

Building a Better Sports Diet:

How to resolve the confusion



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Goal of this session

To address the nutrition questions and confusion of both fitness exercisers and athletes alike.

Topics include:

- Carbohydrates, low carb sports diets
- Protein needs, protein supplements
- Dietary fat, coconut oil
- Sports drinks, electrolytes
- Caffeine, energy drinks
- Vitamins: food vs supplements
- How to build a well-balanced sports diet



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Why is sports nutrition so confusing...?

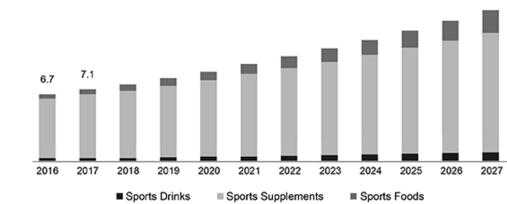
Advertising leads people to believe commercial products are far better than food.



3

Supplement sales are booming

U.S. sports nutrition market size, by product, 2016 - 2027 (USD Billion)



4

Trendy lingo adds confusion

“Good” vs “Bad” Foods

Too judgmental; eating should not be a source of guilt or shame

“Clean” foods

Is food that comes in wrappers actually dirty?

“No sugar”

No fruit? No milk or plain yogurt? No HFCS? No refined white sugar?

“Simple ingredients”

Salt, sugar, white flour are simple ingredients...

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Social media is filled with *#ClickBait* and *#SportsNutritionMisinformation*

#BeefBuildsMuscles

#VeganAthletesWin

#CarbsAreBad

#CarbLoadWithPasta

#IntermittentFastingYES!

#KetoWorksBest

#ExerciseOnEmpty

#FuelUpforSports

#TooMuchInformation

#WhoTo Believe?

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How can you resolve the confusion and help your clients eat better?

- Listen not only to *what* your clients are saying but *how* they are saying it.
- Encourage them to *experiment* with different fueling patterns.
- *Problem solve* with them ways to overcome barriers that hinder consuming a good sports diet.
- Help them *create a food plan* they are willing to eat for the rest of their lives.

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Dietary improvements happen when the benefits are bigger than the costs

Benefits

- Eat healthier diet and have more energy all day
- Perform better; perhaps achieve personal best
- Weight management becomes easier

Costs

- Planning food takes time and energy
- Fewer “pig outs” on “yummy junk food”...

Focus on the Benefits



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Source of confusion



“Carbohydrates are evil...”

“I stay away from bread. It has too many carbs...”

“I’m on the Paleo Diet; I don’t eat wheat or other grain foods.”

“I don’t eat pasta dinners anymore. I have a big salad instead.”

“No more orange juice ... too much sugar!!!”

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If carbs are evil, why do the Kenyans perform so well?

Typical diet:

77% Carb 10% Protein 13% Fat

(4.5 g Carb/lb)

(0.6 g Pro/lb)

Bread, rice, potato, porridge, ugali (corn meal)

Beef (only 3-4 oz, 4/week), kidney beans

Tea with whole milk and sugar (Sugar=20% of total calories)



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The carbs are evil message is targeted towards unfit people, not athletes...

Two-thirds of Americans are overfat, underfit and at high risk for heart disease, diabetes, cancer, etc.

The body of an unfit person does not metabolize carbohydrate as well as the body of a fit person.

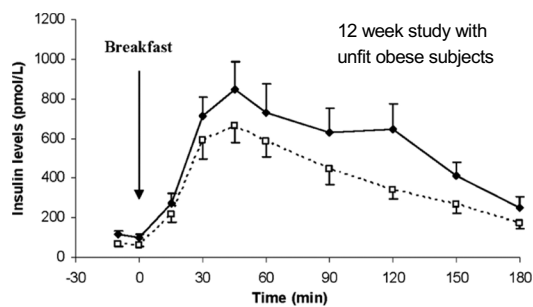
Physical inactivity is prevalent!



