

Fueling and Nourishing Your Growing Athlete

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When you make
the decision to
take control of
your nutrition
some interesting
things begin to
happen...

- You recover faster between workouts.
- You perform better during and after competition.
- You reduce risk of Injury and speed up healing
- You have higher, more consistent energy levels.
- Your overall focus and concentration improves
- You improve immune function.

Which of the following is the most important fuel source for an athlete?



Fat



Protein

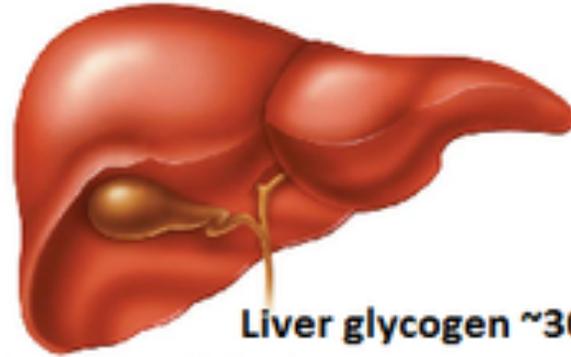


Carbohydrate



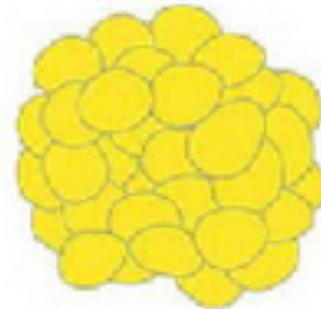
Caffeine

The body's 'fuel tanks'



Liver glycogen ~300 kcal

Muscle Glycogen ~2000 kcal
Muscle triglyceride (fat) ~4000 kcal

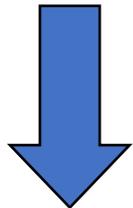


Adipose tissue (fat) ~100000 kcal!

Blood glucose ~40kcal



Unrefined
Carbohydrates



GLYCOGEN

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Oxygen

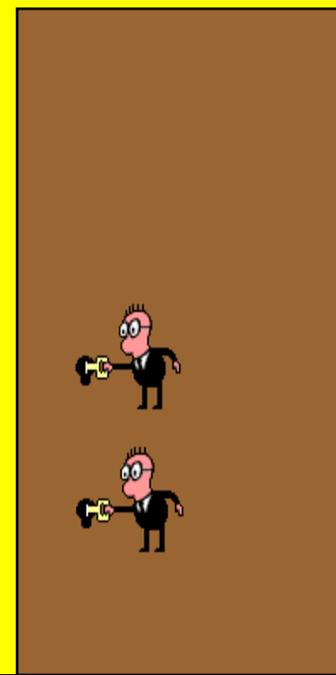
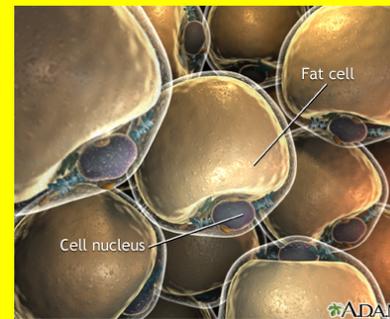
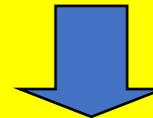


Glycogen
(Stored
Carbohydrate)

Glucose

KAREN SOSSIN
NUTRITION

Healthy Fats



Nutrition Game Plan

Which Tip Suits YOU....

1a. Ditch the Diets

1. Choose Carbs for Fuel
2. Protein for Power
3. Fear Not Your Fats
4. Calcium Concerns
5. Iron Intake

6. Stay Hydrated

7. Fuel your tank before practice or a game
8. Recovery is Everything
9. Unrefined Carbohydrates + Quality Protein + Healthy Fats = Personal Best
- 10a. Get Faster and Stronger Wisely

How to Fill your Fuel Tank

• Carbohydrates

- Variety of Colorful fruits and veggies(5/d), whole grains (oatmeal, quinoa, brown rice, amaranth), legumes (black beans, chickpeas, kidney beans, white beans)
- Most efficient source of energy, Glycogen stores will determine your performance
- Choose according to training intensity; more some days, less others..

• Fats

- Absorbs nutrients, balances energy levels, essential fatty acids, hormone production, protects vital organs, insulator, fuel source, feeling of fullness and satisfaction
 - Salmon, avocados, almonds, pistachios, walnuts, flaxseeds, chia seeds, hemp seeds, nut butters, olive oil, grass fed meat and dairy
 - Choose fats close to the source, Not all are created equal





Find Your
Rainbow

Seasonalfoodguide.
com

Foodprint.org

● Protein

- Essential for growth, build, repair, hair, nails, skin, organs, immune system, not a major source of energy, unless total calories consumed is insufficient
- Fish, chicken, lean grass fed when possible meats, cottage cheese, eggs, greek yogurt, lentils, tempeh, chickpeas, black beans, quinoa, nuts, seeds
- Growing athletes have increased needs, easily met through real food. Relying supplements can leave one short of other nutrients.
- ***Time accordingly.*** Spread required amount/day over 4 -6 meals and snacks; 15 - 30 g/meal; 10 - 15g/snack

Micronutrients Of Concern for Growing Athletes



Calcium

Calcium Crisis

Window of time

Dairy and Non-Dairy
Sources



Iron

Most common nutrient
deficiency

Heme vs Non-Heme



Potassium

"helps nerves and muscles communicate. It also helps move nutrients into cells and waste products out of cells." Potassium is important for building proteins, breaking down carbohydrates, building muscle, facilitating healthy growth" DG 2015



Vitamin D

Bone Health, Skeletal
Muscle, Immunity,
Inflammation

Assess Levels before
supplementing and
discuss with PCP

Nutrients of Interest for Growing Athletes

You don't need dairy to get **Calcium**



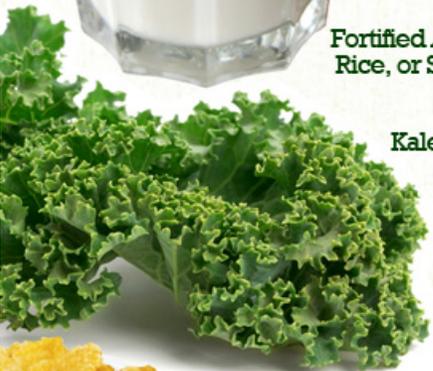
Fortified Almond, Rice, or Soy Milk



Edamame (Soybeans)



Sesame Seeds



Kale



Collard Greens



Fortified Orange Juice



Fortified Breakfast Cereal



Tofu



Broccoli

VeganStreet.com
NUTRITION

good sources of **IRON**
plant based

chickpeas, kidney beans, butter beans and other legumes



quinoa



oatmeal



pepitas, flaxseeds, chia seeds and other seeds



dark chocolate and cocoa powder



spinach and other dark green leafy vegetables



peanuts, almonds, cashews and other nuts



dates, raisins, dried apricots and other dried fruits



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HYDRATE – PERFORM GREAT!

