

Nutrition For performance

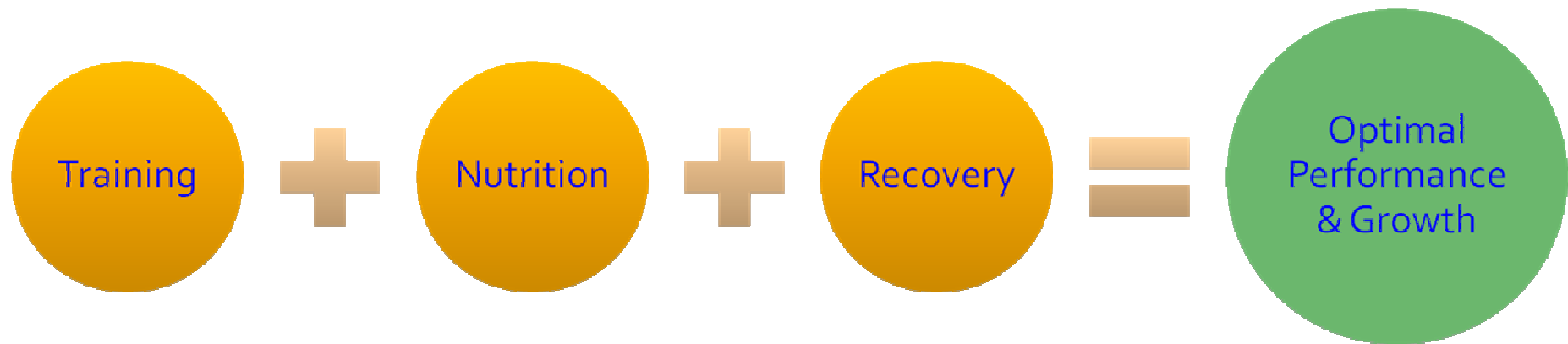
Haberdashians 2011

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Nutrition For Performance

"Nutrition is the difference between a good athlete being great, and a great athlete being average"

You Can't Out Train Bad Nutrition!