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Exercise helps regulate blood glucose

Pre- post study plasma insulin levels after breakfast



©2010 by Endocrine Society

Martins C et al. J Clin Endocrin Metab 2010;95:1609-1616

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Stop demonizing a single nutrient such as “carbs”

- **High Carb Diet:** associated with longevity in Blue Zones
(unprocessed foods, fruits, veggies, high fiber, plant protein)
- **High Protein Diet:** associated with higher risk of heart disease, cancer and all-cause mortality
(Nurses Health Study; All Professionals Follow-up Study)

*Do we need to look more at total lifestyle?
(Are ultra-processed carbs the real problem?)*

J. Wali et al. *Cardiov Res* 2020



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What kinds of carbs are you talking about...?

- Refined white flour** in bread and pasta?
- High Fructose Corn Syrup** in soft drinks?
- Sugary **candy**?
- Natural sugars in **fruits and fruit juice**?



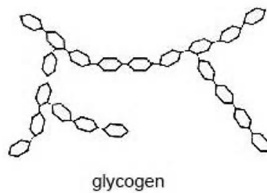
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Carbohydrates 101

Sugar

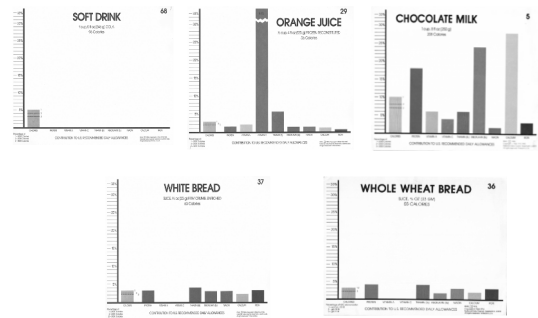


Starch



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Nutritional Value of Carbohydrates



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Carbohydrates refuel depleted muscle glycogen

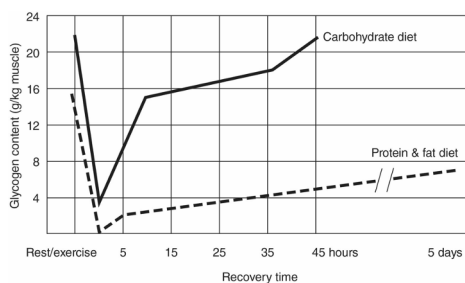


Chart: Nancy Clark's Sports Nutrition Guidebook, 6th Edition

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Carbs are actually performance enhancing

Exercise	Example	G Carb/lb body wt/ day	G Carb/kg /day
Light	Low intensity (Walk, golf)	1.5 - 2.25	3 - 5
Moderate	~1 hour per day moderate intensity	2.25 - 3.5	5 - 7
High	1 - 3 hour/day mod-high intensity	2.5 - 4.5	6 - 10
Very high	Extreme 4-5 h/day mod-high intensity	3.5 - 5.5	8 - 12

For a 150 lb athlete: 340-825 g carbs/day (1,350-3,300 carb-calories)

AND, ACSM, DC Nutr Athl Perf Position Statement 2016

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A problem—

Sample “Low Carb” Training Diet

	Sample menu	Cals	g Carb
Breakfast	Spinach-cheese omelet	400	1
	Turkey bacon	200	--
Snack	Almonds	200	8
Lunch	Grilled chicken on a salad	300	5
	Oil + Vinegar Dressing	300	--
Snack	Protein bar	200	16
Dinner	Salmon (6 oz cooked)	350	--
	Pile of broccoli (3 cups cooked)	150	30
Total	11% of total calories	2,100	60 g

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Lack of carbs hurts ice hockey performance

- During a hockey game, muscle glycogen declines 38-88%.

A motion analysis of elite ice hockey teams showed:

- Players with high (60%) carb diet skated 30% more distance- and faster than the players who ate standard diet (40% carb).