2-3 Hours Before Exercise



**One Water Bottle
(17-20 ounces)**



Every 20 Minutes of Exercise



**Half of One Water Bottle*
(6-10 ounces)**



After Exercise

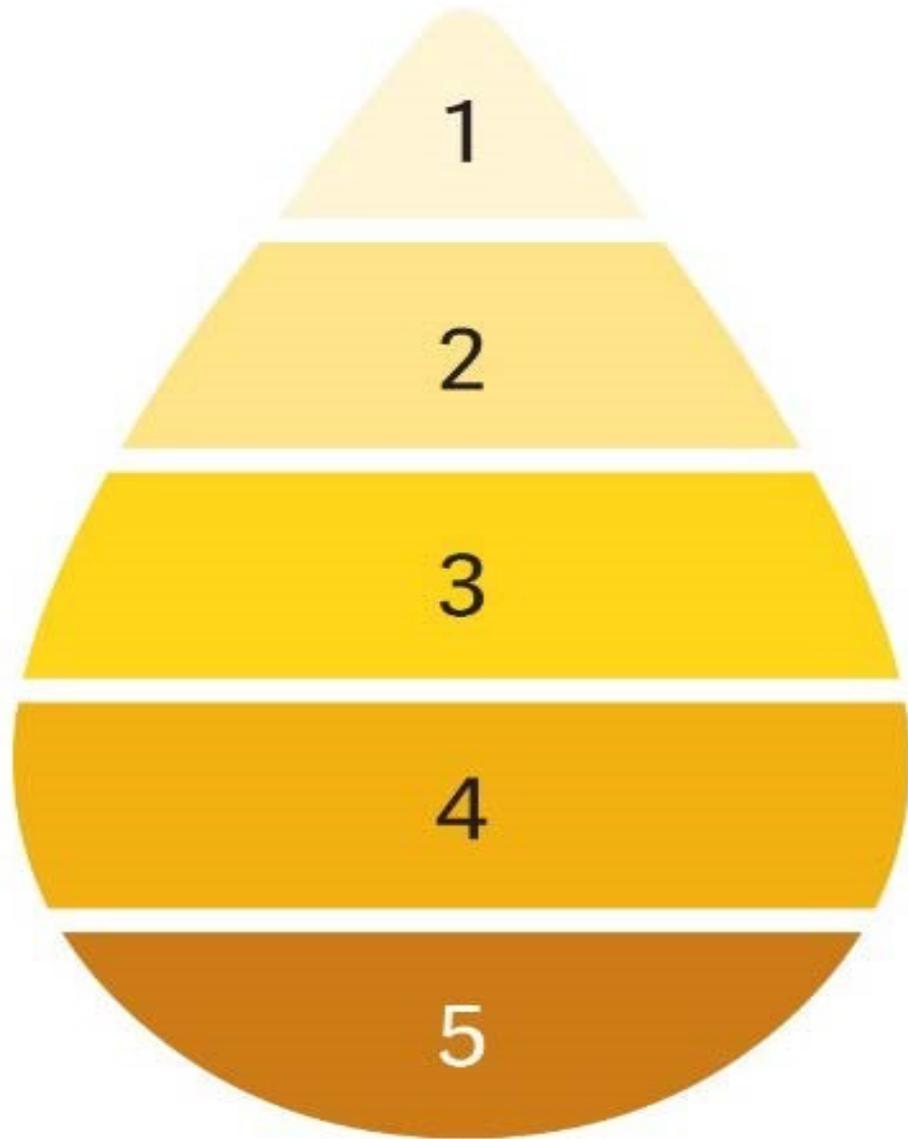


**One and a Half Water Bottles for
Every Pound of Sweat Loss
(20-24 ounces)**



*May vary by exercise.

**Recommended by the National Athletic Trainers Association



1

2

3

4

5

Hydrated
Ideal

Mildly dehydrated
Start to increase water intake

Dehydrated
Drink more water

Sports Drinks

- 14 - 20 grams of carbohydrate per 240 ml is equal to a 6 - 8% carbohydrate solution which delivers the optimal amount of both energy, fluid and electrolytes to enhance performance during exercise.
- grams of carbohydrate / ml = % solution
- $14/240 = 5.8\%$



The image shows a 32 oz bottle of Gatorade Orange sports drink. The bottle is orange with a white lightning bolt logo on the front. The label includes the Gatorade logo and the word 'GATORADE'. The nutrition facts label is on the right side of the image.

Nutrition Facts	
Serving Size: 8 oz	
Amount Per Serving	
Calories	50
Calories from Fat	0
% Daily Value*	
Total Fat	0 g 0%
Saturated Fat	0 g 0%
Trans Fat	0 g
Cholesterol	0 mg 0%
Sodium	110 mg 5%
Potassium	30 mg 1%
Total Carbohydrate	14 g 5%
Dietary Fiber	0 g 0%
Sugars	14 g
Sugar Alcohols	0 g
Protein	0 g
Vitamin A	0 IU 0%
Vitamin C	0 mg 0%
Calcium	0 mg 0%
Iron	0 mg 0%

Pre-Training/Competition

- Your glycogen stores come from your training diet..NOT from one meal..
- The purpose of pre comp nutrition is simple to offset fatigue by topping off energy levels.



