

Creating a Triathlon Nutrition and Hydration Plan

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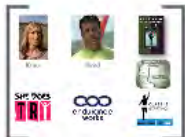




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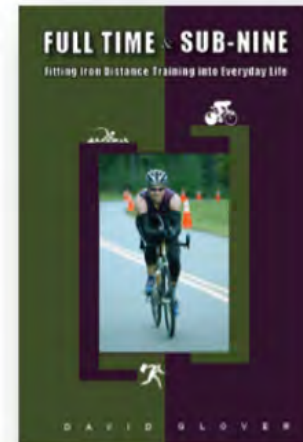




Krista



David



Why do we care about nutrition & hydration?!?!



Because we want to:

- Provide fuel to muscles
- Resist fatigue
- Prevent overheating
- Maintain water and sodium levels
- Feel good

Why create a plan?

"The successful person has the habit of doing the things failures don't like to do."

—Thomas Edison



Agenda:

- What's going on?
- Developing your plan
- Training
- Race Day

Example: In-race nutrition and hydration plan

When?	What?
Before:	<ul style="list-style-type: none">• Switching to dry diet 10-14 days before race
After:	<ul style="list-style-type: none">• Drink and stretch within 30-45 min (15-20 min) before and after driving
During:	<ul style="list-style-type: none">• Consume 200 calories (gel, sports drink) every 20 minutes• Drink 16 oz water with electrolytes depending on conditions• Consume 1000 calories (12 gels)
After:	<ul style="list-style-type: none">• Replenish fluids—sports drink, water• Eat on for gel or other easily digestible food if craving and stomach allows• Replenish with some electrolytes if needed• Target: 3000 calories (80 gels)

Disclaimer (the fine print)

Hydration and nutrition needs are **highly individual** to what conditions you achieve may not work for another.

This plan is created to practice your nutrition strategy to learn what works best for you.

If you have nutritional challenges that you cannot resolve, seek out a qualified nutrition expert who has worked with endurance athletes.

Example: In-race nutrition and hydration plan

When?	What?
Swim:	<ul style="list-style-type: none">• Nothing – try not to swallow water
Bike:	<ul style="list-style-type: none">• Wait until stomach settles (typically 15-20 min) before eating or drinking• Consume 100 calories (gel, sports drink) every 20 minutes• Drink extra water with electrolytes depending on conditions• Target: 300 cal/hour (75 g/hr)
Run:	<ul style="list-style-type: none">• Mostly liquids – sports drink, water• Option for gel or other easily digestible food if craving and stomach allows• Supplement with extra electrolytes if needed• Target: 240 cal/hour (60 g/hr)

Disclaimer (the fine print)

Nutrition and hydration needs are **highly individual** so what works for one athlete may not work for another.

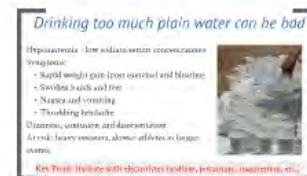
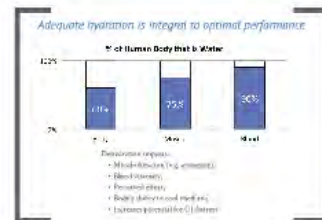
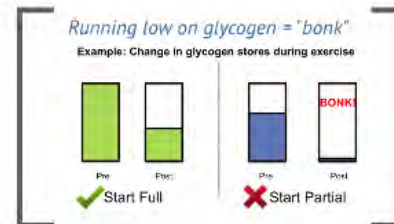
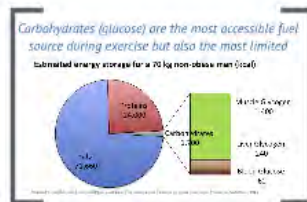
Therefore, it is critical to **practice your nutrition strategy** to learn what works best for you.

If you have nutritional challenges that you cannot resolve, seek out a qualified nutrition expert who has worked with endurance athletes.

So what's going on?