In the final period, the differences in performance were clear:

- The high carb group skated 11% more distance.
- The low carb group skated 14% less than in first period.

Akermark, *Int'l J Sports Nutr* 6:272-84, 1996



20

Fueling with carbs before and during exercise improves endurance performance!

10 men completed treadmill runs (70% VO₂ max) to exhaustion

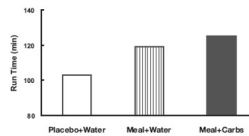


Image courtesy www.gsaiweb.com SSE#108 Williams

- Trial #1. No calories pre-ex + water during Run-time: 102 min
 Trial #2. Carb meal 3 h pre-ex + water during Run-time: 112 min
 Trial #3. Carb meal pre-ex + sports drink during Run-time: 125 min

Nancy Clark, MS, RD

Chrysanthopoulos *Int J Sport Nutr Exerc Metab* 2002 12(2):157-71

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Adequate carbs improve marathon times

Non-elite runners paired on their predicted marathon run time

Divided into two groups (14 runners per group):

- No pre-planned nutrition 3:49 marathon time (34 yo)
- Scientifically-based nutr plan 3:38 marathon time (42 yo)

Planned feeding: two gels + 7 oz. water 10-15 min pre-race
 one gel at 40 minutes after the start, then
 one gel every 20 minutes plus 24 ounces water /hour

Each hour: 3 caffeinated gels = 240 calories per hour

Similar GI complaints in each group (few complaints and not different)

Hansen *Int'l J Sports Nutr Exerc Metab*, 2014

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How do athletes who limit “carbs” fuel their muscles?



One large bagel (60 g carb - 300 cals) =

16 strawberries + 1 cup blueberries + 1 medium banana

Sandwich + 100-calorie bag pretzels (62 g carb) =

24 cherry tomatoes + 2 (7") cucumbers + 2 (8") carrots +
 2 large peppers + 5 cups greens

2 cups pasta (84 g carb; 1/4 lb uncooked) =

2 c cooked kale + 8 spears broccoli + 3 cups cooked zucchini
 sauteed with 1 large onion



Grains can be helpful for athletes who train hard!

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Hard exercise + low carb diet = needless fatigue

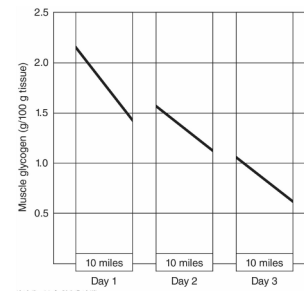


Chart: Nancy Clark's Sports Nutrition Guidebook, 6th Edition

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Depletion of Muscle Glycogen Stores

Football team trends Aug - Nov

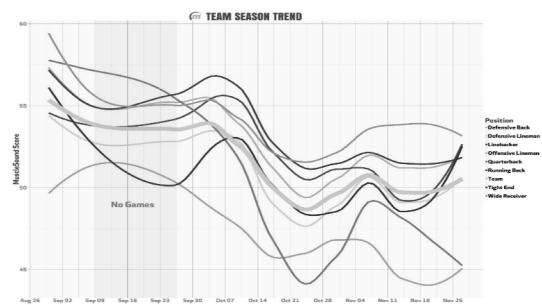


Image courtesy of MuscleSound

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Paleo dieter

“But I feel so much better when I don’t eat grains...”

Question: What were you eating before?

Answer: The S.A.D. Diet (Standard American Diet)



Each person is an experiment of one

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What about gluten-free athletes: Can they consume adequate muscle fuel?

