ACSM Position Statement…
Nutrition and Athletic Performance 2009

Energy intake sufficient to maintain body weight is necessary for ***optimal protein use***.

Consuming < 20% of energy from fat ***does not benefit performance.***

Athletes should strive to achieve ***DRI values*** for micronutrients – energy deficient at greatest risk.

Adequate fluid intake before, during and after exercise is important for ***health and optimal performance***.

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ACSM Position Statement…
Nutrition and Athletic Performance 2009

During exercise the primary nutrient intake goals are to minimise fluid loss and provide CHO….exercising in ***extreme environments.***

After exercise dietary goals are to provide adequate ***fluids, electrolytes, energy and CHO*** to replace muscle glycogen and ensure rapid recovery.

Athletes should be counselled regarding the appropriate use of ergogenic aids….requires careful evaluation of ***safety, efficacy, potency and legality***.

Role of the Performance Nutritionist…

- Education
- Assessment
- Dietary prescription
- Nutritional strategies for performance enhancement
- Nutritional advice for specific groups of athletes / special circumstances

Key Points in Dietary Assessment...

- Measuring food intake in free-living subjects is a complex task.
- All measurements of food intake are subject to potential sources of error.
- It is necessary in the assessment process to quantify the magnitude of error.
- Biochemical and physiological markers of food intake may assist in reducing/understanding error.
- To evaluate food intake data effectively it is necessary to collect relevant and detailed background data.

The eatwell plate

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Use the eatwell plate to help you get the balance right. It shows how much of what you eat should come from each food group.

General Nutrition Guidelines...

Eat a minimum of 5 portions of fruit and vegetables per day

Ideally more

Eat 2-3 portions of dairy based food per day

Or more in active, growing athletes

Eat at least 2 portions of fish per week – one oily type

At least...

Eat 2 portions of lean red meat per week

Consider environmental conditions

Aim to eat less salt – less than 6 grams per day

Eat less from the Added Fats, Sugar and Salt Food Group

Athletes can and may need to have sugary foods/drinks around training

Focus on having more carbohydrate-rich food from the Breads, Cereals, Potatoes and Grains Food Group

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Key Factors…

The most important ***nutritional*** goals of ***athletes*** are to maintain adequate ***energy and fluid balance*** - both can be subject to relatively rapid changes and are directly related to ***performance and health.***

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Key Factors…

- Excessive sweat losses may pose a risk to health by inducing ***severe dehydration, impaired blood circulation and heat transfer***, with the potential to lead to ***heat exhaustion and collapse***.

- Inadequate CHO and protein intake leads to a ***negative nitrogen balance***, which over the long term will lead to a loss of muscle mass.

Nutritional Strategies…

- In preparation for
- Participation in
- Recovery from

Training & Competition

- Key nutrients to consider in all cases are **CHO** & **H_2O**

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Dietary Recommendations…

- Athletes merit specific CHO intake goals to meet the fuel needs of training, competition & recovery….

- up to 70%
- absolute values
- express relative to body mass

Performance Nutrition for Race Walking...

Performance Nutrition for Race Walking…

Nutritional Intake Profile - Race Walker 1

	Intake 1 (3rd – 9th March 2010)			Intake 2 (29th June – 5th July 2010 - Altitude)			Intake 3 (29th Sep – 5th Oct 2010 - Doha)		
	%	Grams	Range	%	Grams	Range	%	Grams	Range
Total Energy	3453 Kcal		2794–4431 Kcal	2825 Kcal		2122-3024 Kcal	2787 Kcal		1353-3511
CHO	53	484 8.7g/kg	375–645g	54	411 7.5g/kg	295-445g	56	413 7.5g/kg	232-497
FAT	32	124	93–153g	32	100	79-116g	30	92	28-154
PRO	14	121 2.2g/kg	93–160g	13	95 1.7g/kg	59-108g	14	100 1.8g/kg	58-132
Fluid	2443L		1840-3474L	2991L		2958-4096L	6841L		3211-9615L

