



Nutrition for Marathon Training & Racing

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Running Dietitian, Run & Strength Coach

the dietitian runner

About Me

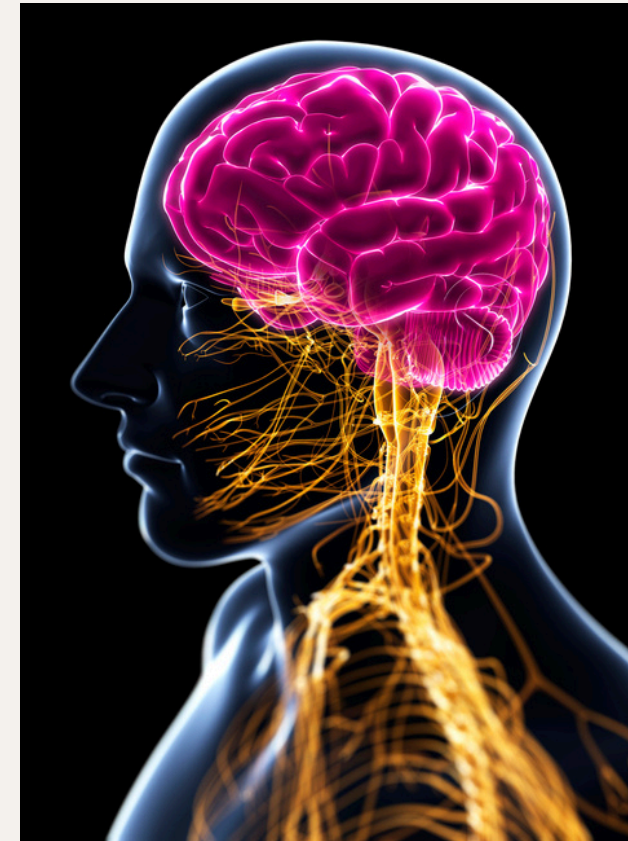


- Richmond runner & marathoner
- Registered Dietitian
- NASM Certified Personal Trainer
- RRCA Run Coach
- Founder of The Dietitian Runner

*the
Dietitian
Runner*

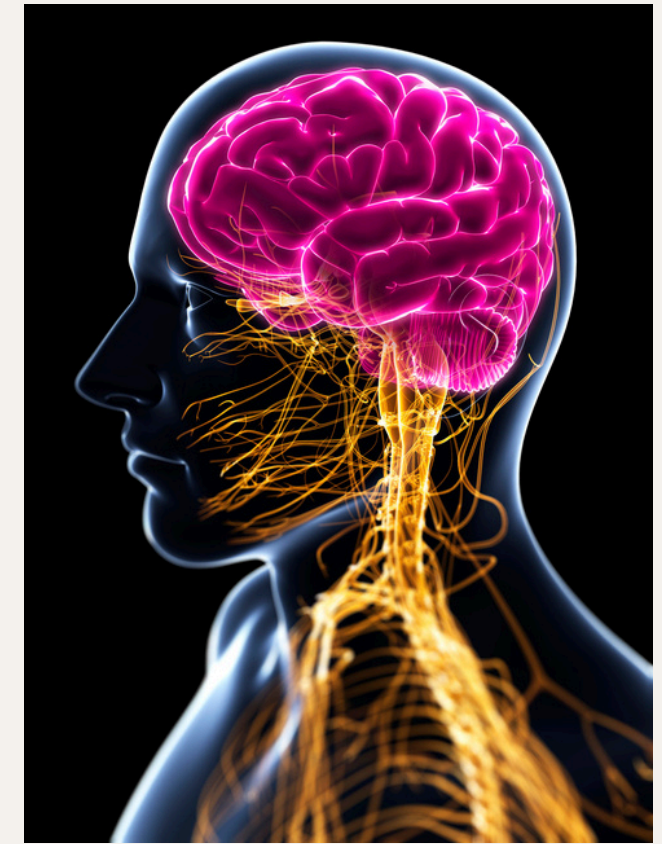
Tonight's Agenda

- Deep dive into the 3 pillar's of Runner's Nutrition to help you fuel well to support your Summer training & Fall race!
 - Nutrition Mindset
 - Daily Nutrition
 - Running/Racing Nutrition

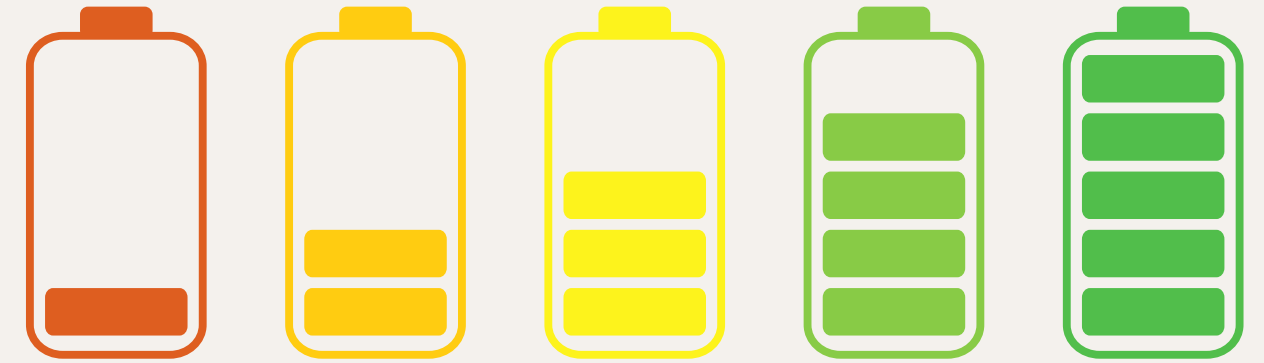


Mindset

- Determines HOW you go about fueling your body
- Avoid restriction, dieting, intentional weight loss at all costs!!!!
- Running requires energy. You get energy from food. Food is a HELPFUL tool to help you train & perform well
- Risks: nutrient deficiencies, low energy availability, muscle and bone loss, increased risk of injury, decreased immune function, decreased brain function, loss of/irregular menstrual cycle, restrict/binge cycle, preoccupation with food, food stress & guilt, etc



Mindset



- Adopt a FUELING, OPTIMIZATION mindset
 - ADDING to your nutrition, not taking away from it
- You're asking your body to do A LOT with your training & in your daily life and ya gotta feed it and feed it really darn well
- Find balance of nutrient-dense foods & foods for the soul
 - Avoid the all-or-nothing mentality
 - Avoid aiming for “perfect” nutrition
 - Avoid getting trapped in the restrict/binge cycle
 - Avoid categorizing foods as “good” and “bad”