Popular gluten-free sports foods include:

- Rice, (sweet) potato, corn, starchy vegetables, beans, (GF) oats
- Banana, raisins, dates, dried pineapple, all fruits
- Energy bars: Lara, KIND, Clif Builder's, Odwalla, PURE Bar, First Endurance Bar, Hammer Bar, Wings of Nature Bar...
- Hammer gel, Honey Stinger Waffles, Gu, Chomps...



www.glutenfreediet.ca



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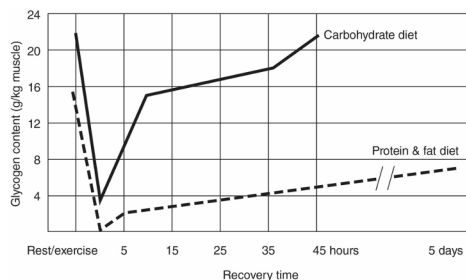
Topic of confusion

What's the right balance of protein and carbohydrate?



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Protein & fat do *not* replenish depleted glycogen stores



Reprinted by permission from J. Sargent, et al., 1987

Chart: Nancy Clark's Sports Nutrition Guidebook, 5th Edition

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Problem with high protein diets

If eat too much protein—

- Displaces carbs.
- Can be high in saturated fat, cholesterol
- Impacts the environment
- Expensive and a waste of money

300 calories of chicken breast = \$2.00

300 calories of pasta = \$0.30

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How much protein does your body require?

	g Pro/kg	g Pro/lb
Current RDA	0.8	0.4
Athletic adult	1.0-1.5	0.5-0.75
Growing teen athlete	1.5-2.0	0.7-1.0
Adult building muscle mass	1.5-2.0	0.7-1.0
Adult restricting calories	1.7-2.0	0.8-1.0

120 lb. athlete might require 65 - 110 g pro/day
150 lb. athlete might require 80 - 115 g Pro/day

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Most athletes eat a "high protein" diet *without* protein supplements

Sample "high protein" base menu

	Protein-rich food	Protein (g)	Calories
Breakfast	6 egg whites	20	90
Snack	1 cup cottage cheese	30	200
Lunch	4 oz deli turkey	25	120
Snack	8 oz. Greek yogurt	20	140
Dinner	8 oz salmon	60	350
Total		160	900

150 lb. athlete might require 80 - 115 g Pro/day

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Can I meet my protein needs from just plant foods...?

Beans/ Legumes	Protein g/100 cal		Nuts/seeds	Protein g/100 cal
Chickpeas	6 g/1/2 c		Almond butter	4 g/1 T
Edamame	9 g/1/2 c		Chia seeds	4 g / 1.3 T
Hummus	3 g/ 3 T		Hemp hearts	7 g / 2 T
Refried beans	5 g/ 1/2 c		Sunflower seed kernels	3 g / 2 T
Peanut butter	4 g/ 1 T		Walnuts	3 g/ 2 T

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Plants have less leucine (Goal:2.5 g/meal every 3-4 h)

Animal Food	Leu- cine	Cals	Plant food (swap)	Leu- cine	Cals
Eggs, 2 large	1.1 g	155	Peanut butter, 2 T	0.5 g	190
Milk, low-fat 8 oz	1.0	120	Soy milk, low-fat	0.5	105
Tuna fish, 1 can	2.3	120	Black beans, ½ cup	0.7	110
Chicken breast, 3 oz cooked	2.1	150	Tofu, 6 oz extra firm	1.4	140
Cheese, 1 oz	0.6	115	Almonds, 3/4 oz	0.3	120
Beef, 5 oz cooked	3.8	265	Lentils, 1 cup	1.3 g	225

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Sample vegetarian diet

Target: 15-25 g every 3-4 hours ("protein pacing")

Meal	Menu	g protein	calories
8:00 Breakfast	Overnight oats (1 cup dry)	10	300
	Milk, 1 cup	8	100
	Walnuts, ¼ cup	5	200
Noon Lunch	Wrap w/ Hummus, ½ cup	5	200
	Greek Yogurt, Fage 2%, 7oz	8	300
		20	150
4:00 Snack	Apple, large	1	150
	Peanut butter, 3 T	12	300
7:00 Dinner	Lentil soup, 1 can Progresso	22	350
	Bread, 2 sl Ezekiel	8	150
10:00 Snack	Almonds, 24	6	150
	Total for the day:	105 g pro	2,350 cal

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What about beans causing intestinal issues...?