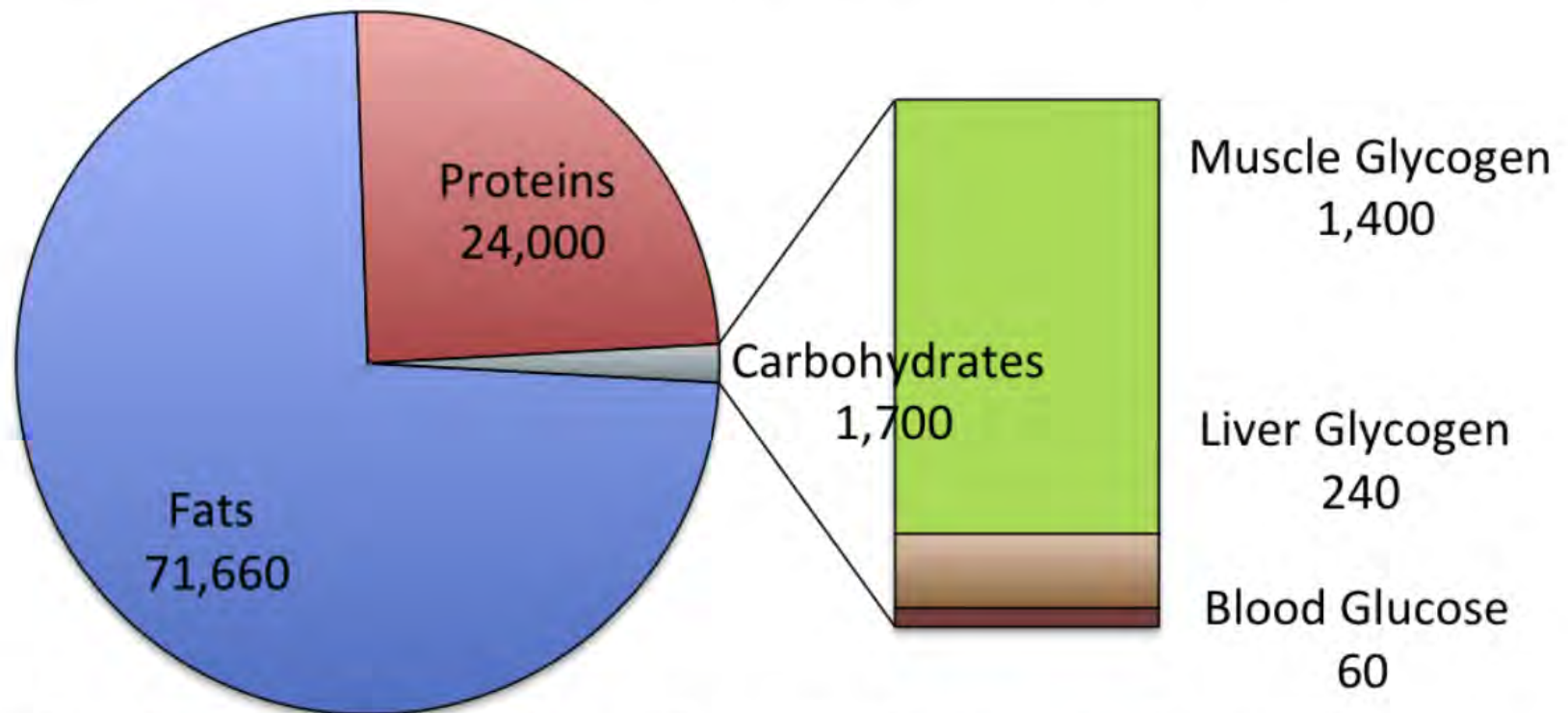
"The ability to conquer oneself is no doubt the most process of all things sports bestows on us."

- Olga Korbut



Carbohydrates (glucose) are the most accessible fuel source during exercise but also the most limited