Mindset

- Things to get used to as a marathoner..
 - Eating more & more often than others
 - Eating lots of carbs at meals & snacks
 - Eating/drinking sugar in your sports nutrition products like gels & sports drinks.. it's there for a reason



Mindset

- Listen to your body, honor your hunger
- But understand that as a runner, there will be times when you may not feel hungry but you want to eat anyway like..
 - Before an early morning workout
 - After a workout (especially a long run/speed run)
 - During a long run/race
 - If it's been <4 hrs since your last meal/snack
 - During a carb load



Nutrition Foundation

- First priority is to work on your daily nutrition first, make improvements & close gaps
 - Runner's Plates
 - Runner's Snacks
 - Macronutrients
 - Micronutrients
 - Hydration
 - Meal Planning, Shopping, Prepping
 - Pantry Essentials
- Mistake: only focusing on your nutrition before, during & after running

Runner's Plates

- 4 parts on each plate
- Grain/starch & color section change the most based on exercise
- Look at average daily activity in a given week, may use a mix of plates



Easy Training Plate

- Use when NOT in a training cycle
- Appropriate for 20-30 min of easy effort exercise



Moderate Training Plate

- Use when in a training cycle
- Appropriate for 30-60 mins of easy effort exercise



Hard Training Plate

- Use when in a training cycle
- Appropriate for 60+ mins of easy effort exercise, 45+ mins of speed work, before/after long runs

Runner's Plates

- As your training duration & intensity increase..
 - Your daily calorie requirements increase
 - Your daily carbohydrate requirements increase
 - Your daily fluid requirements increase
- If you increase your training but don't increase your calories + carbs + fluids, you will be dehydrated & underfueling= low energy, cravings & overeating at night, hitting the wall during training/races, poor recovery, increased injury risk

Runner's Plates

To help you meet your..

- Increased daily calorie requirements
 - Honor your hunger, eat more at meals, at in snacks in-between meals
- Increased carbohydrate requirements
 - Use my Runner's Plates framework to align your carb intake with your exercise
 - Use my Runner's Snacks framework & include carbs at snacks
- Increased daily fluid requirements
 - Be intentional with increasing your fluid intake
 - Sip all throughout the day
 - Set a daily fluid goal

Runner's Snacks

- Not “bad” but helpful for marathoners
- 3 types:
 - Snacks within the hour of exercise
 - Snacks right after exercise
 - Snacks away from exercise
- What to eat at snacks & what nutrients to include depends on the type of snack



Runner's Snacks

- Snacks within an hour of exercise
 - If you have 1 hr or less to digest, choose a smaller amount of lower fiber carbs
 - Your body can digest low fiber carbs quickly and provide quick energy!



Runner's Snacks

- Snacks right after exercise
 - Choose protein, carbs and fluids & electrolytes (as needed like after a hot, sweaty, salty workout)
 - Will help your body repair muscle, replenish glycogen stores and replenish fluid and electrolytes that you've lost through sweat during your workout
 - Smoothie with Greek yogurt and frozen fruit
 - Protein shake with a banana
 - Roasted edamame with dried mango
 - Protein bar with pretzels



Runner's Snacks

- Snacks away from exercise
 - Choose carbs, protein and color (fruit/veggies)
 - You have higher daily carb and protein needs
 - Carbs at a snack for exercise recovery and to support your brain - concentration, focus
 - Protein at a snack to muscle recovery and protein & fiber can assist with blood sugar control
 - Color provides micronutrients & fiber to keep you fuller longer

