

FUELING THE RUN

Mind Body Medicine of Michigan's Position on Fueling for Races

Created By: Edward Cleland

*Functional Nutritionist, Performance
Specialist, & Mind-Body Medicine Practitioner
Founder of Mind Body Medicine of Michigan, LLC
Rochester Hills, Michigan
info@MBMmichigan.com 248.929.5375*

Greetings, fellow runners! I am grateful to share some perspectives on sports nutrition (particularly for us runners), lifestyle, and mindset best practices. This document will be of varied benefit depending on your personal goals, race distance, pace/effort, ability, mindset, nutrition and health practices, and attitude. Health is complex. I wish you well, enjoy the run! Come say hello at the expo. -Edward

LIMITATIONS

Areas to consider which this column is unable to:

- Individual heart rate variations (including zones) and breathing conditions

The higher the heart rate (/output-level, generally speaking) the more the body relies on glucose (and not body fat) as a primary fuel source. The lower the heart rate or output effort, the more one's body utilizes body fat (not glucose/sugar) as a fuel source.

Once we break our anaerobic threshold, we have to continually replenish sugar (glucose) as a fuel source.

The body cannot hold more than 1,700 (or so) calories of fuel from glucose.

Whereas we have ample supply of energy in the form of body-fat (no negative self-talk, *please*), more energy than we utilize in many hours as a source. Once you break an aerobic threshold – you are no longer going to convert body fat as a fuel source effectively. You are now on a sugar replenishing roller coaster. See: *Human Metabolism bubbles*.

- What is motivating you

No need to bonk in a run or get injured if you are running for joy. ***Align your actions with your stated intentions***; this is a life practice for everything we do. Motivation and attitude impact mindfulness; if you are participating in an event, it is your duty to go get from it - that which motivated you to sign up for it.

- How many calories do you metabolically require
- What disease state or health condition(s) do you have
- Which foods are you sensitive to / enjoy
- How do you feel when you eat and run
- What supplements or prescription drugs do you ingest
- Typical dietary intake habits
- Gut health
- Sleep, stress, and recovery practices

You are unique and complex, as is health and wellness, and running. This is not some holistic tag line, it is a scientific fact. We know too much to go about running or diet without recognizing that sleep, metabolism and hormone health, mental health, and gut health are critical to how you feel, run, and experience.

Human Metabolism 301: VO₂ max plays a critical role in the substrate choice for energy. At 2-30% max VO₂ (low-intensity exercise), energy is derived from muscle triacylglycerols and plasma fatty acid oxidation. Even at 2 hours of low intensity movement, the human body can utilize these energy sources. However, at 65-85% VO₂ max, few fatty acid are released and carbohydrates become the preferred substrate.

SOURCE: ADVANCED NUTRITION AND HUMAN METABOLISM. 6TH. GROPPER & SMITH. (2013)

Human Metabolism 101: At rest and during normal activity, fats provide 80-90% of energy, protein 2-5%, and carbohydrates 5-18%. During exercise, the oxidation of amino acids (from protein) contributes minimally towards ATP in muscles; hence protein is not ideal pre or during a race.

SOURCE: ADVANCED NUTRITION AND HUMAN METABOLISM. 6TH. GROPPER & SMITH. (2013)

Human Metabolism 201: During exercise, four major endogenous sources of energy are: muscle glycogen, plasma glucose, plasma fatty acids, and intramuscular triacylglycerols. The extent to which each of these substrates contributes energy for exercise depends on: intensity, duration, level of training, initial muscle glycogen levels (how much fuel you began with), supplementation and absorption ability of carbohydrates through the intestinal tract during exercise.

SOURCE: ADVANCED NUTRITION AND HUMAN METABOLISM. 6TH. GROPPER & SMITH. (2013)

FOUNDATIONS

Are you hydrating right now?

- Drink before, during, and after all cardio activities this week
- Hydrating for the race is complex and depends on your biochemistry, historical practices, and conditions such as running duration and effort
- Only water counts as water – aim for more than 100 oz. / day, start and end each day with 8 oz. of water
- Water quality matters; reverse osmosis removes fluoride and metals, but also eliminates minerals – replenish
- Almost all plastic water bottles contain water with plastic in it, ditch the plastic, please

Consistency & Insights

- Your race will reflect who you have been the past several months
- Different bodily processes operate on different timelines; this is true with nutrition as well:
 - A sugar detox may require 6 days, dairy-4, gluten60-90..eek, but inflammation markers can be altered by the hour!
- This week, if you plan on eating before the race – eat before you train.
- If you have an hour plus cardio event this week, practice your race plan.
- Planning before the race means you won't be thinking about it while you run. This can make all the difference in the race.
- There may be times when you don't "feel" like you need to fuel NOW, but by the time you feel like you need it – it's too late.
- You have to be 20 minutes ahead of fueling. If you ever feel thirsty, you're already dehydrated. If you ever feel fatigued, you're already well behind breaking down glycogen storage. Plan ahead, stay ahead..use your head.