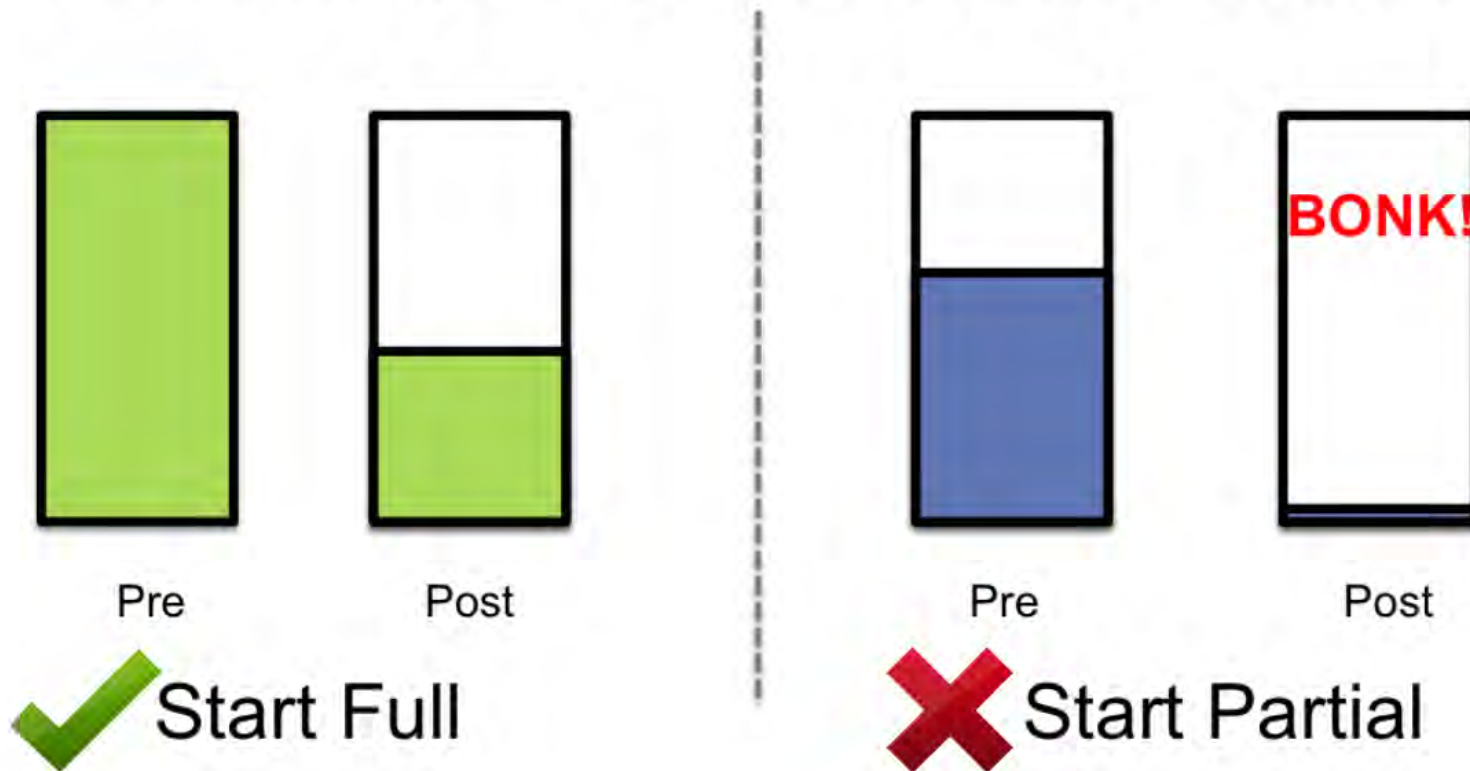
Estimated energy storage for a 70 kg non-obese man (kcal)



Derived from: Berardi, John and Ryan Andrews, The Science and Practice of Sport Nutrition, Precision Nutrition, 2012.