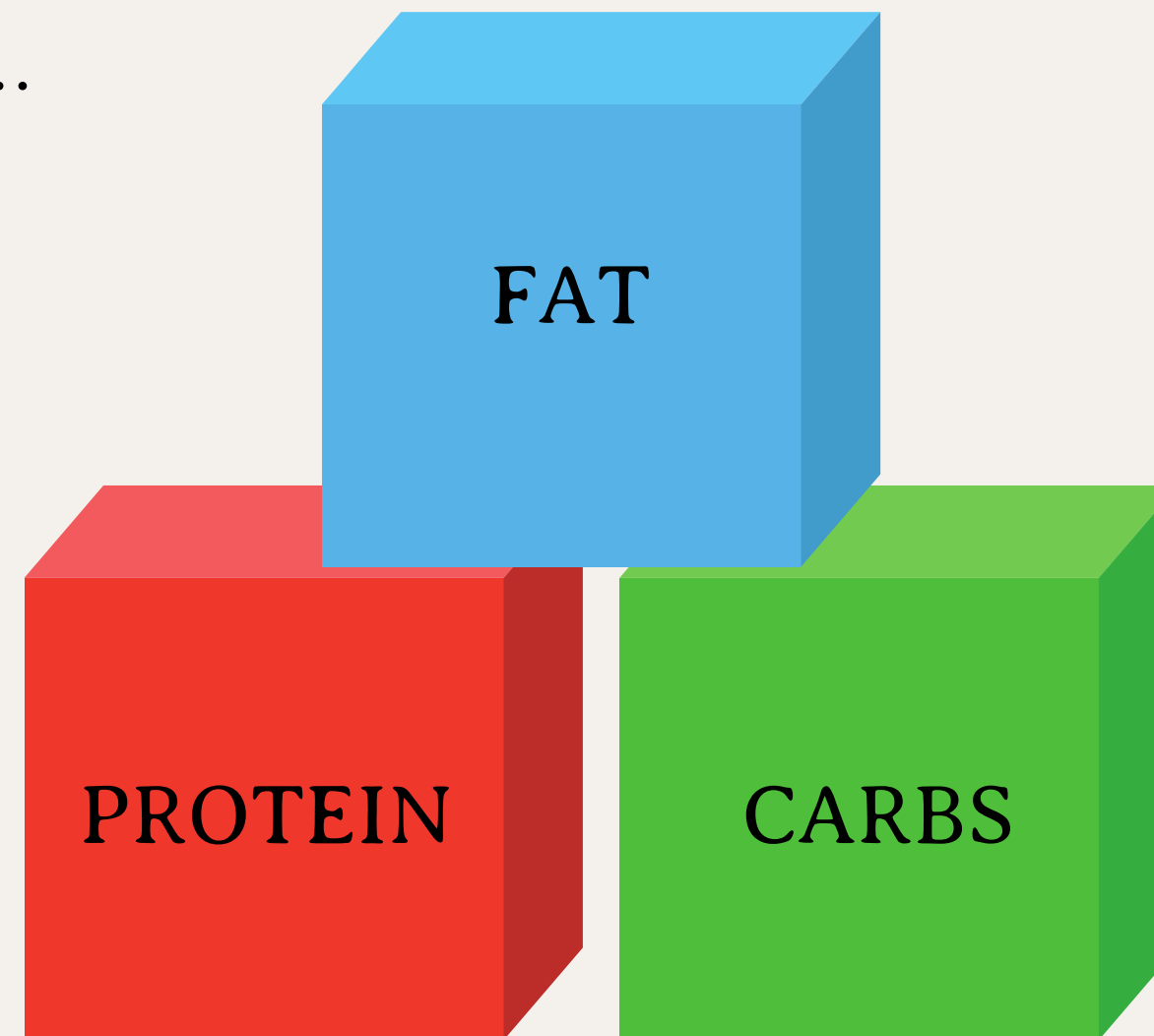
Runner's Snacks

- Snacks away from exercise
- Snacks can both be in response to hunger and can be practical
 - to prevent you from going >4 hrs without eating



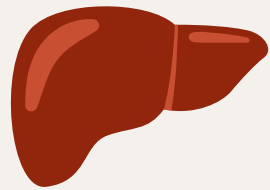
Macronutrients

- 3 essential macronutrients
- You need ALL as a human, especially as a marathoner
- Many misconceptions about carbs so let's talk about this macronutrient specifically..

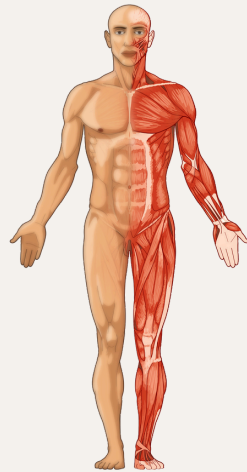


Carbohydrates

- Our bodies preferred source of fuel. When we eat carbs, our bodies break it down into simple sugars. Our bodies use those simple sugars for energy and it's stored as glycogen in the muscles and the liver.



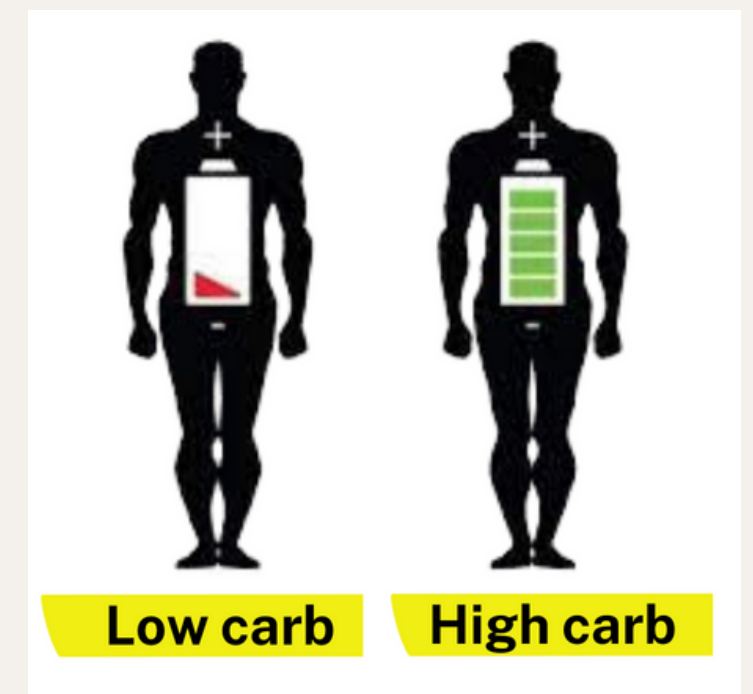
- Liver glycogen: regulates blood glucose levels
 - Can store 80-100 grams in the liver



- Muscle glycogen: energy stores, we pull from these stores during running to use as energy
 - Can store 300-400 grams in the muscles
 - Stores exhaust around 90-120 mins of running (why we want to take in carbs as fuel during long runs/races)