Human Metabolism 401: The **lactic acid system (LAS)** is one of the three energy sources utilized during exercise; the other two are the ATP-CP (creatine phosphate) system and the aerobic system which includes aerobic glycolysis, the TCA cycle, and B-oxidation of fatty acids. Lactic acid does not generate enough quantity of ATP (energy) quickly enough for intense exercise. If lactate accumulates, it lowers the pH of the blood and may cause fatigue. "Oxygen debt" occurs when an inadequate supply of oxygen prevents the aerobic system from furnishing sufficient ATP (energy). The LAS supplies up to 50% of energy during sprints of under 75 seconds. The lactic acid system is not bad. The burn you feel is related to the lack of oxygen. Improved liver health decreases lactic acid production; interval training, tempo runs, and elevation training helps clear lactic acid pathways.

SOURCE: ADVANCED NUTRITION AND HUMAN METABOLISM. 6TH. GROPPER & SMITH. (2013)

SUPER MINERAL MAGNESIUM

*A vital, essential mineral, **magnesium** is often overlooked by runners. Runners must be mindful of their sodium, calcium, potassium, phosphate, and magnesium (electrolyte) levels.*

Magnesium is my favorite mineral (NERD!) because it improves joint & ligament mobility, calms the nervous system, optimizes blood circulation, is critical for cellular energy processes, and it relieves muscle pain! You "should" be using an electrolyte replenishing drink already; it may contain magnesium but not in the levels you require. As always, seek a professional's guidance.

Supplements help fill the dietary gaps, environmental, and genetic conditions present us. We also recommend vitamins, minerals, fish oil, CBD, detoxification protocols, & protein supplementation as needed.

- Many runners over consume carbohydrates and under consume protein and fat, and eating disorders are common
- Your race effort will directly impact your needs; have a plan going in you feel confident with
- As a performance nutritionist, I advocate essential amino acids, vitamins, minerals, trace minerals, electrolytes; adequate intake is complex and may require testing to determine ratios
- Glycogen fatigue and dehydration are concerns for any athlete if their event exceeds 40 minutes in duration
- As a performance nutritionist, I recommend individuals steer clear of ALL DAIRY within 4 days of a race
- We don't recommend caffeine but some swear by it and we think that's ok! Make sure you experimented with anything you want to do on race day. Nothing new on race day!

Health, as with running, is accumulative. Indisputably, the week of the race is not best for beginning new dietary or supplemental protocols. However, despite mental routines and physiological changes requiring time; much occurs within the body in just a few days. Mental focus and clarity, inflammation, and recovery are critical to an enjoyable running experience/outcome.

not be relied upon as such. Edward Cleland and Mind Body Medicine of Michigan, LLC cannot be held liable for any health outcome resulting from this informational handout or other publications.

IT'S RACE WEEK!

DAYS
UNTIL
RACE

REMINDER NOTE: THIS IS AN EXAMPLE
WHAT WORKS BEST FOR YOU MAY VARY.
IT IS MORE IMPORTANT TO DO WHAT YOU FEEL
COMFORTABLE WITH THAN ANYTHING ELSE.

5

ALL 5 DAYS:

- Rest; make sure you have 2 REM cycles each night (7.5+ hrs./night)
- Comply with your best-practice dietary and supplement protocols, whatever they may be
- Consume a diverse range of organic fruits & vegetables (alkalinity reduces inflammation, speeds up muscle recovery)
- Plan ahead, how do you make this week less mentally or physically stressful?
- Cut all dairy
- Hydrate before bed

4

- Hydrate upon rising
- Do not skip on meals/cals.; 72 hours before the race is not the time to under eat
- Drink 1 servings of your electrolyte drink
- Seek balanced meals which include vegetables, fish, nuts, and seeds
- Healthy carbohydrates low on the glycemic index for inclusion; berries, apples, lentils, and beans
- Hydrate before bed

3

- Hydrate upon rising
- Drink 1-2 servings of your electrolyte drink/day
- Adding a sweet potato/carb is great but carbo-loading up on pasta etc. is unnecessary
- Consume a macro-nutrient balanced (protein, fat, and carbohydrate) medium to large portioned breakfast {examples: organic; eggs w/ avocado toast+sprouts, large P shake with greens and nut butter, chia seed pudding with berries
- Small snacks of seeds, nuts, and fruits, vegetables with hummus or nut butter, animal-jerky

2

- Consume a personalized or macro-nutrient balanced (protein, fat, and carbohydrate) medium portioned lunch protein {examples: organic; eggs w/ avocado toast+sprouts, large P shake with greens and nut butter, chia seed pudding with berries
- Hydrate before bed (+sleep routine, including meditation and lack of screens)
- Be physically and mentally prepared for the race more than 12 hours before the race; enjoy the expo day(s), get into the mindset.

1

Track Your Week!

Individuals who record their practices gain awareness of personal habits, rituals, strengths, and weaknesses which impact performance and change. Scheduling a meditation, meal prep, or massage prioritizes it. That which we prioritize, and record, becomes more likely to become a habit; this leads to change. Change within a week is complex subject, but, through writing down goals and tracking them - we gain personal awareness and increase the likelihood we align our actions with intentions.

IT'S RACE DAY!