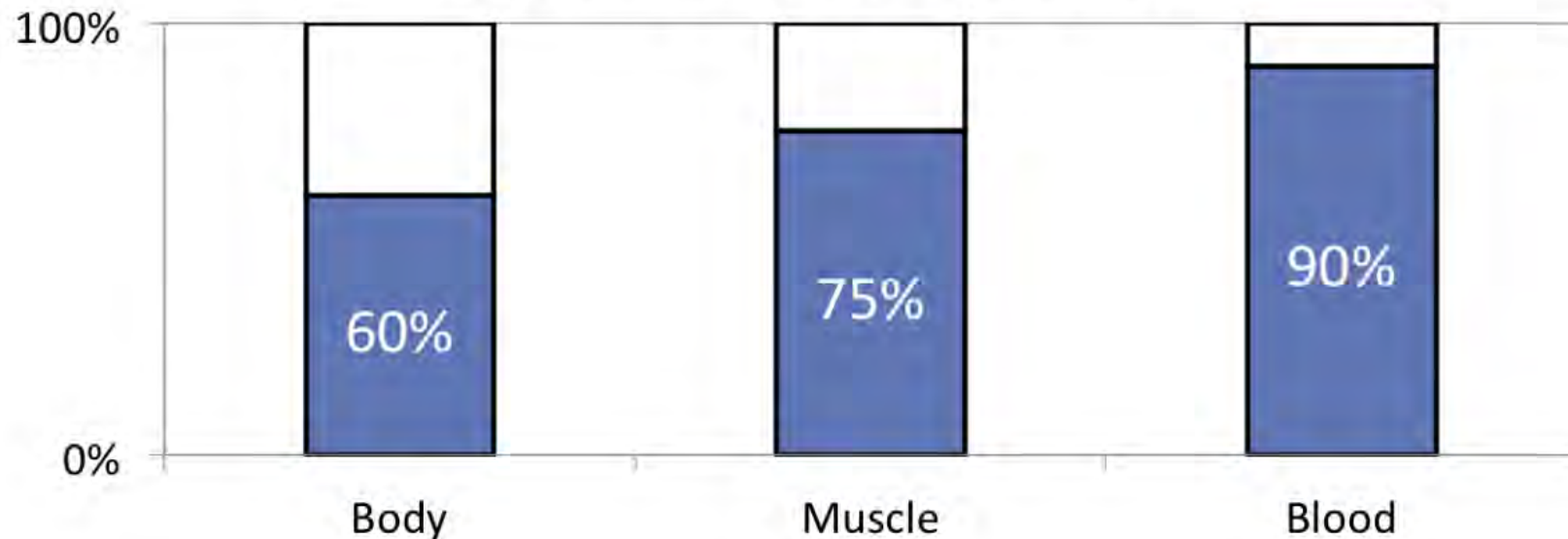
Running low on glycogen = "bonk"

Example: Change in glycogen stores during exercise



Adequate hydration is integral to optimal performance

% of Human Body that is Water



Dehydration impacts:

- Muscle function (e.g. cramping),
- Blood viscosity,
- Perceived effort,
- Body's ability to cool itself and
- Increases potential for GI distress

Drinking too much plain water can be bad

Hyponatremia - low sodium serum concentrations

Symptoms:

- Rapid weight gain (post exercise) and bloating
- Swollen hands and feet
- Nausea and vomiting
- Throbbing headache

Dizziness, confusion and disorientation

At risk: heavy sweaters, slower athletes in longer events



Key Point: Hydrate with electrolytes (sodium, potassium, magnesium, etc.)

Our GI system competes with our muscles during exercise



GI problems likely to occur during exercise with ingestion of:

- Fiber
- Fat
- Protein
- Concentrated carbohydrates

Other factors include: age, sex, heat, conditioning, intensity and stress

- Unknown

- Cardiovascular diseases (CVD) prevent people's peak productive capacity
- Important for fitness
- Therefore, intense efforts and cardiovascular fitness necessary to maximize strength and aerobic capacity to reduce degradation (as much as possible)
- But, the CVD system is easier to train than exercise and physical deterioration
- Consequently, you need to find the balance between what you can take in
- versus what your body can actually handle

- How long will I be exercising?
- What is available to me?
- How much do I need?
- What works for me?
- What doesn't work for me?

Stretch Labs

[illegible]

Hydration:

- Moderate exercise: 0.5-1.0 L fluid every 15-20 min
- Aim to replace 500-1000 ml during exercise

Recovery phase:

- ACSM recommends 100-1500 ml, and a every 21 minutes of water consumed
- May need more if:
 - Heavy exercise
 - Higher heat/humidity
- Monitor swelling in hand & calf veins



Key Factors

- Body Mass
- Intensity of Effort
- Duration of Event
- Training
- Temperature
- Hydration Level