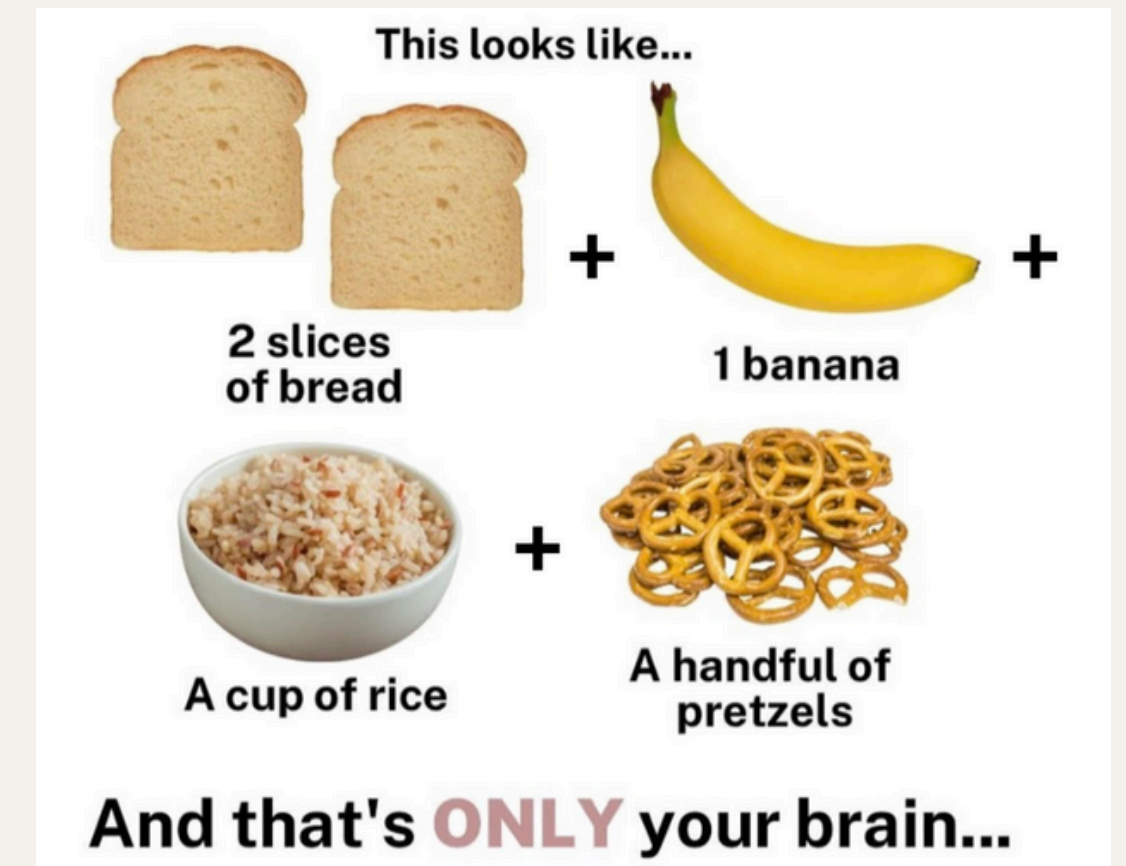
Carbohydrates

- Think of your muscle glycogen stores as your fuel tank. High glycogen stores= a full fuel tank
- A full tank keeps us feeling energized on the run, helps us run longer, postpones muscle fatigue and decreases our chances of hitting the wall!
- Glycogen stores are affected by the amount of carbs you eat



Carbohydrates

- Carbs supports your brain
 - Your brain uses carbs as it's sole source of energy and uses at least 130 grams of carbs daily ->
- Carbs protect you from injury
 - Adequate carb intake preserves lean muscle!
 - Exercising with decreased glycogen levels can increase muscle breakdown. Long-term training with a low carb intake can cause loss of skeletal muscle over time. This can potentially lead to reduced strength and injury.



Carbohydrates

- Carbs types
 - 2 types of carbs: complex and refined/simple
- We are NOT categorizing as "good" carbs and "bad" carbs. BOTH types have a place in runner's nutrition!!!
- Complex carbs: focus on at meals & snacks away from exercise
- Simple/refined carbs: focus on within the hour of exercise, during exercise & during carb loading

Complex

- High fiber
- Whole wheat bread, pasta, brown rice
- Fruit
- Starchy veggies: corn, peas, potatoes
- Legumes

Refined/Simple

- Low to no fiber
- White bread, white pasta, white rice
- Graham crackers
- Honey, maple syrup
- Juice
- Gatorade

Carbohydrates

- As training and mileage increases, your daily carbohydrate requirements increase

Daily carb requirements (grams/kilogram body weight/day)	Exercise
3-5 g/kg/day	Sedentary or very light training of short duration
5-7 g/kg/day	Moderate intensity training, 1 h/day
6-10 g/kg/day	Moderate to high intensity training, 1-3 hrs/day
8-10 g/kg/day	Moderate to high intensity training, 4-5 hrs/day

Signs of Underfueling

- “How do I know if I’m eating enough?”
 - Signs that you’re NOT eating enough

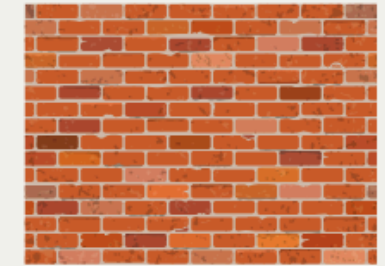
Signs of Underfueling



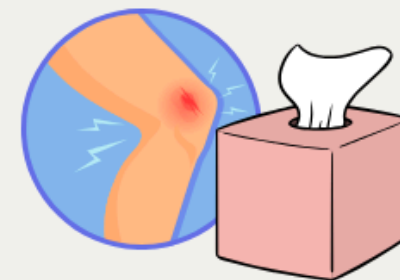
Low energy



Missing period
in female athletes



Hitting the wall
during runs



Frequent injury/
illness



Thinking about
food 24/7



Poor exercise
recovery

Signs of Adequate Fueling

Signs of Adequate Fueling



Energized



Monthly period
in female athletes



Training is overall
progressing



Not hitting the wall
during runs



Recovering well
in-between training



Feeling strong
in workouts

Hydration

- A focus all week long, not just before, during & after runs
- Start your workouts well-hydrated
- Why it matters..
 - Protect your joints and tissues
 - Help with digestion and metabolism
 - Body temp regulation
 - To transport of nutrients, oxygen and waste products throughout the body/out of the body
 - To support your muscles- they're 75% water
 - Support your cardiovascular system (heart, veins, arteries)
 - Enhance performance (>2% dehydration could result in a performance decline)

Hydration

- 4 steps for hydration
 - 1- Hydrate well on the daily
 - 2- Hydrate before running
 - 3- Hydrate during running
 - 4- Hydrate after running
- Step 1: daily hydration
 - Weight (lbs) cut in half = _____ oz/day
 - Example: 160 lb runner= 80 oz/day
 - If weight is triggering to you, just estimate your weight
 - All fluids count! Sip all throughout the day, avoid chugging!



Hydration

- Step 2: hydrate before running
 - 3-4 hours leading up to your workout: 17-20 oz
 - 0-2 hrs leading up to your workout, 8-12 oz
 - Sip, avoid chugging
 - If you have a hard effort workout or long run where you know you'll be losing a good amount of sweat & salt (crystals on skin, white stain on brim of hat/around neck of shirt), sipping an electrolyte drink beforehand may be helpful

Hydration

- Step 3: hydrate during running
 - General sports nutrition recommendation is 14-27 oz/hour
 - OR based on individual sweat loss
 - Can ID through sweat testing
 - PS drinking plain water especially during long, hot runs is really dangerous. You want electrolytes especially sodium in your fluids (or on side through chews/caps).. more to come on this



Hydration

- Step 4: hydrate after running
 - Add an extra 16-24 oz for every pound lost during running (weigh right before running & right after running naked, towel off excess sweat)
 - If scale is triggering, add an extra water bottle(s) to replenish losses
 - Replenish electrolytes post-run.. more to come on this



Meal Planning, Shopping, Prepping

- Do yourself a favor & have some sort of system for this
- Will make fueling & nourishing your body so much easier especially during a busy work week
- Visit <https://thedieterianrunner.com>



**Busy Athlete Meal Prep:
the Pantry Staples You
Need!**



**Meal Prep for Athletes: a
6-Step Guide**



Micronutrients

- Vitamins and minerals
 - Sodium, iron, vitamin D, calcium, potassium, magnesium, B12, etc
- Essential to your health, hydration, immune system, energy level, recovery, performance, etc
- Runners can have higher micronutrient requirements and be at risk for micronutrient deficiencies
- Rec blood work first before supplementation, DO NOT supplement blindly
- Eat a wide variety of foods, a variety of color (fruits + veg) & switching up what you eat each week