Pre-exercise Fueling Windows



≤ 1 hour	~2 hours	~3 hours	≥ 4 hours
Keep it simple: water and easy to digest carbs	Water/Sports Drinks, Carbohydrates	Mini mixed meal with fluids	Pre-game meal with fluids
Low protein, fat, and fiber	Low protein, fat, and fiber	Include some protein, fat, and fiber	Whole grain foods, low fat protein, starchy vegetables
100-200 kcals	200-300 kcals	300-400 kcals	400 + kcals
<u>Examples:</u> sports drink, small banana OR $\frac{1}{2}$ sport bar & water/juice	<u>Examples:</u> Toast/bagel with jam and water/juice	<u>Examples:</u> whole wheat turkey sandwich, fruit, fluids	<u>Examples:</u> chicken, bean and rice burrito and water or low fat milk/juice

THREE-STEP RECOVERY NUTRITION

- Within 30 minutes post-workout:

Step 1. Refuel your body's energy reserves with at least 60 grams of carbohydrate in order to maximize this ***window of opportunity for glycogen storage.***

Step 2. Repair and rebuild stressed muscle tissue with at least 15 grams of protein.

Step 3. Rehydrate with at least 20 ounces of water and/or electrolyte beverage for every pound lost during practice.



KAREN SOSSIN
NUTRITION



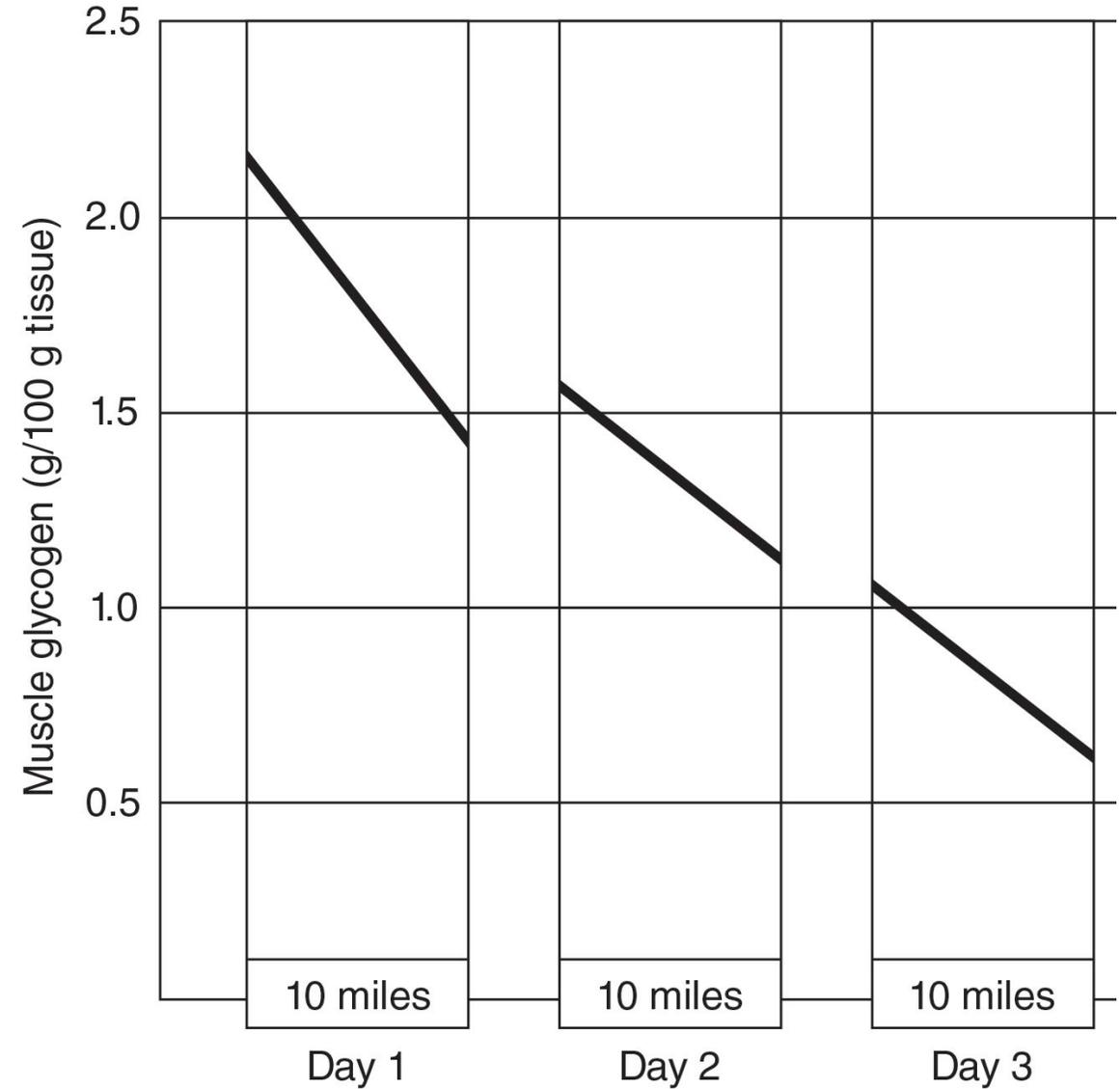
Practice may end with a cool down and stretching, but practice is not completely finished until a recovery snack/meal and fluid is consumed.