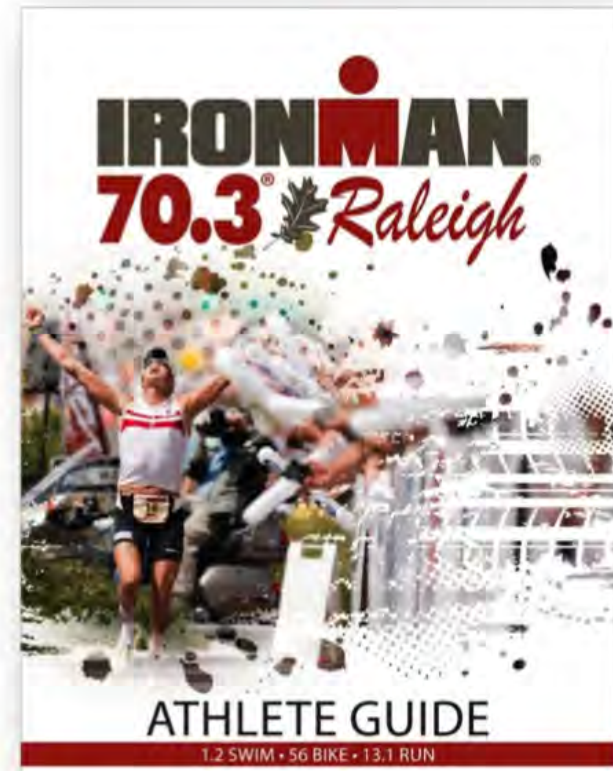


Three parts:

- Fire-ice
- Ice-Rain
- Frost-Cold

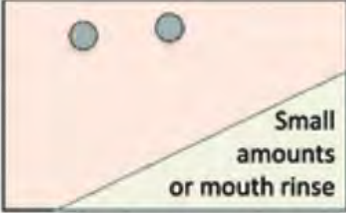
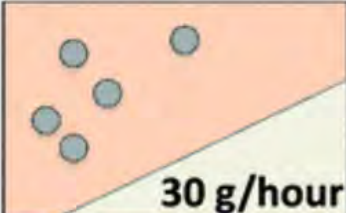
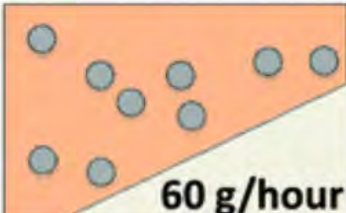
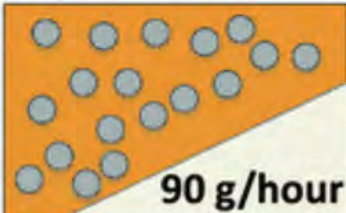
Questions to ask yourself

- How long will I be exercising?
- What is available to me?
- How much do I need?
- What works for me?
- What doesn't work for me?



Key Point: Write your plan down. Practice it.

Carbohydrate intake guidelines

Duration of exercise	Amount of carbohydrate needed	Recommended type of carbohydrate	Additional recommendation
30–75 minutes		Single or multiple transportable carbohydrates	Nutritional training recommended
1–2 hours		Single or multiple transportable carbohydrates	Nutritional training recommended
2–3 hours		Single or multiple transportable carbohydrates	Nutritional training highly recommended
> 2.5 hours		ONLY multiple transportable carbohydrates	Nutritional training essential

Source: Jeukendrup, Asker, "A Step Towards Personalized Sports Nutrition: Carbohydrate Intake During Exercise," Sports Medicine. May 2014, Volume 44, Issue 1 Supplement, p 27.

Hydration and electrolyte replacement guidelines



Hydration:

- Modest sweat rate is 32 fluid ounces per hour
- Aim to replace 90% during exercise

Electrolytes:

- ACSM recommends 500-700mg sodium for every 32 ounces of water consumed
- May need more if:
 - Heavy sweater
 - Experience cramping
- Notice swelling in hands and feet

What YOU need will vary on a number of factors

Key Factors

Body Mass
Intensity of Effort
Duration of Event
Fitness
Tolerance
Temperature



Example drink mixes

Hammer HEED

Supplement Facts		
Serving Size 1 level scoop (29g) Servings Per Container 32		
	Amount Per Serving	% Daily Value
Calories	100	
Total Carbohydrate	26 g	9%*
Sugars	2 g	†
Vitamin B6	7 mg	339%
Calcium	51 mg	5%
Magnesium	26 mg	6%
Manganese	2 mg	89%
Chromium	27 mcg	22%
Chloride	60 mg	2%
Sodium	40 mg	2%
Potassium	25 mg	1%
Glycine	31 mg	†
L-Carnosine	50 mg	†
Tyrosine	11 mg	†

*Percent Daily Values are based on a 2,000 calorie diet.
† Daily Value not established.