Fermentable Oligo- Di- Mono-Saccharides And Polyols

- Create gas, bloating, constipation, diarrhea
- Contribute to intestinal distress

Some common FODMAP trigger-foods:

Wheat • lentils, beans • inulin, sorbitol

Onion, garlic, broccoli, cauliflower, mushrooms cabbage

Apples, avocado, blueberries, raspberries, strawberries, cherries, peaches, watermelon

For more information: www.KateScarлата.com

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What about amino acids...?



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How to get Essential Amino Acids

Protein source	Isoleucine grams	Leucine* grams
Met-Rx Whey Protein, 1 scoop	1.4	2.3
Chocolate milk, 20 oz	1.5	2.5
Tuna, 6 oz can	2.0	3.5
Cottage cheese, 1 cup	1.6	2.9
Chicken breast, 6 oz.	2.4	3.2

*2.5 to 3.0 g leucine per meal triggers muscle protein synthesis



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Amino Acid Pills vs. Protein in Food

- Protein-rich foods come in a supportive food matrix that contains a variety of nutrients and bio-active compounds
- Isolated amino acids facilitate a weaker muscle building effect than whole proteins do.

For example:

- Whole milk consumed 1-hour post-exercise stimulated greater amino acid uptake than skim milk
- A whole egg, as compared to just the egg white, triggers a 30% higher rate of post-exercise muscle protein synthesis



Burd, N. *Sports Med* 2019

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Case study

HS Student who wants to bulk up

"I play lacrosse and ice hockey. I want to bulk up..."

17 y.o. High School Junior

Ht: 5' 8" Wt: 144

His goal: "Gain 20 pounds of muscle"

Parents were thin (and now are overfat)

Takes A.D.D. meds that "kills his appetite"

Low intake of fruit and vegetables



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HS Student who wants to bulk up

Typical school day:

- Sleeps until 7:00 a.m.; "no time" for breakfast
- No appetite for lunch due to A.D.D. meds; maybe eats a protein bar
- Plays sports after school
- Eats huge dinner and then snacks on chips, ice cream, etc.



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HS Student who wants to bulk up

Target 3,000-3,600 calories, evenly spread across the day.

B/Sn.	800
L/Sn	800
Dinner	1,000 -1,400
PM	400 - 600

Plan: Focus on daytime food intake

B/Sn: Smoothie (Yogurt, PB, Banana; 500) + Protein Bar (300)

L/Sn: PB & J sandwich (500) + Chocolate Milk (150) + Juice (150)

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Teaching points: weight gain

- Eat mechanically at B/Sn + L/Sn
- You may not feel hungry but your body needs fuel.
- If fluids are easy, drink lots of juice and milk
- Consume adequate protein, extra carbohydrate
- An “excellent” sports diet need not be a “perfect” diet
- Your body will change over the next 4 years

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Fat: A valuable part of a sports diet

Fat is needed to absorb vitamins A, D, E, K

Female runners with irregular menses

- restricted fat and calorie intake (2,400 cals)
- had sub-normal vitamin E levels

Regularly menstruating runners

- ate more fat and calories (2,900 cals)
- normal vitamin E levels



Tomten. Serum vitamin E concentration and osmotic fragility in female long distance runners *J Sports Sci* 2009; 27(1):69-76

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Too little dietary fat hurts performance

Trained runners ate 16% or 31% fat diet for 1 month

- self-selected diets were supposed to be equal calories but the runners ate 19% more calories with moderate-fat diet
- the extra calories ≠ excessive; no change in % body fat
- had 14% more endurance with more fat & more fuel

Conclusion: Runners can perform better with (healthful) dietary fat—as long as they eat enough carbs and calories



Horvath, *J Am Coll Nutr* 2000; 19 (1): 52-60

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Confusion about dietary fat...