Carbohydrates replace depleted glycogen stores

- Day 3



Glycogen Fuel Tank



Fuel before Practice/Game

- Avoid High fiber, high fat, it could take hours to break down these foods leading to GI upset; carbonated beverages
- **KNOW YOUR OWN BODY AND WHAT IT NEEDS, EVERY BODY IS DIFFERENT, Some need more, some need less**
- 3 - 4 hours
 - Whole Wheat Turkey and Avocado sandwich
 - Yogurt with mixed Nuts, Banana and Berries
 - Taco with meat, lettuce, tomato
 - Water or Sports Drink
 - Oatmeal with nuts and fruit
- 1 -2 hour
 - Bagel, English Muffin
 - Rice Cakes
 - Carbohydrate Based Energy Bar
 - Banana
 - Water or Sports Drink
 - Applesauce



Recovery is Everything

Carbohydrate and protein

Chocolate Milk

Nut butter sandwich

Energy Bar = 3:1 or 4:1 CHO:Pro
(24g:8g)

Greek Yogurt, Granola and
Banana

Trail Mix

EASY TRAINING /

MODERATE TRAINING

HARD TRAINING / RACE DAY



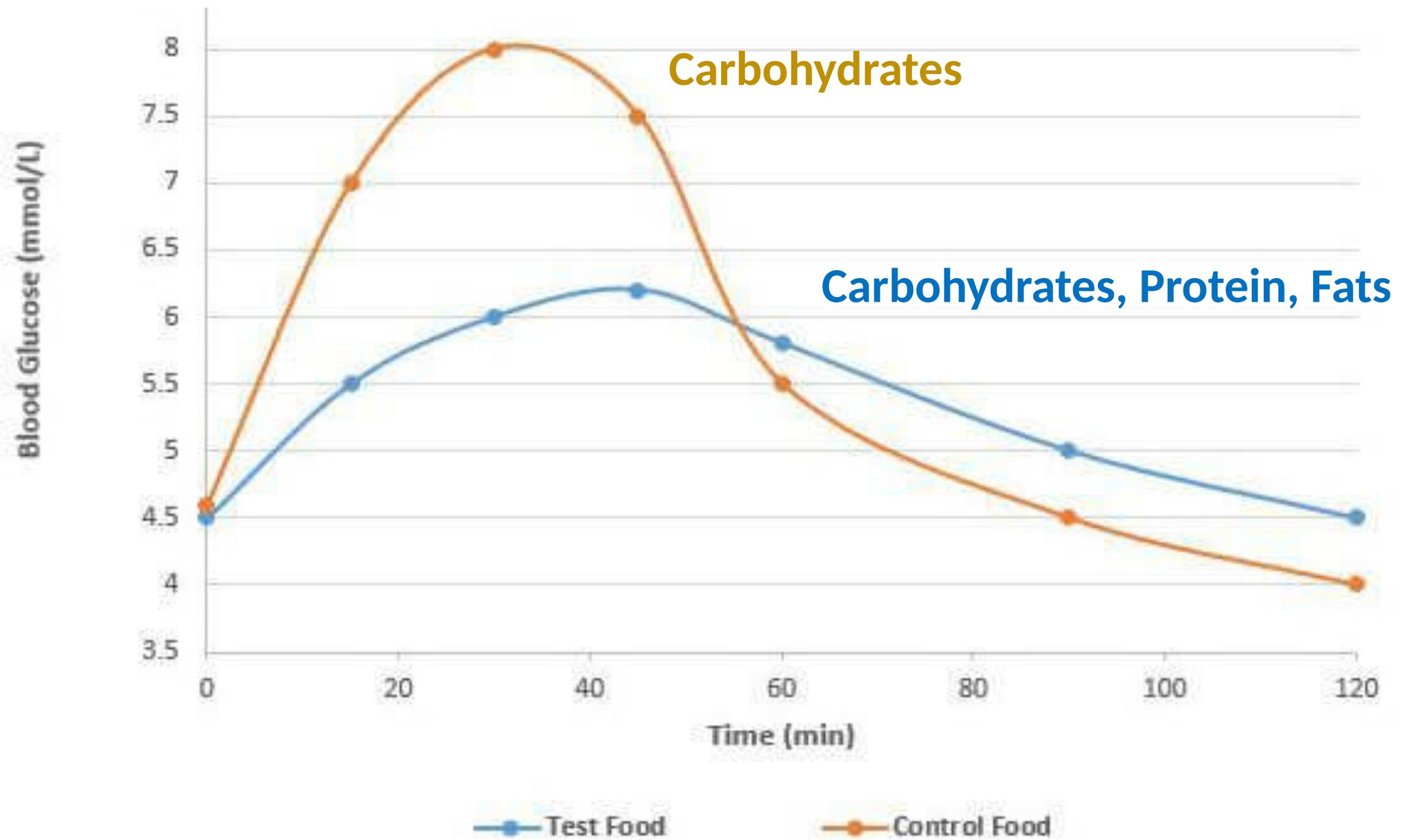
SOURCE: United States Olympic Committee Sport Dietitians
University of Colorado Sport Nutrition Grad Program

JOURNAL

Formula for Success

Unrefined Carbohydrates + Quality Protein + Healthy Fats =
Personal Best

You Choose!