Running Nutrition

- Nutrient timing: strategically timing your nutrient intake around/ during running to enhance performance, energy & recovery
 - Nutrition before, during & after running
 - Use the guidelines I provide than tailor to you & your preferences
 - May require a bit of trial and error but figure this out DURING training!
- Again, this WILL NOT make much of a difference if you have a lot of gaps in your daily nutrition so that's your first priority and then we can put this piece in place







Pre-Run Nutrition

- Fuel all of your workouts please!!!
- Shorter workouts that are <1 hr and you have <1 hr to digest..
 - Choose a smaller amount of low fiber carbs
 - Fiber & fat slow digestion so avoid close to exercise



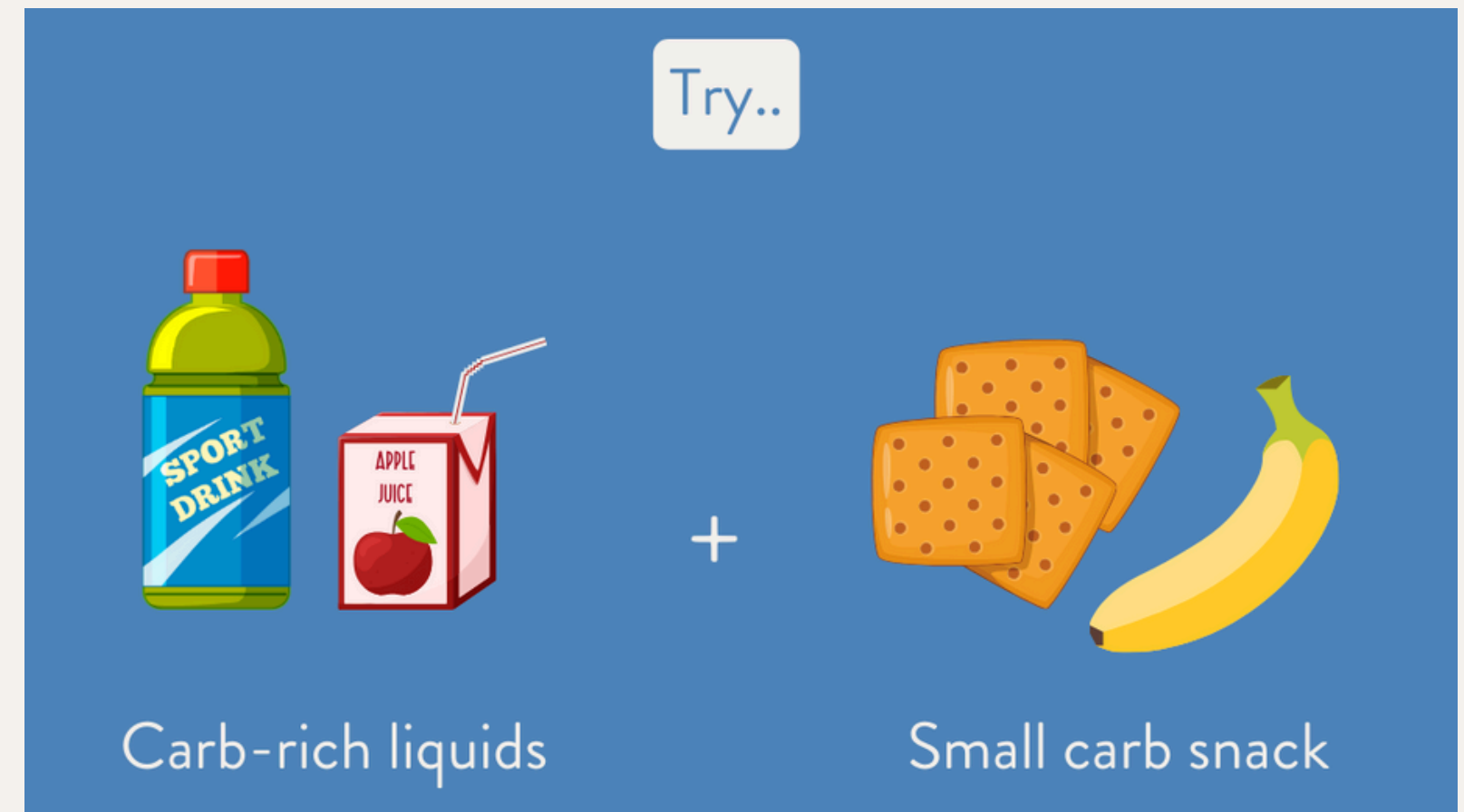
Pre-Run Nutrition

- For workouts that are >1 hr, a small amount of low fiber carbs will NOT cut it
 - You need to eat more to sustain you throughout your run and let yourself digest before running
 - Choose a carb-rich breakfast, some protein if you have the time to digest
 - Goal is a bare minimum of 1 g/kg of carb
 - 170lb runner (77kg) will want to aim for a minimum of 77 g of carbs
- ID a pre-run breakfast that works well for you before long training runs then repeat on race day!

7g Protein		77g Carbs	6g Fat
BREAKFAST +			
	Power Waffles, Blueberry Kodiak, 1 waffles		
	Gatorade 8 fl oz		
	Maple Syrup 2 tbsp		
	Banana 1 small (6" to 6-7/8" long)		

Pre-Run Nutrition

- You know you should fuel before your long runs but you're already getting up super early to meet your team to run before it heats up..
 - Your pre-run nutrition is still doable!! ->
- Try..
 - 2 scoops of Tailwind + 2 graham cracker rectangles = 72 g carb
 - 1 individual packet of Skratch Super High-Carb + waffle = 78 g carb
 - 2 cups apple juice + banana = 87 g carb



During Run Nutrition

- Build these 3 parts into your during run/race plan
 - Carbs
 - Fluids
 - Electrolytes
- You want to start thinking about this now & create a nutrition plan now!! DO NOT WAIT
- Requires practice during training then all you have to do is repeat once more during your race
- ID where you're currently at, understand your needs, set goals & work on slowly building up to your goals over time

During Run Nutrition

- Carbohydrates:
 - Low fiber carbs and sugar is best
 - Don't fear sugar
 - Less blood flow to gut during running= digestion is slowed
- 2 carb fuel options
 - Low fiber carb-rich foods
 - Sports nutrition products: gels, chews, beans, carb-rich powders
 - On marathon course:
 - GU (Vanilla Bean & Strawberry Banana): Miles 14 and 21
 - Nuun Endurance available at every water station: every two miles until Mile 20 then every mile thereafter
 - Junk Food Stops: Miles 16 & 22; Pickle juice: Mile 23 -> be cautious



During Run Nutrition

- Sports nutrition guidelines: PER HOUR STARTING YOUR FIRST HOUR!