What about coconut oil...?



“Coconut oil results in significantly higher LDL-cholesterol than non-tropical vegetable oils.

Neelakanter et al. *Circulation*, 2020

Athlete’s intake of fat should be in accordance with public health guidelines:

Limit saturated fat to <10% of total calories

Do we need to look more at *the total dietary pattern* in which saturated fats are consumed than at saturated fat intake alone?

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Source of Confusion

What about a keto diet for athletes?

- Peer-reviewed research does not support fat as the best fuel to *enhance performance* for hard exercise.
- Displacing carbs with protein & fat can hurt one’s ability to sprint and do high intensity exercise
- Training depleted a few times a week might enhance fat adaption (for highly competitive athletes.
- High fat diets may not be the healthiest....

Murphy N et al. High-Fat Ketogenic Diets and Physical Performance: A Systematic Review *Advances in. Nutr* 2020

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We need to learn more about the Keto diets for athletes

Questions that contribute to conflicting research results:

How well controlled was the diet?

Was ketosis confirmed by measuring beta-hydroxy-butate?

Did the subjects self-select being in the intervention-group?

Was there a control group?

What is the optimal amount of time needed to adapt to ketosis?

Do some athletes respond better than others to keto diet?

Did weight loss impact the performance results (for better or worse)?

Murphy N et al. High-Fat Ketogenic Diets and Physical Performance: A Systematic Review *Advances in. Nutr* 2020 (open access)

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What about sports drinks...?

- Marketed to everyone—not just endurance athletes
- Many fitness exercisers mis-use them
- Associated with weight gain in teens



Field, A. et al. Association of sports drinks with weight gain among adolescents and young adults *Obesity* July 2014

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What about sodium ...?

Consuming additional salt—

- During fitness training: *not necessary*
- During moderate exercise: *typically not necessary*
- During ultra-distance events: *wise choice*

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In hot weather, add pre-exercise sodium

Trained cyclists drank beverage with ~ 150 or 1,000 mg sodium 105 - 45 minutes before they exercised

Rode to exhaustion in 90° heat with no fluids

With high sodium, they rode 20 minutes longer: 99 vs 79 minutes

1,000 mg sodium = 1/2 can chicken broth
2 packets salt on boiled potato
~a half-gallon of Gatorade



Sims, Rehrer *J Appl Physiol* 2007

51

Sodium losses during exercise

One pound of sweat loss contains: 450 - 700 mg. sodium
Losses in 1 hour hard exercise in heat: 900 - 2,800 mg.
Sodium content of the body: 97,000 mg (42 tsp salt)

	<i>Sodium (mg)</i>		<i>Sodium (mg)</i>
Gatorade, 8 oz.	110	Cheese stick, 1 oz	200
Endurolytes Extreme, 1 pill	120	Jerky, 1 oz	400
G'ade Endurance, 8 oz.	200	Salt, 1/4 teaspoon	600
SaltStick, 1 capsule	215	Chicken Broth, 1 can	1,860



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Chocolate milk to replace sodium

11 dehydrated subjects drank ~2 quarts (150% of sweat losses)

Beverage	Sodium Intake (mg)	Cumulative urine loss 5 h post-ex (mL)
Milk, 2% fat	~1,000	610
PowerAde	~440	1,200
Water	—	1,180

Milk: • emptied slower • limited influx of fluid into the system
• well tolerated • provided protein for recovery

Shirreffs *Br J Nutr*, July 2007

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What about caffeine... ?

...Isn't coffee bad for you?



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Caffeine and exercise

Pro: May make exercise seem easier and enhance performance (for both regular caffeine consumers and non-consumers alike)

Con: May cause nervousness, upset stomach.

Each person responds differently.

Know your body!