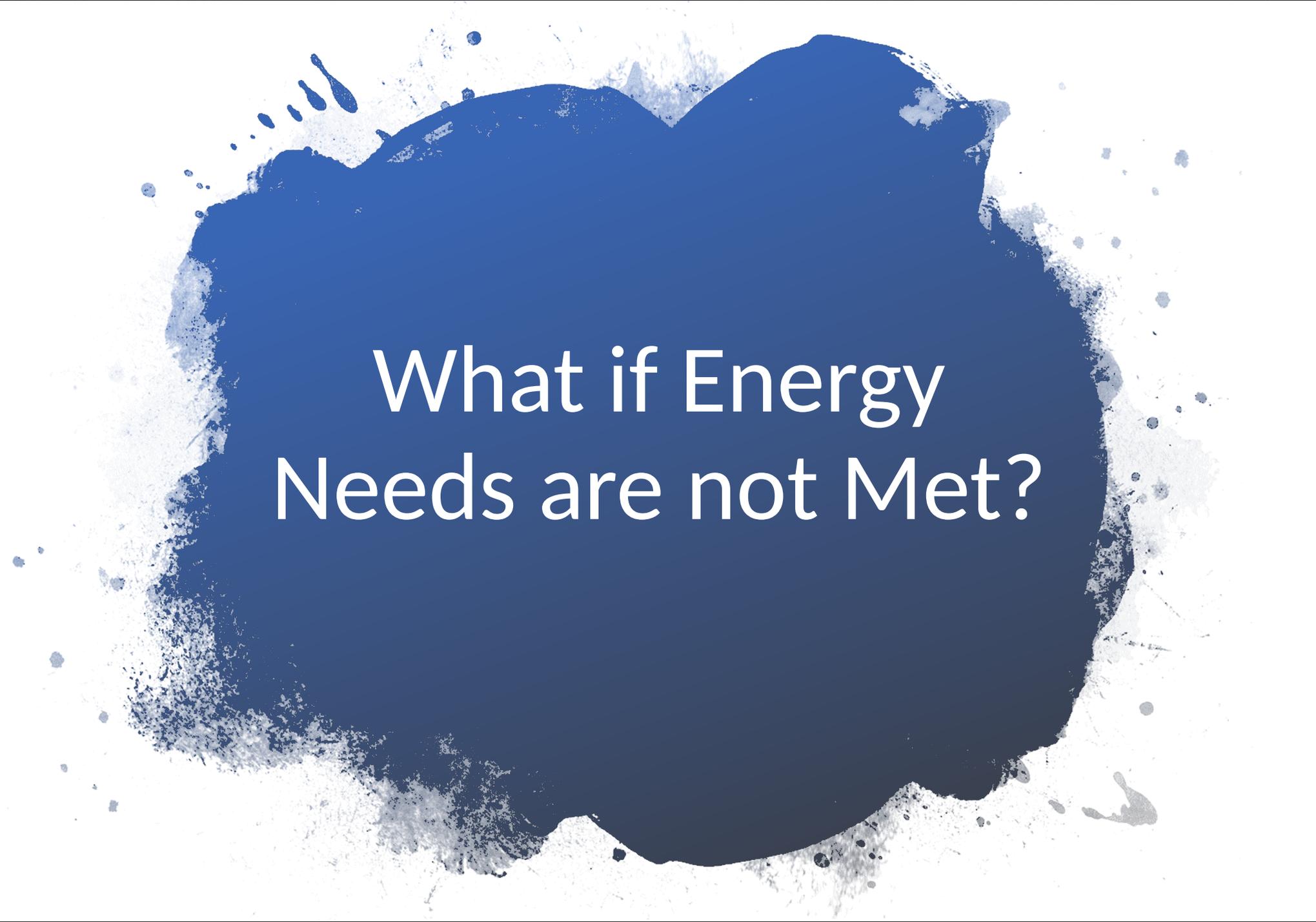
Carbohydrates

Carbohydrates, Protein, Fats

—●— Test Food

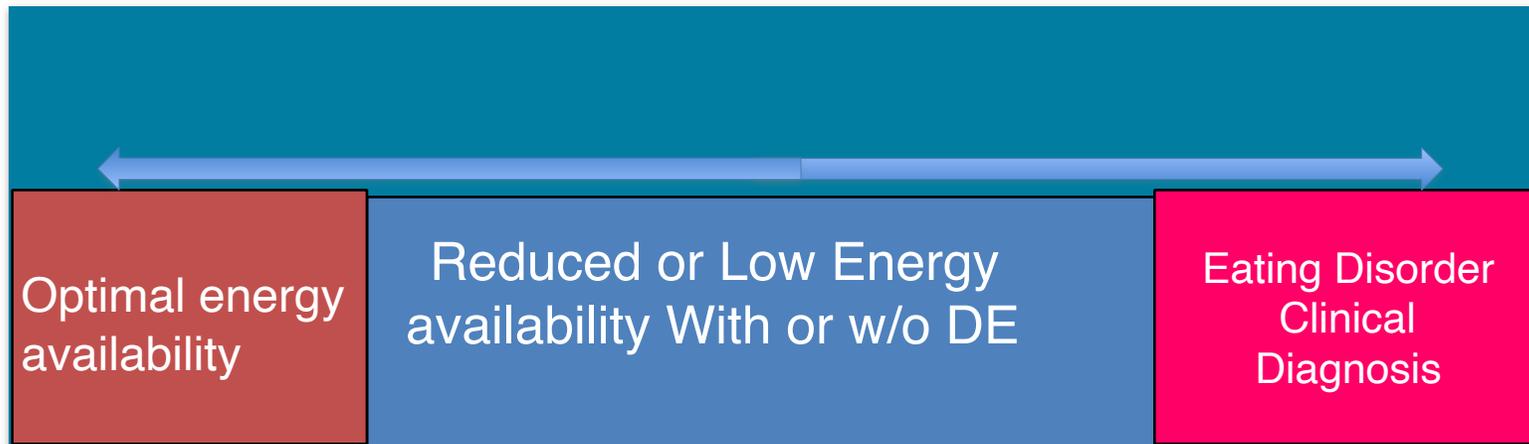
—●— Control Food

Unrefined Carbohydrates +	Quality Protein +	Healthy Fats +
Whole Grain Bread	Sliced Turkey	Avocado
Quinoa	Chick Peas	Walnuts
Sweet Potato	Grilled salmon	Green salad with olive oil
Arugula	Grilled Chicken	Slivered almonds
Strawberries	Greek Yogurt	Sunflower Seeds
Spinach	White Beans	Drizzle olive oil
Banana	Almond Butter	Sprinkle or Dip with flax seed
Whole grain flat bread	Hummus	Sliced tomatoes with olive oil
Farro	Edamame	Pumpkin seeds
Brown Rice	Black beans	Slivered almonds
Asparagus	Eggs	Avocado
Whole grain pasta	Chick peas	Pesto
Tomato sauce	Lentils	Walnut oil

A dark blue, irregularly shaped graphic with a splatter effect, containing white text. The graphic is centered on a white background and has a rough, ink-like border. The text is in a clean, sans-serif font.

What if Energy
Needs are not Met?

Spectrum of Eating Behaviors



Optimal energy
availability

Reduced or Low Energy
availability With or w/o DE

Eating Disorder
Clinical
Diagnosis

“Nearly 8x as many adults report a lifetime history of a subclinical ED compared to those who reported AN. For every adult who has experienced full syndrome AN (1 in 200) , many more (at least 1 in 20) have struggled with *Almost Anorexia*.”

Jennifer Thomas, Jenni Schaefer, Almost Anorexia Hazelden 2013

Three Primary Factors that Influence Body Composition



It's up to you!

Thanks Mom, Dad, Grandma, and Grandpa

Puberty; the ever evolving body and brain

It's up to you!