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Performance Nutrition for Race Walking…

Nutritional Intake Profile - Race Walker 2

	Intake 1 3rd – 9th March 2010			Intake 2 29th June– 5th Jul 2010 - Altitude			Intake 3 29th Sep – 5th Oct 2010 - Doha		
	%	Grams	Range	%	Grams	Range	%	Grams	Range
Total Energy	3622 kcal		2057-4326 Kcal	2663 kcal		2034-3551 Kcal	4254 kcal		3405-5418 Kcal
CHO	53	508 9.6g/kg	299-627g	52	370 6.7g/kg	293-500g	53	605 11.2g/kg	442-804g
FAT	31	125	76-163g	35	102	66-132g	33	156	123-225g
PRO	13	114 2.2g/kg	60-164g	13	88 1.6g/kg	71-120g	14	144 2.7g/kg	112-178g
Fluid	3064L		1550-4288L	3370L		2550-3483L	8129L		3308-11217L

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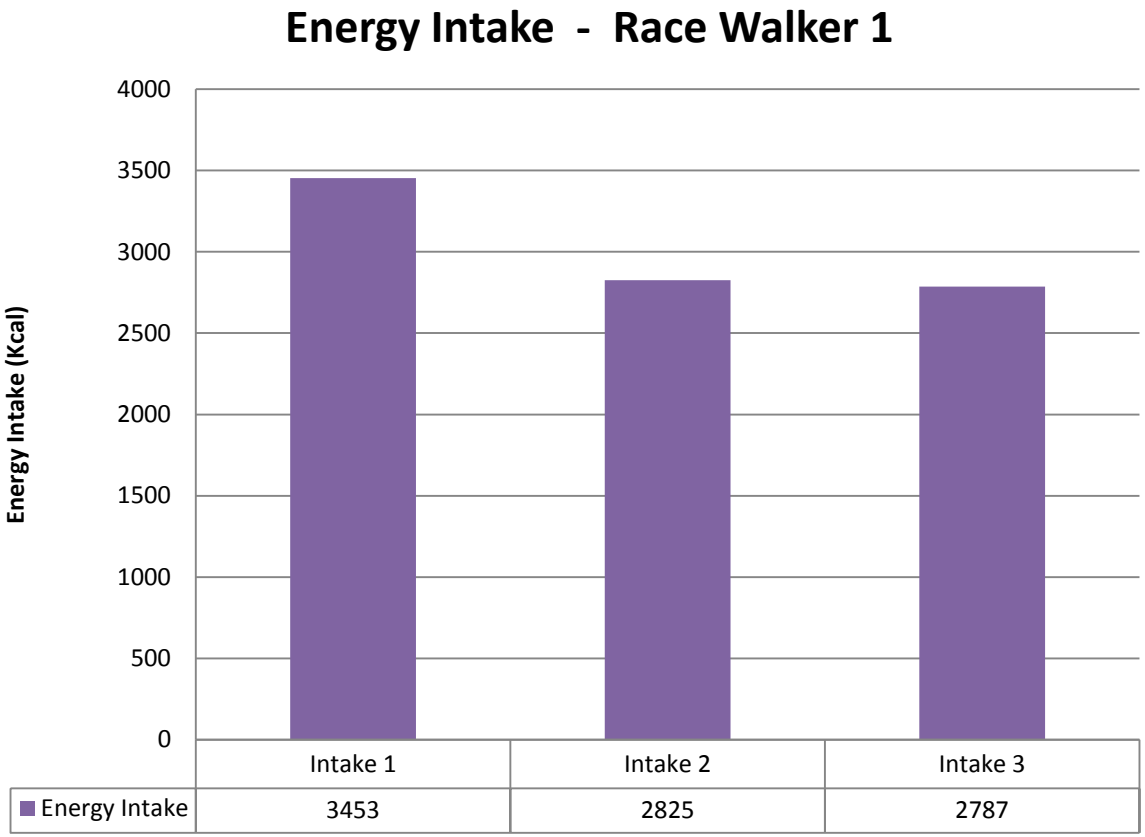
Performance Nutrition for Race Walking…