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Caffeine—not dehydrating

- No diuretic effect in caffeine-tolerant athletes in moderate (250-300 mg) doses
- Does not increase heat stress
- OK to drink caffeinated beverages in hot weather
- 59 coffee drinkers consumed 1.5 mg caf/lb (~12 oz mug)
- Performed **86 vs 75** minutes in heat

Roti, Armstrong *Med Sci Sports Exerc* 36(5):S18, 2004

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Confusion about fluids

What about energy drinks....?



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Caffeine in popular beverages

Starbucks, grande (16 oz)	400 mg. Caffeine
Coffee, av. 12 oz mug	150
Red Bull, 8 oz can	80
Coke, 12 ounce can	35
Clif Shot, Mocha	50
NoDoz Max, 1 tablet	200



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Position Stand on Energy Drinks & Energy Shots

Int'l Society of Sports Nutrition, Jan 2013 (available online)

- The primary ergogenic ingredients appear to be carbs and caffeine; their benefits have been well established.
- The other ingredients require further study to demonstrate safety and potential benefits.
- More than one serving a day may lead to adverse events and harmful side effects.

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Energy drinks blamed in death of a 16-year old athlete by heart attack

She had been drinking energy drinks instead of water all day at the beach. She complained she didn't feel well, had a heart attack and died.



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Concerns about Energy Drinks

- Commonly used as a mixer with alcohol
- Caffeine in energy drinks keeps one from getting drowsy
- Wide-awake drunks are at high risk for car accidents
- Mixing stimulant (Red Bull) + depressant (alcohol) = increased risk of abnormal heart rhythms
- Risk of caffeine overdose in caffeine-abstainers
 - Tachycardia, vomiting, arrhythmias, seizures, death

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Confusion about supplements

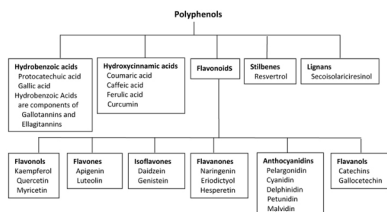
What about vitamin & mineral pills...?

No amount of supplements
will compensate for
a lousy diet!



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Food offers more than just vitamins



Some components in a plant-based diet fight inflammation

Eat fruits, vegetables, whole grains, seeds and nuts!

Hardman, E. Diet components can suppress inflammation and reduce cancer.
Nutr Res Prac June 2014

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Do athletes need extra vitamins & minerals?

A review of 90 studies examining vitamin and mineral status in athletes' blood suggests—

- Athletes & non-athletes had similar vitamin status
- Exception: Athletes had lower serum ferritin
- Stronger vitamin status ≠ better performance (apart from anemia)
- **CONCLUSION: Athletes generally *eat* extra vitamins!**



Fogelholm. *IJ Sports Nutr* 5:267, 1995

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For vitamins: Eat healthful foods!

The more you exercise—

- the more food you can eat.
- the more vitamins you can get.

Some athletes restrict their eating. Nutrients of particular concern:

- Iron
- Calcium
- Vitamin D

Vitamins are re-used, not used up.

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The Power of Fruits & Veggies



- Tart cherry juice
 - Reduced pain and inflammation in women with arthritis
 - Improves sleep (melatonin) - helpful for traveling athletes?
- PomWonderful pomegranate juice
 - Polyphenols reduce DOMS; 1/day x 8 days pre-damaging exercise
- Beets, spinach, nitrate-rich foods
 - Improves oxygen utilization; reduces blood pressure
 - Consume 2.5 hours pre-event
 - Cyclists improved 4 km and 16 km Time Trial by almost 3%

ACSM presentations, 2012

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Plants rich in nitrates enhance health and performance

Nitrate-rich food	Nitrate mg/100g	Calories /100 g
Arugula	420	25
Bok choy	325	15
Rhubarb	295	20
Lettuce	205	15
Beets	190	45
Spinach	180	25
Zucchini	70	20
Green beans	55	30