Exercise Duration	Carb Intake per Hour
<1 hour	Not needed
1-2.5 hours	30-60+ grams/hour *Include carbs in fluids
2.5+ hours	60-90+ grams/hour *Include carbs in fluids

GOAL

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Runner*

During Run Nutrition

- Choose a blend of carb types for better absorption & tolerance. Examples: maltodextrin + fructose or fructose + glucose

Vanilla Bean Energy Gel
Naturally Flavored

Nutrition Facts	Amount Per Serving		%Daily Value*	Amount Per Serving		%Daily Value*
8 servings per container Serving size 1 Packet (32g)	Total Fat	0g	0%	Total Carbohydrate	22g	8%
	Saturated Fat	0g	0%	Dietary Fiber	0g	0%
	Trans Fat	0g		Total Sugars	7g	
	Cholesterol	0mg	0%	Includes 7g Added Sugars	14%	
	Sodium	60mg	3%	Protein	0g	
Calories per serving 100	Vitamin D	0mcg	0%	Calcium	20mg	2%
	Potassium	40mg	0%	Iron	0mg	0%

INGREDIENTS: MALTODEXTRIN, WATER, FRUCTOSE, L-LEUCINE, POTASSIUM CITRATE, SODIUM CITRATE, CITRIC ACID, CALCIUM CARBONATE, L-VALINE, SEA SALT, NATURAL FLAVOR, GREEN TEA (LEAF) EXTRACT (CONTAINS CAFFEINE), GELLAN GUM, L-ISOLEUCINE, SUNFLOWER OIL, SODIUM BENZOATE (PRESERVATIVE), POTASSIUM SORBATE (PRESERVATIVE).

*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

During Run Nutrition

- Fluids
 - Goal is to avoid dehydration (>2% of body weight) & to avoid overhydrating
- Signs of dehydration: fatigue, headaches, nausea, vomiting, dark colored urine, dry mouth and skin and feeling really thirsty.
 - Increased body temp, at risk for heat exhaustion & heat stroke, makes your heart work harder, use more glycogen stores
- Dangers of overhydrating (especially of dilute fluids like water)= exercise-associated hyponatremia
 - Signs: nausea, vomiting, headache, weakness, lethargy, seizures, death

During Run Nutrition

- Sports nutrition guidelines for fluids during running
- Tips
 - Hit your hourly goal within the first hour
 - Be proactive, start drinking within the first 10-15 mins of running
 - Don't wait until thirsty to drink
 - Practice NOW and slowly build up to goal
 - Use the same products and gear to carry during training that you'll use on race day

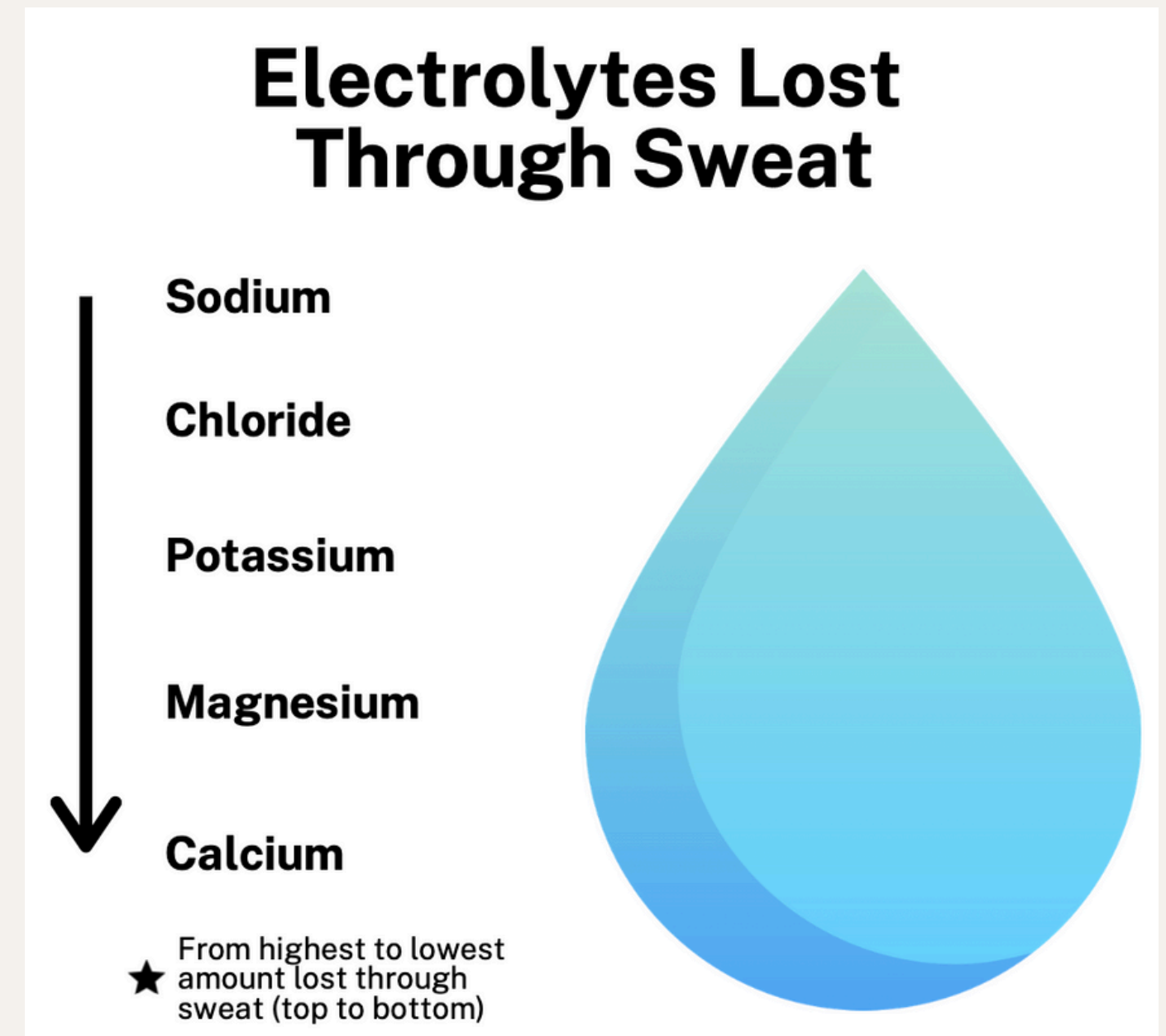
Duration of Running	General Fluid intake Recommendation
<1 hour	Not necessary *but know your body and take fluids if you're a heavy sweater
1+ hours	*Based on individualized sweat rate General recommendation: <ul style="list-style-type: none">• American College of Sports Medicine: 14-27 oz/hr + Add carbs, sodium, electrolytes to fluids