INGREDIENTS : Maltodextrin, Xylitol, Natural Flavor, Pyridoxine Hydrochloride, Calcium Chelate, Potassium Chelate, Magnesium Chelate, Salt, L-Carnosine, Stevia, Glycine, Tyrosine, Manganese Chelate, Chromium Polynicotinate.

Skratch Labs

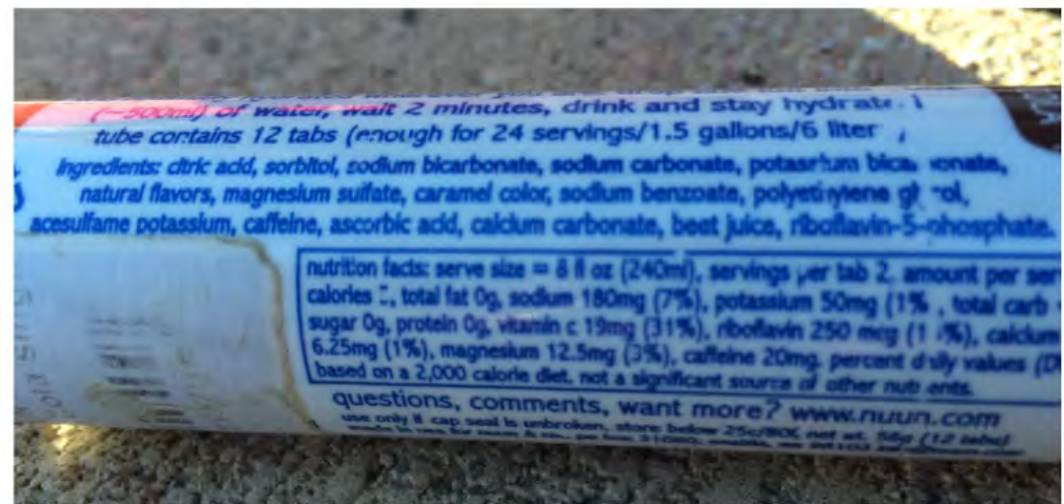
Nutrition Facts	
Serving size: 1/2 packet (10g) Flav: pink lemon Serving size: 1/2 packet (10g) Amount per serving	
Calories 40	
	% Daily Value*
Total Fat 0g	0%
Sodium 180mg	4%
Potassium 20mg	1%
Total Carbohydrate 10g	3%
Sugars 10g	
Protein 0g	
Vitamin C 15% + Calcium 2%	
Magnesium 6%	
Not a significant source of sodium, iron, fat, saturated fat, trans fat, cholesterol, dietary fiber, Vitamin A, and iron.	
*Percent Daily Values are based on a diet of other people's secrets.	
Ingredients: cane sugar, dextrose, sodium citrate, citric acid, magnesium lactate, calcium citrate, lemon juice, lime juice, potassium citrate, ascorbic acid (Vitamin C).	

Example electrolyte replacement

Hammer Endurolytes



NUUN Tablets



Other example products

Hammer Gel



Hammer Recoverite



Create Your Plan



Three parts:

- Pre-race
- In-Race
- Post-race

Pre-race nutrition and hydration plan

When?	What?
2 or 3 days before:	<ul style="list-style-type: none"> • Carbohydrate load (as to 30% carbohydrate of body weight)
Day before:	<ul style="list-style-type: none"> • Eat oat cereal, fruit, soft foods • Hydrate with sports drink for electrolyte and electrolyte
Night before:	<ul style="list-style-type: none"> • Go to bed with a glass of water • Go to bed with a glass of water
3-4 hrs before:	<ul style="list-style-type: none"> • High carb, low protein diet • Outmeal with am, banana, coffee (if normally drinker) • Inmeal with am, banana, coffee (if normally drinker) • Inmeal with am, banana, coffee (if normally drinker)
60-15 min before:	<ul style="list-style-type: none"> • Go water
15 min before:	<ul style="list-style-type: none"> • Consume half a bottle of sports drink or water with a gel

In-race nutrition and hydration plan

When?	What?
Swim:	<ul style="list-style-type: none"> • Nothing – try not to swallow water
Bike:	<ul style="list-style-type: none"> • Start with stomach empty (typically 15-20 min before eating or drinking) • Consume 100 calories gel, sports drink every 20 minutes • Drink more water with electrolytes depending on conditions • Target: 500 cal/hour (15 g/hr)
Run:	<ul style="list-style-type: none"> • Mostly fluids – sports drink, water • Update for gel or other easily digestible food if cramping and stomach shows • Supplement with extra electrolytes if needed • Target: 200-300 cal/hour (10 g/hr)