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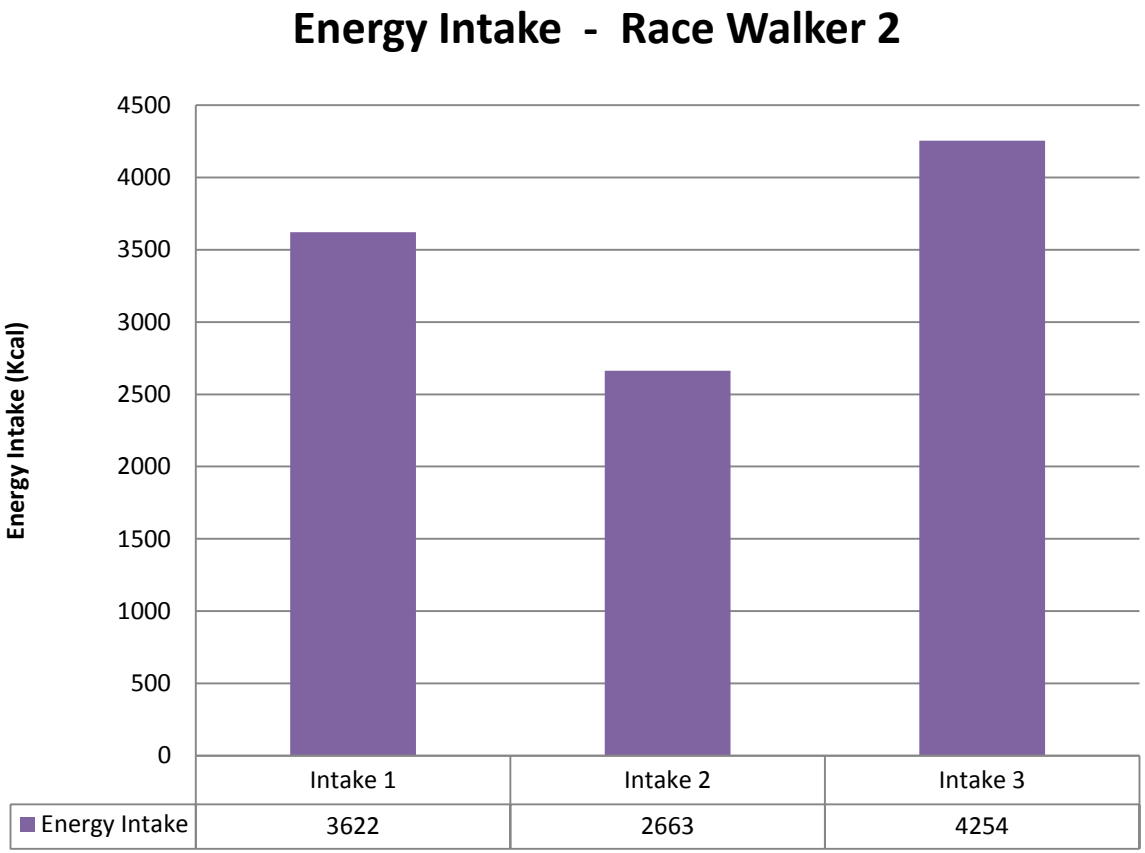
Performance Nutrition for Race Walking…