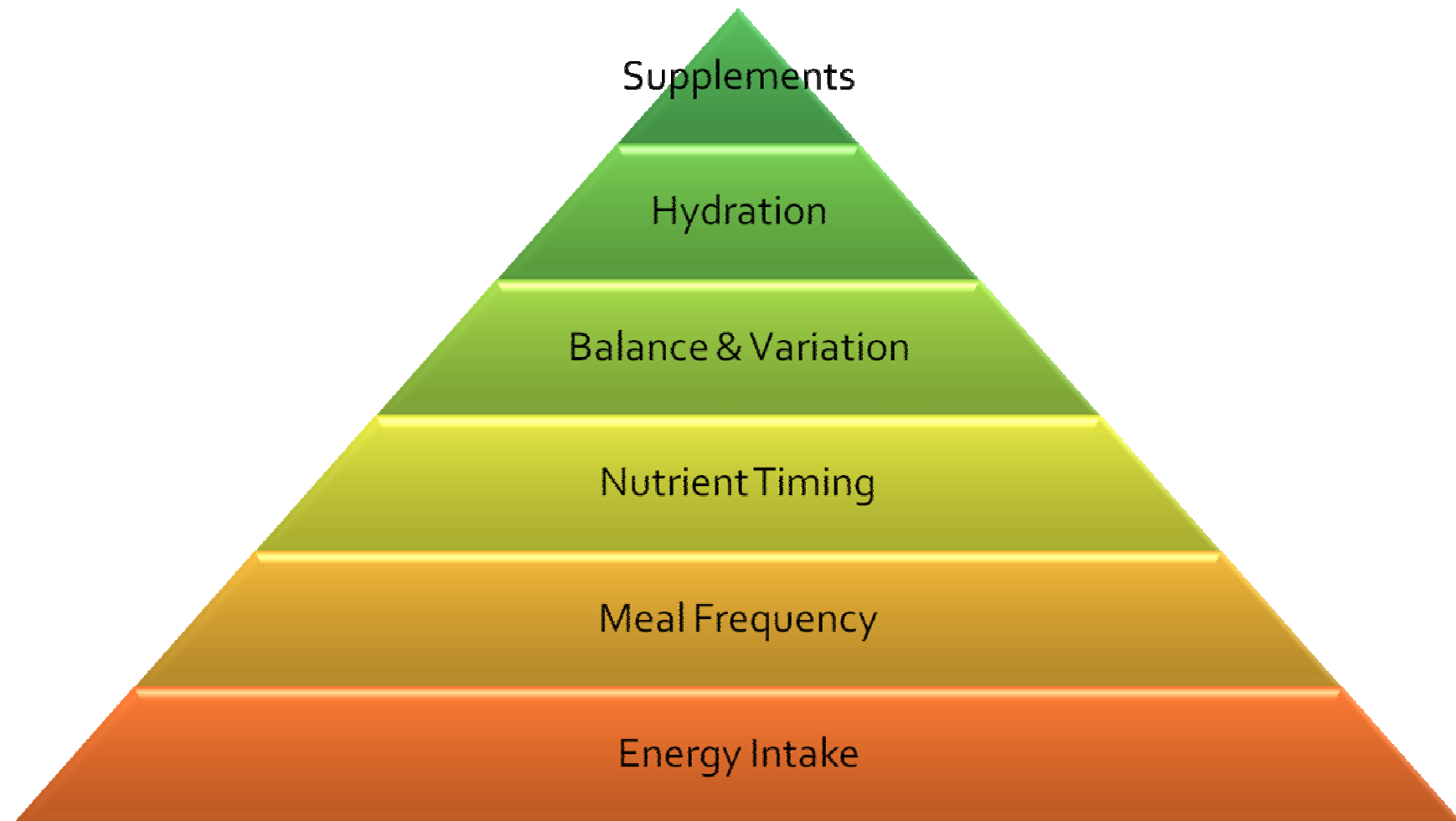


Why is Nutrition so Important?

Nutrition *SIGNIFICANTLY*

1. Increases Performance
2. Increases Training Response - Strength, Power, Endurance & Lean body mass (LBM)
3. Decreases recovery time
4. Improves Mental focus in practice & competition.
5. Lowers injury risk

The Foundations of Nutrition



ENERGY INTAKE: *Your requirements to maintain, lose, or gain.*

Estimate your Energy Requirement

Resting Metabolic Rate (RMR)

- Calculate the amount of calories you burn while at rest.
- Lorenzo Equation: $RMR = -857 + 9(\text{kg}) + 11.7(\text{height cm})$

RMR x Current Activity Level

- 1.3 - 1.5 = Sedentary or those doing light activity
- 1.6 - 2.0 = Daily Training Athletes
- - 2.0 - 3.0 = Two training sessions per day

LOSE or GAIN?

- **To Lose weight** = Energy intake ↓ 20% + Activity Level ↑ 20% (i.e 40% max total deficit)
- **To Gain weight** = Energy Intake ↑ 350-700 kcal per day = 1 -2 lb. of lean body mass gained per week.

Online Calculator: <http://www.exrx.net/Calculators/CalRequire.html>

Losing Body Fat

- Studies have shown that restriction of calories by more than 40 % is counter productive:
 - Metabolic rate drops (*in a 3 week study of caloric restriction of 40% via diet, RMR dropped from 1,898 to 1,670*).
 - Testosterone levels decrease
 - Immune system is suppressed
 - Fatigue is Increased.
 - Best deficit is 20% ↓ diet & 20% ↑ exercise
- Minimal protein intake required = 1.8g p/kg of body weight to prevent muscle breakdown
- *The longer and more severe the caloric restriction = ↑ detrimental effect on hormones & performance.*

Energy Intake Quick Facts

LOSE BODY FAT

- *Carbs: No High GI Carbs except for pre/post training*
- *Eat a diet high in fiber and protein for satiety*
- *Whole foods, salads with every meal*
- *Avoid juices, sugars and high Kcal density food*

GAIN LEAN MASS

- *2.0g of protein kg/bw*
- *Nutrient Timing (slide 14)*
- *Important to Stay Hydrated*
- *Eat larger meals 6 x per day*
for 350-700 Kcal daily

surplus

1lb of muscle is approx. 70% water, 22% protein, 8% fatty acids & glycogen and = 2500 kcal

MEAL FREQUENCY

Meal Frequency



NUTRIENT TIMING

Make the most of your Anabolic Potential

- Nutrient Timing is more powerful than the supplement itself.
- Extensive research has determined that there are 3 windows of opportunity to maximize gains:

1. Pre workout 0 -30mins

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graph TD; A[1. Pre workout 0 -30mins] --> B[2. During workout]; B --> C[3. Post workout 0-30 mins];
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2. During workout

3. Post workout 0-30 mins

Pre workout 0-30 min

Studies have shown...