What Can You Do to Maintain or Build Muscle Mass?

- Increased muscle growth occurs with resistance training and when more calories are consumed than expended.
- Eat enough!
- Start your day off right by consuming breakfast, and eat every 2-3 hours throughout the day.
- Consume pre- and post-workout snacks to help repair and build muscle. Aim for 15 - 30 grams of protein post-exercise and for most of your meals and snacks.
- Vitamins and Minerals
- Post-exercise refueling, rest, including sleep



Dieting Dangers

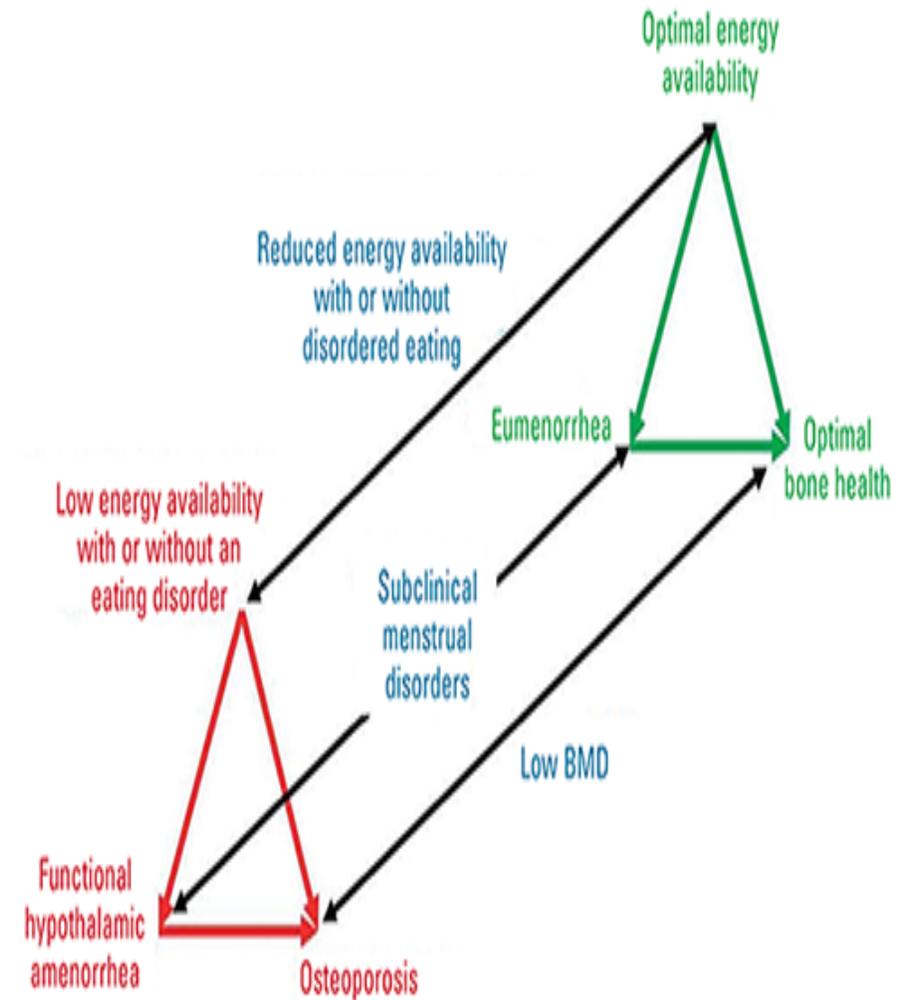
- Seemingly healthy food choices and behaviors can turn into an unhealthy cycle of under-eating and under-fueling.
- Becomes a short term solution with long term consequences.
- Research shows that concern and focus on body weight predicts cyclical dieting, disordered eating and even eating disorders.
- Focus instead on Intuitive Eating; hunger and fullness cues, , mindful eating, body-food awareness, self care, eating for physical rather than emotional reasons, body appreciation, learning to pause - meditation
- Eliminate Fat/Diet Talk