• 400 mg nitrates in a lunch salad reduced blood pressure by 3-5 mm Hg in 2.5 hours

• 300-600 mg nitrates/day for 2-6 days offer performance benefits during high intensity exercise lasting 5-30 minutes

van der Avoort. et al. *JAND* 2020, 120 (8): 1305-1317

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Vitamin D - "The sunshine vitamin"

- Indoor athletes at risk for low D:
basketball players, figure skaters, gymnasts, ballerinas, wrestlers
- Low serum D in 40% (8 of 20) of distance runners in Louisiana
- D's potential benefits to athletes is reduced risk of—
stress fractures total body inflammation
infectious illness impaired muscle function

Oran & Pritchett, Vitamin D and the Athlete, *Nutrients* 5(6), 2013

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What about antioxidants like vitamins C and E?

Too many anti-oxidants become pro-oxidants

- may hinder training adaptations

Natural sources of antioxidants:

Tart cherry juice, PomWonderful juice, grape juice, blueberries...

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DON'T JUST EAT; EAT RIGHT—

Breads, cereals, whole grains

Foundation of every meal—for carbohydrates, fiber, B-vitamins

At each meal choose foods made from—

Wheat	Rice
Oats	Corn

Whole grains should be at least half your choices



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Refined grains are enriched with important vitamins & minerals

Food (1 serv)	Iron (DV)
Quaker Oatmeal, old fashion	8%
Quaker oats, instant, 1 packet	40%
Puffins	4%
Cheerios	45%
Kashi	10%
Trader Joe's Bran Flakes	45%
Rice, brown	4%
Rice, white	8%

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DON'T JUST EAT; EAT RIGHT—

Fruits & vegetables

3 large or 6 small daily for fiber, carbs, phytochemicals, C, A

Enjoy colors of the rainbow:

Oranges	Blueberries	Kiwi
Bananas	Peaches	Watermelon



Best vegetable choices are colorful:

Broccoli	Spinach	Carrots
Pepper	Tomato	Squash



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DON'T JUST EAT; EAT RIGHT—

Calcium-rich foods

3 - 4 servings daily

1 cup Milk or Yogurt (lowfat)
1.5 oz. Cheese
2 cups Cottage cheese

Non-dairy sources

1 cup Calcium-enriched orange juice
8 oz. Tofu, soy milk
3 cups Broccoli, kale, leafy green vegetables
3-4 oz. Salmon or sardines with bones



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Plant-based athletes often believe:

“Almond milk is better than dairy milk, right?”

“I switched to almond milk because it has fewer calories...”

“I’ve stopped doing dairy; almond milk is healthier..”

“I have trouble digesting dairy; I use almond milk instead.”

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Comparing plant beverages to dairy milk

8 oz.	Calcium DV	Protein (g)	Calories	Price for 8 ounces
Dairy milk, 2% fat	30%	8	130	\$0.32
Almond Breeze, Silk	45%	1	30-60	\$0.48
Oat Yeah, Silk	45%	2	90	\$0.64
Pea milk, Ripple unsweetened	45%	8	70	\$0.88
Soy, Silk original	45%	8	110	\$0.64

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DON'T JUST EAT; EAT RIGHT—

Protein-rich foods

Small amount at each meal for protein, iron, zinc

Chicken, turkey, fish
Lean beef, pork, lamb
Milk, yogurt, cheese*
Eggs
Nuts, peanut butter
Lentils, beans, tofu



*Poor sources of iron and zinc

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Please respect the power of food on performance and health



“You know, Nancy, too many athletes show up for training but don’t show up for meals. They might as well not show up for training.”

BC Hockey Coach

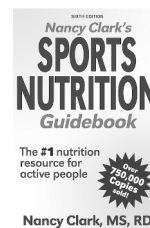
If I’d known I was going to live this long, I would have taken better care of myself...”

Mickey Mantle

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Everyone always wins with good nutrition!

For more information:



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