- 6-8% CHO drink + 5g of BCAA/EAA net the best gains:
 - Achieve a positive muscle protein balance & maximise hormonal response

HOMEADE

Mix 1 tsp
Glucose per
100ml of
H₂O + 1 tsp
BCAA +
pinch sea
salt

POWERADE

Mix in 1 tsp
of BCAA or
10g whey
protein also
works

COCONUT WATER

Mix in 1 tsp
of BCAA
Ensure
coconut
H₂O has no
added
sugars.

During Workout (> 60 min)

A very Important Window for...

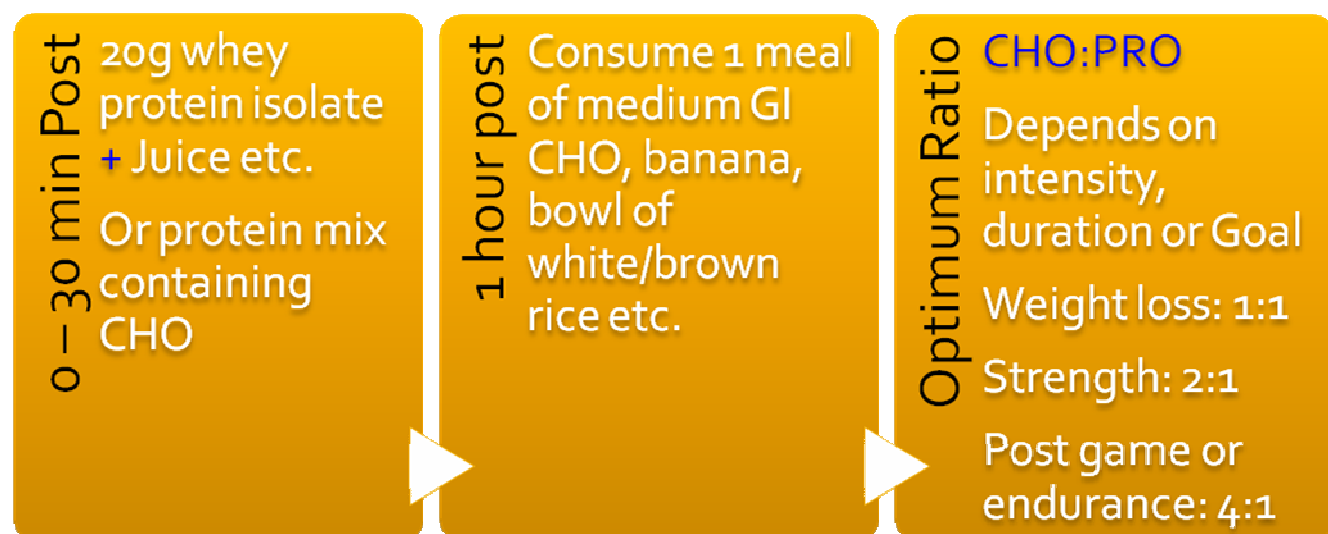
- Continued elevation of anabolic hormones, performance, support muscle glycogen stores.
- Electrolytes for proper hydration and significantly extend time to exhaustion.
- Studies show, the *best* mix is...
 - 6-8% CHO drink + 5g of BCAA or EAA (essential amino acids)

Post Workout 0-30mins

20g whey protein + Hi GI carb drink

PROTEIN & CARBS

- 20g of protein powder is the maximum the body can absorb
- Hi GI Carbs pre & post exercise maximise the effect of anabolic hormones
- Delayed ingestion of carbs post workout reduces muscle glycogen storage by 47%
- Carbs eaten outside 2hours post ex. are more likely to be stored as fat than glycogen in muscle



BALANCE & VARIATION

Every meal think..

1

- **Fight Inflammation and Support your Immune System:** eat plenty of fresh vegetables and fruit of various colors to get the best variety of antioxidants, minerals and vitamins. Choose from all color variations for best effect.