Children with a Positive Body Image

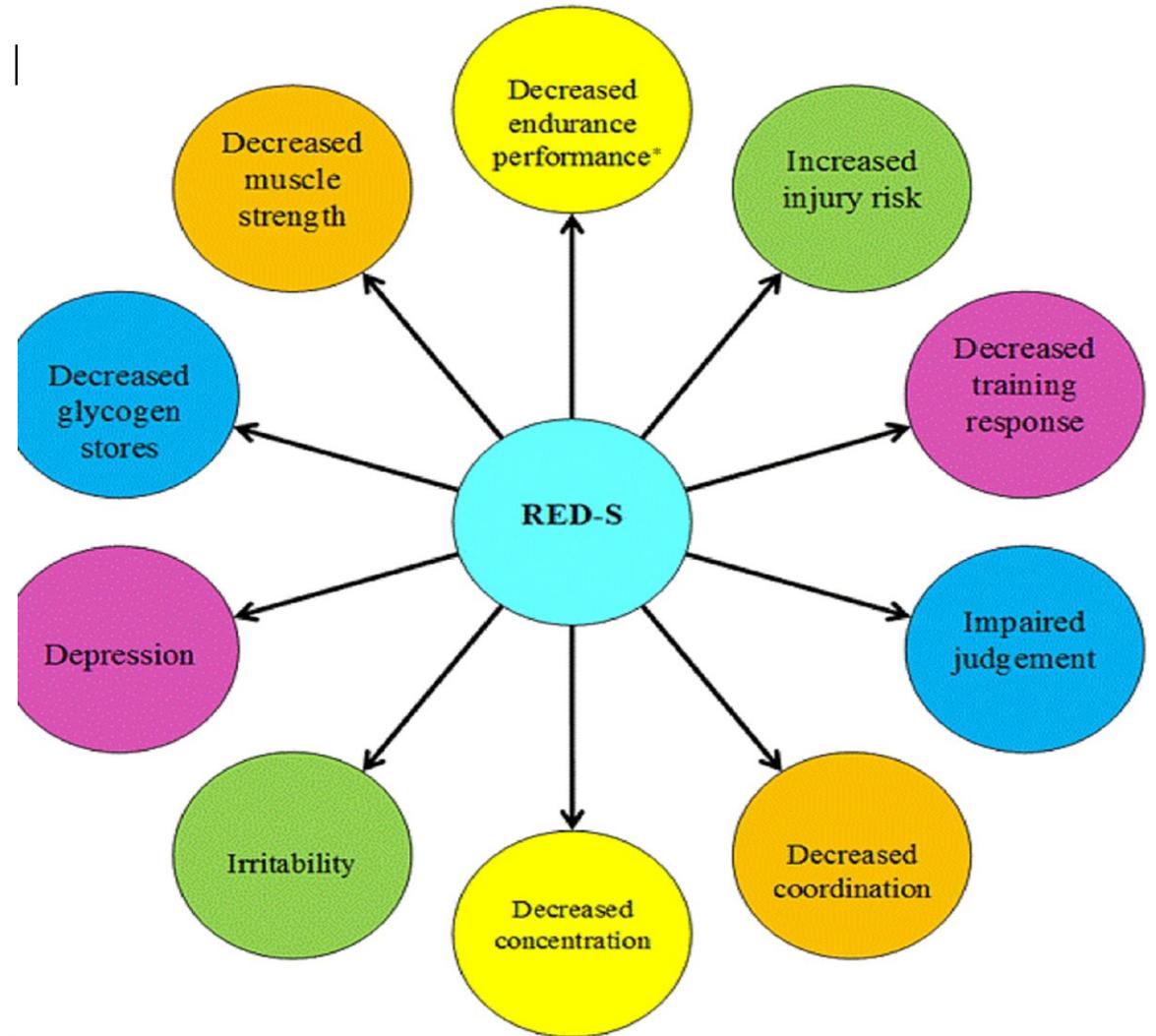
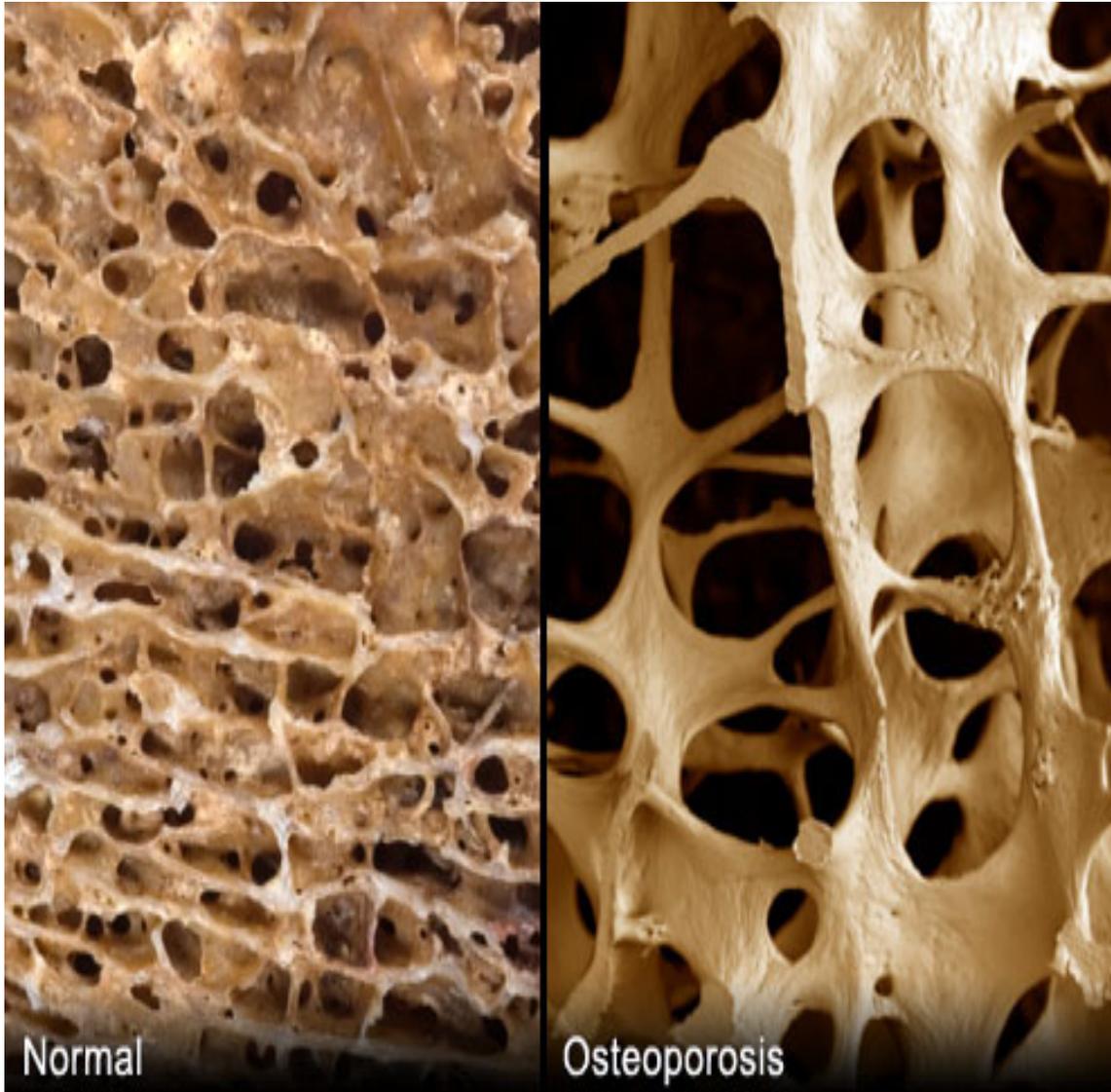
- Healthier Diets
- Stable Weights
- Better self-esteem
- More robust emotional health
- What can we do?
- Role model
- Family Meals
- Focus on health vs weight
- Listen more, talk less..

Female Athlete Triad

- The female athlete triad is a medical condition observed in physically active females involving three components: 1) low energy availability with or without disordered eating, 2) menstrual dysfunction, and 3) low bone density.
- An individual does not need to show clinical manifestations of all three components of the female athlete triad simultaneously to be affected by the condition.
- Consequences of these clinical conditions may not be completely reversible, so prevention, early diagnosis, and intervention are critical.
- All athletes are at risk of the female athlete triad, regardless of body build or sport.



