

吃喝  
秘籍

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By 赵洋



马拉松

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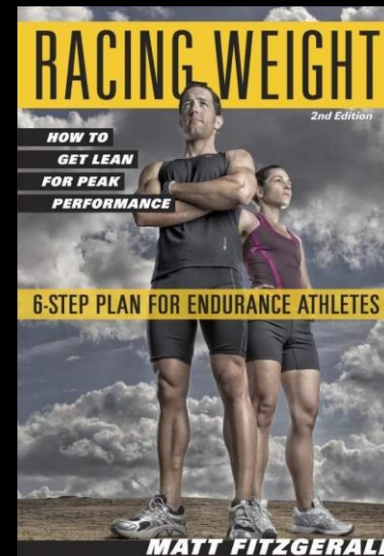
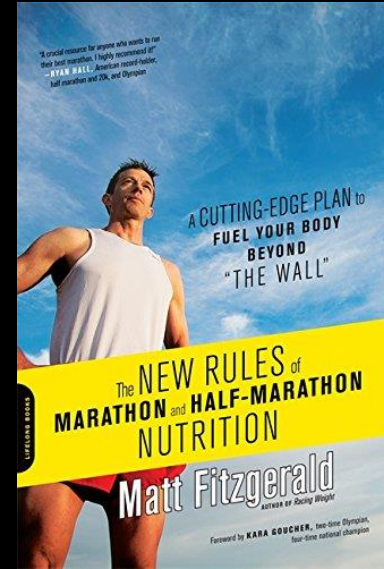
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# Disclaimer

**Please don't do anything stupid and get hurt. It would make us both quite unhappy. Consult a doctor, lawyer, and common-sense specialist before doing anything in this presentation.**

# Source

- Matt Fitzgerald is an acclaimed endurance sports writer whose work appears regularly in *Men's Journal*, *Outside* and other publications. His many books include the bestselling *Racing Weight* and *Iron War*, which was nominated for the William Hill Sports Book of the Year award.
- An All-State runner in high school, Matt took up triathlon in his 20s, and has coached runners and triathletes since 2001. He holds a certification in sports nutrition, has consulted for numerous sports nutrition companies, and provides peer reviews for sports nutrition journals.





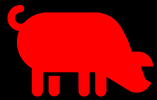
# Legend



Concepts & Theories



Details & Actions



Weight Gain Alert

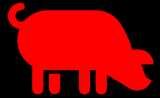


Secret Weapons

# Running Nutrition Basics



- Rule #1: Consume enough carbohydrate to get the most out of your training



- Rule #2: Maintain diet quality balance to shed excess body fat and get down to your optimal racing weight.



# Running Nutrition Basics - Carbohydrate

- Max – 8 g/kg/day
- Moderate Training – 5g/kg/day
- Light Training – 4g/kg/day (32k per week no cross training)

[calorieking.com](http://calorieking.com) to calculate carbohydrate needs

TABLE 1.1 *RECOMMENDED CARBOHYDRATE INTAKE*

AVERAGE DAILY TRAINING TIME (RUNNING AND OTHER ACTIVITIES)	DAILY CARBOHYDRATE TARGET
30 – 45 minutes	3 – 4 g/kg
46 – 60 minutes	4 – 5 g/kg
61 – 75 minutes	5 – 6 g/kg
76 – 90 minutes	6 – 7 g/kg
90 – 120 minutes	7 – 8 g/kg
> 120 minutes	8 – 10 g/kg

# Running Nutrition Basics - Protein



- Running needs protein in two ways:
  1. protein supplies about 5% energy during running
  2. protein helps to replace damaged muscle during running



- Target – 1g/kg/day
- Max – 1.6g/kg/day





# Running Nutrition Basics – Fat



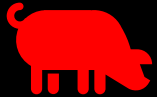
- At least 20% of daily calories from fat.
- Lower fat intake levels associated with reduced performance level and increase injury risk.
- Most important fat is omega-3 fat, the only fat the body can't manufacture for itself.
- Omega-3 fat in salmon, halibut, tuna, almonds, walnuts kale and spinach.



# Running Nutrition Basics –Getting Lean



- Body weight is the enemy of running performance
  - 150 lb runner saves 6.5% energy vs. 160 lb
  - a 4H marathoner loses 10 lb can run 3:45
- Healthy body weight vs ideal racing weight



- The Compensation Effect – eat more when exercise more.  
You may gain weight because you run!
- Training hard makes a runner hungry,
- Training hard and eat less makes a runner intolerably hungry.