2

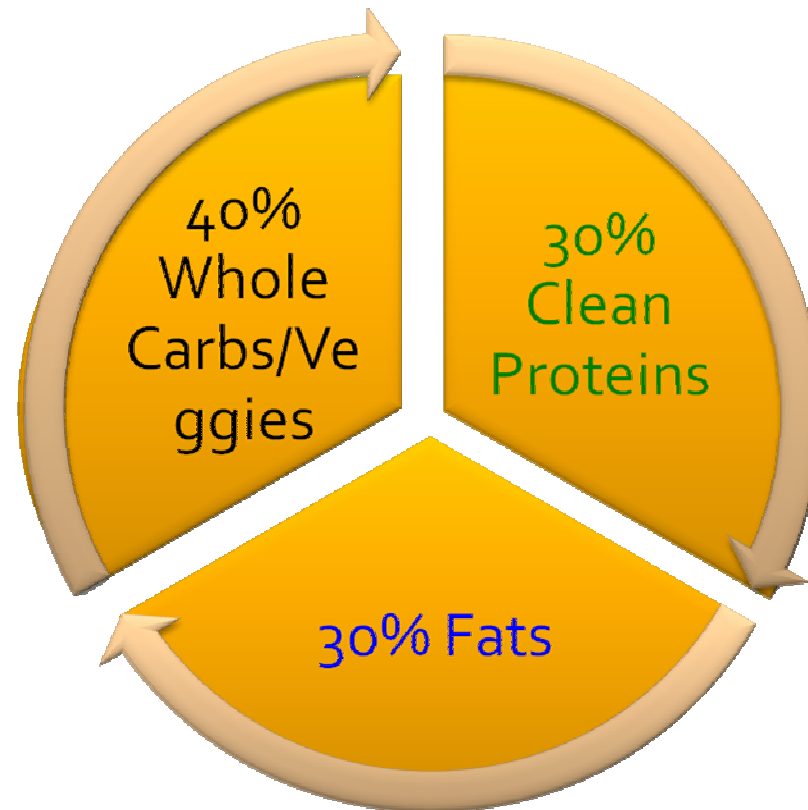
- **Fuel Muscle Energy Stores:** carbs are the main fuel for high-intensity sports, **alter carb intake on active and inactive days**, incorporating more servings of these foods on heavy training days than non-training days. Choose primarily whole unprocessed sources.

3

- **Muscle Growth and Repair:** Lean proteins provide the amino acids needed for repair and recovery. Diversify protein sources, eat oily fish such as salmon high in omega 3- 3 x per week. Incorporate protein with all meals and snacks, but in proportion to everything else

Balanced Diet

Brown Rice,
Whole grains,
Sweet potato,
Green salads,
Quinoa, Millet
Brown
pasta/bread,
beans



Chicken, Fish,
Beef, Shrimp,
Tuna, egg,
cottage
cheese

Salmon,
Avocado,
Olive Oil,
nuts, coconut
oil,

HYDRATION

Hydration & Performance

- A 2% + loss in total BW due to dehydration effects performance
- In studies of elite runners, 2.1 % dehydration ↓ performance by 3.7% = 6 seconds at world class pace for the 1500m