During Run Nutrition

- Using weight to evaluate hydration status during running
 - NOT appropriate for everyone, if it's a trigger, a sweat test may be a more appropriate option for you..more on this in a bit
- Weigh yourself right before running (naked), weigh after running (naked and towel off excess sweat) and calculate your % weight change. Note this reflects fluid loss, not true body weight loss
 - If you lose $>2\%$ = dehydration, increase fluid intake during running
 - If you gain weight = over hydration, fluid intake is $>$ sweat loss
 - *Repeat again to monitor weight change with increased/decreased fluid intake
- Example:
 - Pre-run weight: 175lbs, post-run weight: 169lbs
 - Weight loss = 6lbs = 3.4% = dehydration

During Run Nutrition

- Electrolytes
 - We lose 5 through sweat
 - Typically lose the most sodium compared to other electrolytes
 - How much can vary wildly between runners especially sodium



During Run Nutrition

- Sports nutrition guidelines

Duration of Running	General Electrolyte Intake Guidelines
<1 hour	Not necessary *but know your body and take if you're a heavy, salty sweater
1+ hours	<p>*Based on individualized sweat electrolyte composition/loss</p> <p>General recommendations:</p> <ul style="list-style-type: none">• Take in electrolytes when running >1 hour. The American College of Sports Medicine specifically recommends sodium intake to be at least <u>300-600+ mg/hr of running</u>. Salty sweaters may need more, closer to <u>600-1000+ mg/hr</u>

During Run Nutrition

- Signs that you're a salty sweater
 - salt crystals on skin, gritty feeling
 - white stains on the inside brim of hat
 - white stains on clothes



During Run Nutrition

- Ways to add electrolytes espec sodium into your run:
 - Choose higher sodium gels
 - Sip on a sports drink
 - Take electrolyte chews/capsules

Electrolyte Products

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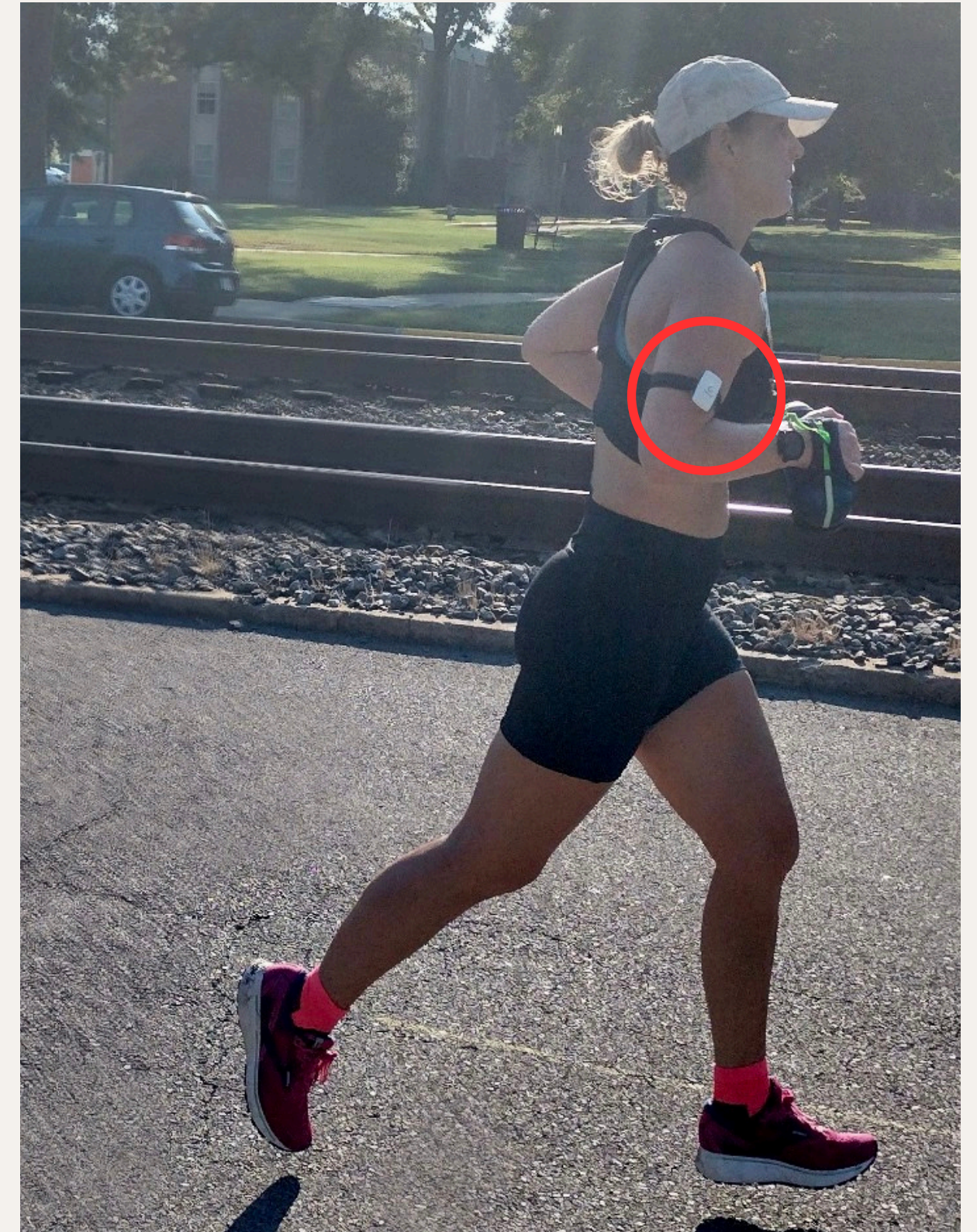
For during running that I often recommend to my clients



the Dietitian Runner

During Run Nutrition

- Sweat testing to ID individual losses/needs
 - Provides data on sweat rate (L/hr), and electrolytes concentrations (mmol/L): potassium and sodium
 - Can help you plan out your during run electrolyte and fluid plan accordingly