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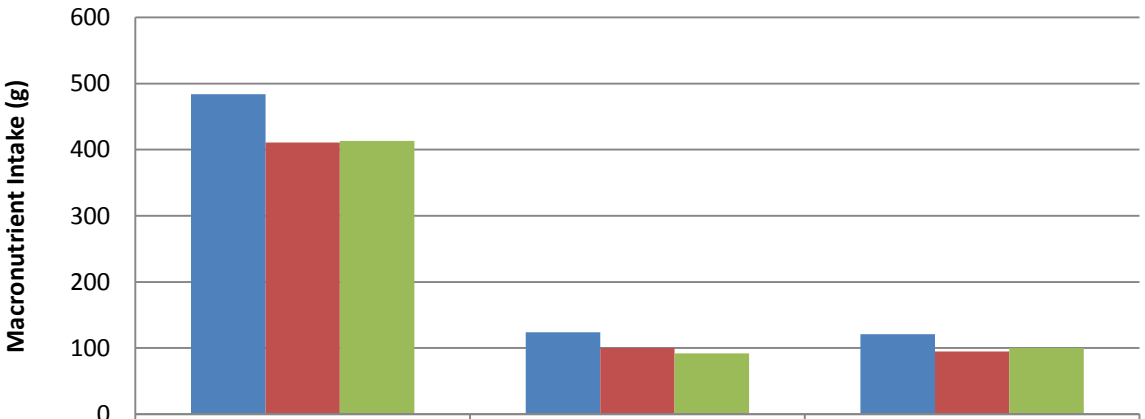
Performance Nutrition for Race Walking…

Macronutrient Intake - Race Walker 1



	CHO	FAT	PRO
Intake 1	484	124	121
Intake 2	411	100	95
Intake 3	413	92	100

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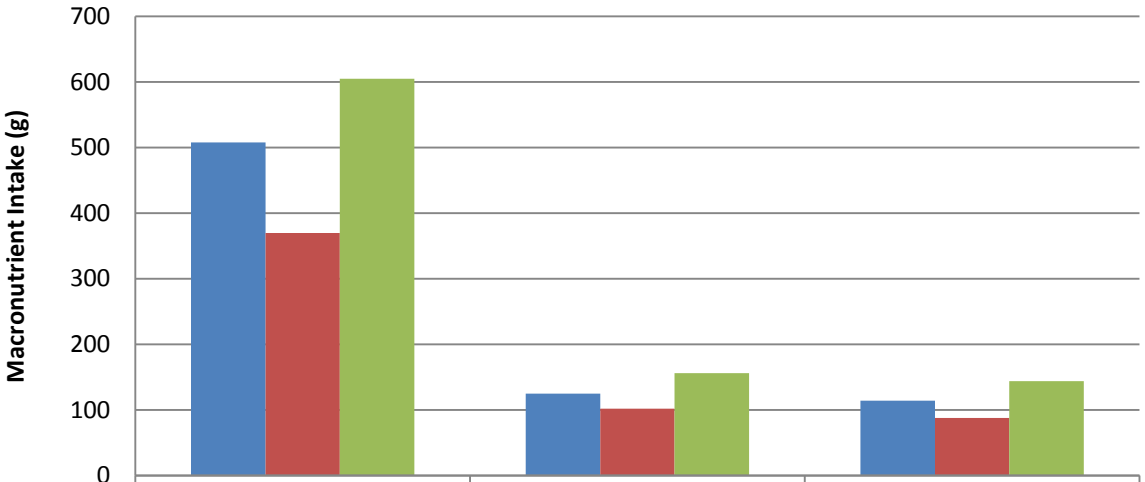
Performance Nutrition for Race Walking...

Macronutrient Intake - Race Walker 2



	CHO	FAT	PRO
Intake 1	508	125	114
Intake 2	370	102	88
Intake 3	605	156	144

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Performance Nutrition for Race Walking…

Lessons learnt…

Nutritional Strategies/Recommendations…

Should:

- ✓ Be based on scientific evidence
- ✓ Consider the physiology of the sport
- ✓ Be realistic and achievable
- ✓ Take account of the rules and regulations

Position Statement of UK Sport, July 2008

Diet, lifestyle and training should all be optimised before considering supplements and athletes should assess the need for supplements.

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Performance Nutrition for Race Walking…

At the practice end it is often not 'rocket science' but 'common sense' that prevails…but requires focussed application and effort on the part of the athlete.

Sports nutrition is both an art and a science…

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Performance Nutrition for Race Walking

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