Hydration can make or break your performance

Hydration

Maintains core temperature

Electrolyte balance

Muscle growth & repair

Cognitive ability & mental focus

Dehydration

Increased risk of muscle/tendon injury

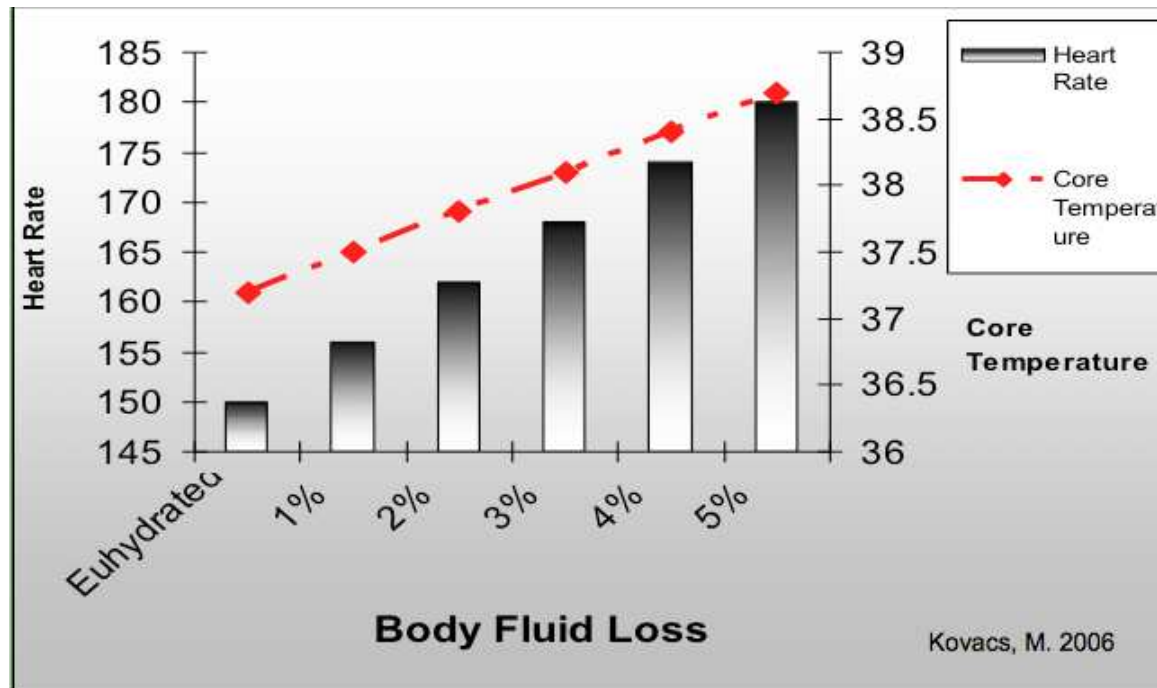
increased rate of illness

Fatigue

poor performance

Dehydration, HR and body Temperature

- For every 1% of fluid loss HR increases by 5-8bpm, core temp increases by 0.1-.4C
- This is significant for high Intensity events



Optimum Hydration

- 500ml 30 mins pre exercise, small 125-250 ml sips every 15 mins for optimum hydration and uptake
- Drink Fluid containing electrolytes, iso/hypertonic sports drinks
- General rule drink **1.5L of fluid per kg of BW lost** post exercise
- Thirst mechanism is delayed by up to 50%. By the time you are thirsty you are already dehydrated.

RECOVERY

Promote Recovery

- Growth and performance gains rely on rest and nutrition
- Aim for 7 hours sleep to promote vital hormones GH etc.
- Manage Stressors: Work, poor food choice and exercise all place stress on the body & ↑ Cortisol levels causing inflammation. This can be attenuated w/ proper nutrition & recovery

SUPPLEMENTS

Do your Research

Key Proven Supplements:

- Creatine 5-10g p. day
- Beta alanine 5-6g p. day
- Whey Protein 20g, BCAA/
EAA 5-6g
- L-Glutamine 15g
- Fish oil pills 2-3 pills p. day
- Green food – spirulina/
chlorella 1/3 tsp p. day
- Multivitamin
- Probiotic – 1-2 pills p. day
for gut/ thyroid function
- Caffeine -450mg pre game
- Baking Soda – 136mg per
pound of BW 90 min prior
game

EXTRAS

Muscle Cramp

Causes differ between individuals

- Lack of conditioning
- Muscle strength imbalance e.g. shin/calf
- Extreme hot or cold
- Dehydration/ low blood electrolyte
- Low blood sugar
- Incorrect supplementation

Pre Game Nutrition

- *Day before:* No exercise or v. light exercise. Extra serving of Low GI carbs w/ evening meal to ↑ glycogen storage in liver & muscles
- *Game day Meal :* Low protein & fat, High Carb.
- *Example; Breakfast:* Porridge + 2 x brown toast, jam, 1 tsp almond butter+ Fruit, whey shake (easier digestion vs. whole protein ↑ room for carbs)
- *Pre game 1 hour:* Creamed rice, banana, muesli bar, sip on 500ml of water
- *During game:* Sports drinks 125-250ml sips when possible
- *Half time:* Sports drink +energy gels if stomach allows
- *Post game:* Recovery drink immediately + serving of carbs such as white rice, bagel, bun, orange juice within 1 hr
- *Preference of a Hi GI/Low GI Carb pre game* is highly individual. Experiment w/ both options, Gauge energy levels & performance.

Nutrition for Sports Injuries

Assist healing process

- Need for Essential fats increases post injury
- Studies show a diet rich in Omega 3 and monounsaturated fats ↓ inflammation & supports collagen production aiding the healing process.
- NSAID's: Ibuprofen etc., New research suggest that Anti-inflams. Hinder recovery of muscle/tendon damage. Use w/ caution & only when necessary
- Diets rich in trans fats, omega 6's, vegetable oils and saturated fat ↑ inflammation & reduce production of collagen

Balance Dietary Fats

Assist healing process

- **Step 1: Increasing omega 3:6 ratio**
- ↑ intake of olive oil, mixed nuts, avocados, flax oil, ground flax and other seeds getting some of each fat source each day.
- +3-9g of fish oil daily while reducing omega 6 fats like vegetable oils such as corn oil, sunflower oil, safflower oil, processed fats etc.
- L-Glutamine – 15g daily
- **Step 2: ↑ Antioxidants**
- Studies show some foods make measureable improvements on inflammation and injury recovery, **Curry powder/turmeric, Garlic, Pineapple, Cocoa, Tea, Blueberries & vitamin c .**
- Maintain pre injury Kcal intake as metabolic rate is during ↑ repair.

Questions?

Email contact@conradohagan.com

Conrad O'Hagan CSCS

- Strength & Conditioning
- Nutrition
- Injury Prevention
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