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Dietitian
Runner*

During Run Nutrition

- Sample marathon racing nutrition plan
 - GU (mile 14 + 21 on course)***bring additional gels***+ Nuun Endurance (every water station: every 2 mi until mile 20, then every mile thereafter)
 - 1 cup on course is generally ~4 oz of fluid



Vanilla Bean Energy Gel

Naturally Flavored

Nutrition Facts

24 servings per container

Serving size
1 Packet (32g)

Calories **100**
per serving

Amount Per Serving	%Daily Value*	Amount Per Serving	%Daily Value*
Total Fat 0g	0%	Total Carbohydrate 22g	8%
Saturated Fat 0g	0%	Dietary Fiber 0g	0%
Trans Fat 0g		Total Sugars 7g	
Cholesterol 0mg	0%	Includes 7g Added Sugars	14%
Sodium 60mg	3%	Protein 0g	
Vitamin D 0mcg	0%	*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.	
Potassium 40mg	0%		

INGREDIENTS: MALTODEXTRIN, WATER, FRUCTOSE, L-LEUCINE, POTASSIUM CITRATE, SODIUM CITRATE, CITRIC ACID, CALCIUM CARBONATE, L-VALINE, SEA SALT, NATURAL FLAVOR, GREEN TEA (LEAF) EXTRACT (CONTAINS CAFFEINE), GELLAN GUM, L-ISOLEUCINE, SUNFLOWER OIL, SODIUM BENZOATE (PRESERVATIVE), POTASSIUM SORBATE (PRESERVATIVE).

NUTRITION FACTS Servings Per Canister: 16, Serving Size: 1 scoop (19g), Amount Per Serving: Calories 60, Total Fat 0g (0% DV), Cholesterol 0mg (0% DV), Sodium 380mg (17% DV), Total Carbohydrates 16g (6% DV), Dietary Fiber 0g (0% DV), Total Sugars 15g (Includes 15g Added Sugars 30% DV), Protein 0g (0% DV), Vitamin D 0mcg (0% DV), Calcium 15mg (<2% DV), Iron 0mg (0% DV), Potassium 200mg (4% DV), Magnesium 20mg (6% DV), Chloride 80mg (4% DV). *The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Mixing instructions: 1 scoop per 16 oz water

The Dietitian Runner

During Run Nutrition

- Sample marathon racing nutrition plan
 - 2 gels/hour= 44 g/hr of carb, 120 mg/hr sodium
 - 5 Nuun cups/hour= ~20oz/hr fluid total= ~1.25 scoops Nuun total/hr= 20g/hr of carbs, 475 mg/hr sodium
 - Total nutrition per hour= 64 g carb, 595 mg sodium, 20 oz fluids
- Take first gel within first 30 mins of the race, 2nd gel 25-30 mins later and continue throughout the entire race for a total of 2 gels/hr
- Stop at each water station, goal is 5 cups of Nuun/hr
- Can bring handheld bottle or vest for additional fluids as needed in-between water stations and for additional carbs
- Can add another gel, gummies/blocks to increase hourly carb intake (want to optimize >64 g/hr of carbs, goal is 60-90+ g/hr)

During Run Nutrition

- Carrying nutrition/fluids



Post-Run Nutrition

- Goal: to provide your body with nutrients to support your recovery
- Intentional nutrition right after exercise= faster, more adequate recovery
- Delayed nutrition after exercise (waiting hours to eat after you finish a workout)= delayed, inadequate recovery & increased injury risk
- Goal= Runner's Plate after finishing a workout OR have a carb/protein/fluid-rich snack then follow it up with a runner's plate (see snack section for ideas)

Carbohydrates	To support muscle recovery & to replenish glycogen stores
Protein	For muscle and tissue recovery and repair <ul style="list-style-type: none">• Foods rich in the amino acid leucine are essential for muscle repair and building<ul style="list-style-type: none">◦ Sources: Meat, fish, dairy, eggs, legumes, lentils, tofu, edamame
Fluids/electrolytes	To replenish losses through sweat

Post-Run Nutrition

- Electrolytes: supplements AND food count
- Sodium & chloride: salted pretzels, salted nuts, table salt, pickles
- Potassium: apricots, oranges, bananas, potatoes
- Magnesium: almonds, edamame, spinach, chia seeds
- Calcium: sardines, anchovies, dairy, almonds, broccoli

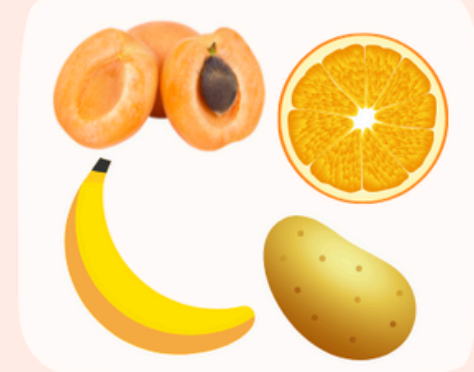
Electrolyte Rich Foods for Runners

We lose sodium, chloride, potassium, magnesium and calcium in our sweat!

Sodium & Chloride



Potassium



Magnesium



Calcium



Post-Run Nutrition

- Recovery nutrition with poor appetite
 - Nutrient-rich liquids
 - Smoothies
 - Protein drinks
 - Electrolyte drinks
 - Soups
 - Bone broth
 - Small, frequent snacks/grazing
 - Then have a Runner's Plate when you're ready
 - It's ok if you're extra hungry the next day, it's just your body asking for food to recover!
Honor it!



Quick Note on Carb Loading

- We absolutely want to carb load for marathons
 - Benefits: optimizes glycogen stores which
 - Improves endurance performance by 2-3%
 - Extends the duration of steady state exercise by 20%
 - Postpones fatigue
 - Helps you avoid hitting the wall during racing
- Carb load the 3 days leading up to the race at 8-12 grams of carbs/kg of body weight/day
- Focus on low fiber carbs (refined/simple grains) and carb-rich fluids
- This is not intuitive
- Reach out if you are looking for more info and help with carb loading!



Questions?

Contact:

Email: hello@emilymoorenutriton.com

IG: [thedietitianrunner](https://www.instagram.com/thedietitianrunner)

Website: <https://thedietitianrunner.com>