Post-race nutrition and hydration plan

When?	What?
First 30-60':	<ul style="list-style-type: none"> • Consume liquid carbohydrates • Rehydrate (at least 1-2L) for recovery (for later in the hour) • Include sodium and electrolytes to enhance electrolyte and electrolyte production
Within 24 hrs:	<ul style="list-style-type: none"> • Frequent feedings improve rate at which glycogen is restored • Include protein for increased protein synthesis

Pre-race nutrition and hydration plan

When?	What?
2 or 3 days before:	<ul style="list-style-type: none">• Carbohydrate load (up to 10g carbs/kg of body weight)
Day before:	<ul style="list-style-type: none">• Cut out spicy, heavy, fatty foods• Hydrate with sports drink for both carbs and electrolytes
Night before:	<ul style="list-style-type: none">• Grilled fish or chicken with rice or• Pancakes with fruit topping and grilled ham
3-4 hrs before:	<ul style="list-style-type: none">• High carb, low protein and fat<ul style="list-style-type: none">– Oatmeal with jam, banana, coffee (if normally drink) or– Peanut butter and jelly on bread, banana, coffee• Begin sipping sports drink
60-15 min before:	<ul style="list-style-type: none">• Sip water
15 min before:	<ul style="list-style-type: none">• Consume half a bottle of sports drink or water with a gel

In-race nutrition and hydration plan

When?	What?
Swim:	<ul style="list-style-type: none">• Nothing – try not to swallow water
Bike:	<ul style="list-style-type: none">• Wait until stomach settles (typically 15-20 min) before eating or drinking• Consume 100 calories (gel, sports drink) every 20 minutes• Drink extra water with electrolytes depending on conditions• Target: 300 cal/hour (75 g/hr)
Run:	<ul style="list-style-type: none">• Mostly liquids – sports drink, water• Option for gel or other easily digestible food if craving and stomach allows• Supplement with extra electrolytes if needed• Target: 240 cal/hour (60 g/hr)

Post-race nutrition and hydration plan

When?	What?
First 30-60':	<ul style="list-style-type: none">• Consume liquid carbohydrates• Replace fluid lost (>100% lost to account for later urine losses)• Include sodium and carbohydrates to enhance absorption and glycogen production
Within 24 hrs:	<ul style="list-style-type: none">• Frequent feedings improve rate at which glycogen is replaced.• Include protein for improved protein synthesis

Training

"It's not the will to win, but the will to prepare to win that makes the difference."

- Bear Bryant



Measure water loss to determine fluid needs



Calculations:
Water Loss (lbs.) = After Weight - Before Weight
% Loss = Water Loss / Before Weight

Example:
150 lb. athlete who weighs 146 lb. after workout
Water Loss (lbs.) = 150 - 146 = 4 lbs.
% Loss = 4 lbs. / 150 lbs. = 2.7%

Urine color:
- Light like lemonade: well hydrated
- Darker yellow like apple juice: dehydrated



Put in the training time for the race...



+



+



Don't forget:

**NUTRITION &
HYDRATION**

Measure water loss to determine fluid needs



Calculation:

Water Loss (lbs.) = After Weight – Before Weight

% Loss = Water Loss / Before Weight

Example:

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Water Loss (lbs.) = 150 – 146 = 4 lbs.

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Urine color:

- Light like lemonade: well hydrated

Darker yellow like apple juice: dehydrated

Plan for and practice race day logistics



What to wear, eat, drink, carry

Race day

"The body is much stronger than you know, it is the mind that is the weakness." - Unknown



Follow your plan



...and some final tips for race day...

- Carry some fluids and nutrition
- Don't try anything new
- Be flexible
- Keep moving
- Have fun!



Now, go achieve YOUR success!



“It’s not the mountain we conquer, but ourselves.” — Edmund Hillary

Thank you for attending!

We'll post the recording at: enduranceworks.net/resources

Upcoming webinar:

- 3/24: The 7 Daily Nutrition Habits for a Better, Healthier Body

Please contact us with any questions:

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Need a training plan? Visit us at www.enduranceworks.net