Health Consequences of Relative Energy Deficiency in Sport (RED-S) showing an expanded concept of the Female Athlete Triad to acknowledge a wider range of outcomes and the application to **male athletes** (*Psychological consequences can either precede RED-S or be the result of RED-S). *This can occur with or without a clinically diagnosed Eating Disorder.*



Importance of Family Meals

- **Decreased risk of disordered eating**
- **More Likely to eat 'healthier foods'**
- **Lower depression**
- **Greater Academic Achievement**
- **Less likely to experience delinquency**
- **More likely to have positive family interactions**



- Riese, B & Hammons, A.(2011). Journal of the American Academy of Pediatrics. Neumark-Sztainer, D. et al. (2004) Journal of Adol Health, (2004)
- Fulkerson, et al. (2009). Journal of Adolescent Health. Griffin, K..et al. (2000). Psychology of Addicted Behaviors

WHAT IS 'NORMAL' EATING?

"Normal eating is going to the table hungry and eating until you are satisfied. It is being able to choose food you like and eat it and truly get enough of it -not just stop eating because you think you should.

Normal eating is being able to give some thought to your food selection so you get nutritious food, but not being so wary and restrictive that you miss out on enjoyable food.

Normal eating is giving yourself permission to eat sometimes because you are happy, sad or bored, or just because it feels good.

Normal eating is mostly three meals a day, or four or five, or it can be choosing to munch along the way. It is leaving some cookies on the plate because you know you can have some again tomorrow, or it is eating more now because they taste so wonderful.

Normal eating is overeating at times, feeling stuffed and uncomfortable. And it can be undereating at times and wishing you had more.

Normal eating is trusting your body to make up for your mistakes in eating. Normal eating takes up some of your time and attention, but keeps its place as only one important area of your life."

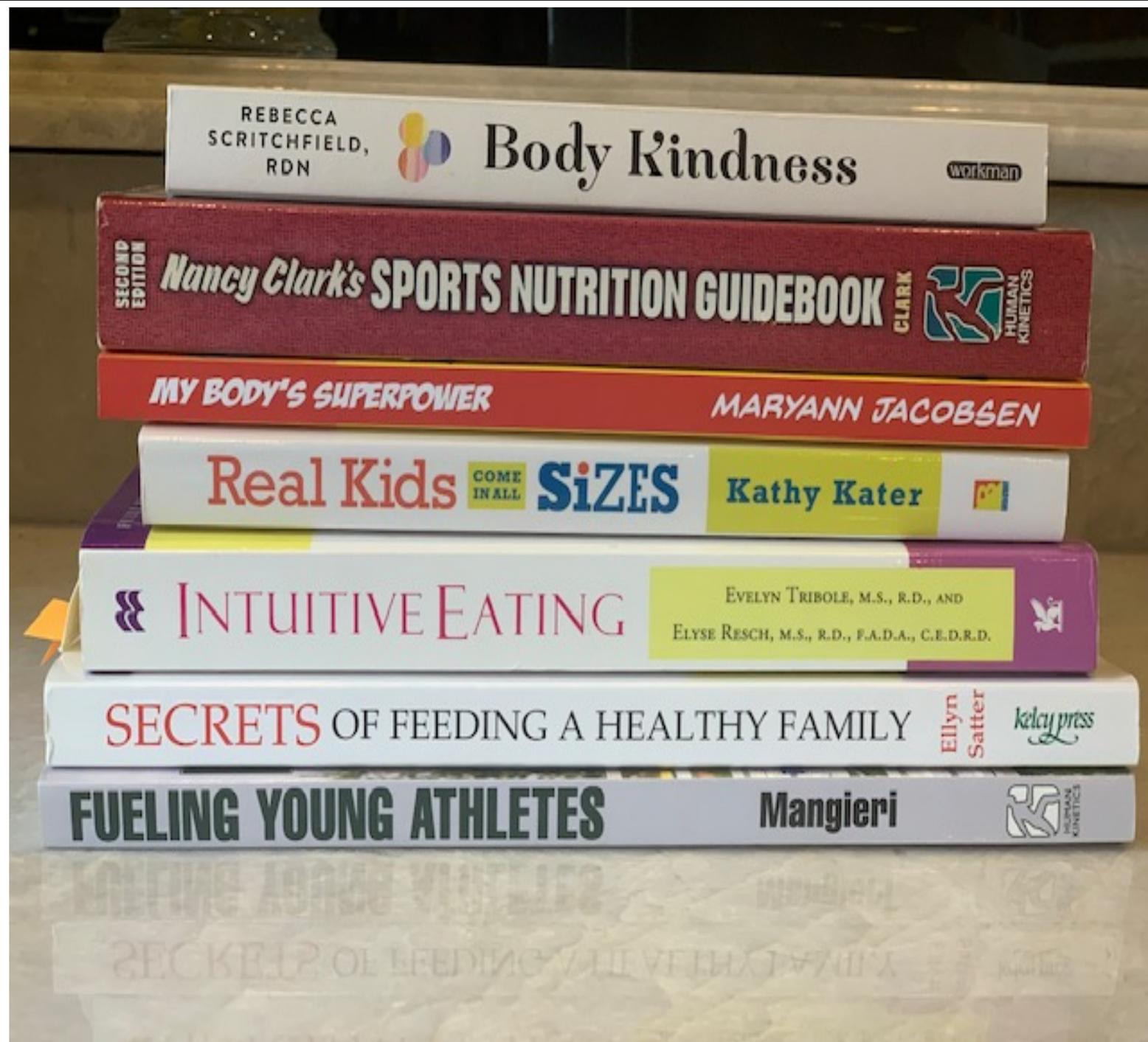
~ Ellyn Satter

Supporting your child in learning to tolerate stress and regulate their emotions will take them further along on their journey towards optimal health than insisting they eat 'healthy' all the time.

Let's keep it in perspective..



Resources for Parents





karensossin@gmail.com

www.karensossinnutrition.com