NOTHING NEW

- Hydrate upon rising pre-bathroom/shower
- Half serving of electrolyte drink if inclined or coconut water (6-8oz.)
- PRE-RACE: **@MOST:** 3 hr. – 90 minutes PRE-RACE BREAKFAST: 200-400 calories of balanced, carb-centered. EX: Small protein shake with greens and fruit, toast with nut butter and banana, eggs and toast – they are classics for a reason.
15-MINUTES PRE-RACE 100-200 cals of electrolyte drink or running gel of familiarity with water (less than 8oz)
@LEAST: a 100-200 carb-based drink or gel pre- race with water
- Note: 1 HOUR PRE-RACE: A good time to slow down on the water and let your bladder catch up.

We do not recommend solid food in the first 2 hours of running, although some do well with it

DURING: 0-40 minutes: water only

@40-50 minutes: 1-2 gel with water or 8oz electrolyte drink, not both

Intensity and duration are critical factors; consider you will want to replenish between 120-240cals per hour.

50-80 minutes: water

75-120 minutes: roughly 200-300 cals. +water

**if longer, you may require food or nothing at all – depending on effort level – 6-8 oz. of water per hour*

POST: Immediately following your event, consume a beverage with protein and carbohydrate. A protein (20g) powder and organic greens powder in a shaker bottle with almond milk will do. Then, go hydrate, live, and consume as you wish!
Congratulations!

PLANT-BASED/RUNNING/RESOURCES FOR CONSIDERATION:

DR. MARK HYMAN, INTEGRATIVE FUNCTIONAL NUTRITION
RICH ROLL, FINDING ULTRA, THE PLANTPOWER WAY
(ROLL & PIATT)

SOURCE: FAST TRACK BY SUZY HAMILTON & JOSE ANTONIO
HANSON'S MARATHON METHOD, HUMPHREY

DR. T. COLIN CAMPBELL (SEVERAL PUBLICATIONS)

DR. CALDWELL ESSELSTYN

DR. JAMES GORDON, MD

DR. LEN SAPUTO, MD

DR. DEAN ORNISH The pH DIET

ECKHART TOLLE A NEW EARTH & THE POWER OF NOW

RAM DASS, BE HERE NOW, POLISH THE MIRROR

EAT & RUN, SCOTT JUREK

EATING ANIMALS, JONATHON SAFRAN FOER

JEFF GALLOWAY, NUTRITION FOR RUNNERS

HOW CHAMPIONS THINK, DR. BOB ROTELLA

THE BRAVE ATHLETE, DR. SIMON MARSHALL

FOR A LIST OF NERDY TEXT BOOKS, PLEASE EMAIL EDWARD

FOR PERSONALIZED PLANNING, PLEASE SCHEDULE AN APPOINTMENT

HEALTHY DISCUSSION

WHAT IS HEALTHY FOOD?

This answer changes per person. In certain traditional Indian and Chinese health practices, cucumbers, celery, lettuces, apples, lemons, and other seemingly health foods may be suitable for some and unhealthy for others. In western-found integrative medicine, such as in practiced in our office, we conduct food sensitivity test, in addition to other methods for selecting diet choices. We too find "healthy foods" (often eggs, some proteins, and random nuts, seeds, fruits, and vegetables) are indicated as foods to avoid. Health, diet, and the body is unique. I would define "healthy food" as real, organic-food, which has been decided is healthy for you to consume.

HEALTHY DISCUSSION

WHAT IS THE MOST IMPORTANT ASPECT OF DIET & RUNNING?

Mindset. Need proof?

Think about running a race; there will be moments of pleasure and discomfort. We know this going into the race. What do you do?

Think about adhering to a dietary practice; there will be moments of pleasure and discomfort. We know this going into the diet. What do you do?

Those of us who were best able to dissolve ego, reflect our training program, and reach our goals are the one's who best programmed our mindset. It is a continual practice. Your true mindset will surface when you are faced with adversity. Change is challenging, be kind to yourself. It is okay to delay discomfort if you decide to; I often do this in miles 9-11 of 13.11 runs! Enjoy this experience; it is all a gift and will not last long! -Edward

Edward is an Athletic Functional Nutritionist, Holistic Health Educator, and PhD Student studying Mind Body Medicine. He is the Nutritionist for Brooksie Way, Runnin' Gear, and Hanson's Running Team, the Performance Specialist for the Detroit Renegades, a Corporate Wellness Consultant for Comerica Bank and General Motors, and is a marathoner. He is the Founder of Mind Body Medicine of Michigan, LLC located at 441. S. Livernois Rd. Rochester Hills, MI 48307. Connect with MBM Michigan on IG and Facebook. In January of 2020, Edward is opening a new health bar called Planted SUPERFOOD Bar in the SE plaza at Tienken and Rochester Rd. in Rochester, Michigan. Visit www.plantedSFB.com for details.

www.edwardcleland.com www.MBMmichigan.com 925-305-4320 wellness@edwardcleland.com 441 S. Livernois Rd.

This handout is for information purposes only. This information does not constitute medical advice and it should not be relied upon as such. Edward Cleland and Mind Body Medicine of Michigan, LLC cannot be held liable for any health outcome resulting from this informational handout or other publications.