# Running Nutrition Basics – Diet Quality Balance



1. Vegetables (including legumes)

2. Fruits

3. Nuts and seeds

4. Fish and lean meats

5. Whole grains

6. Dairy products



7. Refined grains

8. Fatty meats

9. Sweets

10. Fried foods

TABLE 2.1 *MINIMUM REQUIREMENT FOR DIET QUALITY BALANCE*

FOOD CATEGORY	NUMBER OF SERVINGS EATEN IN A GIVEN SPAN OF TIME
Vegetables	10
Fruits	9
Nuts and seeds	8
Fish and lean meats	7
Whole grains	6
Dairy products	5
Refined grains	4
Fatty meats	3
Sweets	2
Fried foods	1

# Fueling Your Workouts - Water

- Water – no performance enhancement but reduce dehydration, which causes the loss of cardiac efficiency, then leads to perceived effort (PE) to increase.
- Water intake works for run longer than 60m – 90m
- The Gatorade Effect – Drink as much as you can
- Thirst-based drinking is the best strategy





# Fueling Your Workouts - Carbohydrate



- Carbohydrate – enhance performance in two ways:
  - Neurological: activate “reward center” in the brain reduce PE
  - Extra fuel source: sustain target speed



- 30g/hour to attain a performance
- 60g/hour to be the min rate intake to max your performance
- 90g/hour to max your performance



# When Carbs Become a Crutch



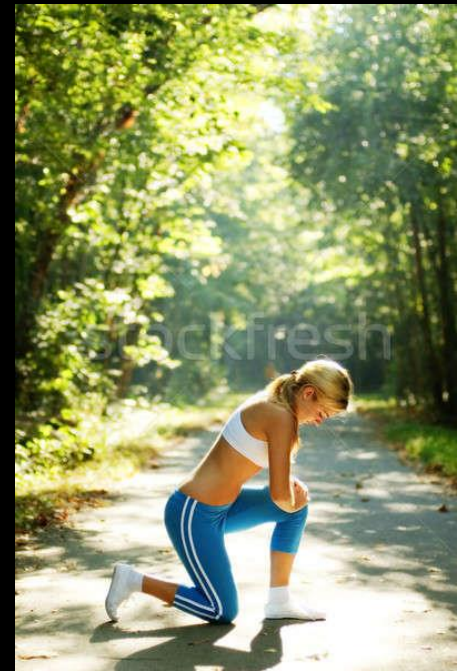
- Heavy reliance on carbohydrate reduces fat-burning capacity
- Increase fat-burning capacity pushes back the wall



## Training:

- Train Low Race High vs. High-Low Training
  - no carbs in runs < 1 hour
  - 30g/hour carbs in runs 45 – 60 m at zone 3
  - 30g/hour carbs in runs 1-2 hours in half of the runs
  - carbs in runs > 2 hours

**Race:** 60g/hour or as much as you Can



# The Taper Diet

- The final week of training is referred as the taper period.
- Four Steps:
  1. Reducing calorie intake
  2. Fat loading (optional)
  3. Caffeine Fasting (optional)
  4. Carb Loading



# The Taper Diet



## • Step 1: Reducing Calorie Intake

- prevent weight gain due to less training volume
- Reduce daily Carbs intake by  $0.63 \times \text{pounds} \times \text{daily miles reduction}$
- 30g/hour carbs in runs 1-2 hours in half of the runs
- <https://nutritiondata.self.com/tools/calories-burned>

### BMI & Calorie Calculator

You are a 45 year old man, 4ft 0in / 122cm tall, with a current weight of 200.0lbs. You lead an active lifestyle, and participate in the following exercise:  
60 minutes of running, 6.7 mph (9 min/mile)

[\[edit\]](#)

#### BODY MASS INDEX (BMI)

**Your BMI**  
60.9

BMI is a standardized ratio of weight to height, and is often used as a general indicator of health. The "normal" BMI for an adult man of your height is 18.5 to 24.9. This translates to a healthy weight range of 61 to 82 lbs. However, BMI does not take body composition into account. A weight above this range could still be considered healthy if your percentage body fat is less than average. For more accurate determination of body fat levels, consider using a body fat caliper.

#### CALORIES BURNED

Your Calories Burned		
Daily Energy Expenditure:	2842 kcal	( 11899 kJ)
Additional Calories from Exercise:	+ 1207.0 kcal	( 5053 kJ)
Estimated Energy Requirement:	<b>4049.0 kcal</b>	( 16952 kJ)

**Note:** Accurate determination of the Calories you burn can only be accomplished by individual physiological testing. This calculation is merely an estimate that was derived from regression formulas and data provided by these sources:



# The Taper Diet

- Step 2: Fat Loading (optional)
  - 2 weeks before race to increase your fat burning capacity
  - 65% fat of total daily calorie intake
  - # grams of fat X 9 = Calories from fat
  - <https://calorieking.com>
- Step 3: Caffeine Fasting (optional)
  - Caffeine vs. Adenosine (腺苷)

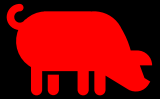


# The Taper Diet



- Step 4: Carbohydrate Loading

1. 10 days fat loading – 3 days carb loading with 70% carbs
2. 5 days fat loading – 1 days carb loading with 10g/per kg body weight
3. if no fat loading, you are free to choose either of both



Carb loading no impact for races < 2 hours (half marathon)

# Prerace Nutrition



- Final 12 hours before the race
- Familiarity and Control – avoid food poisoning!



- Dinner - high carb low in fat, protein, and fiber
  - avoid late dinner, before 6pm
  - a beer or wine is OK
- Sleep - you will be OK as long as you slept well the night before
  - no sleeping drugs but melatonin is OK
- Breakfast - 2 or 4 hours before the race
  - 4g/kg 4 hours or 1-3g/kg 2 hours
- Hydration - 12-16 ounces between you wake up to 1 hour before the race



# Prerace Nutrition - Secret Weapons



- Beet Juice

- dilate blood vessels to increase vasodilatation and blood flow
- reduce the oxygen cost of exercise
- 0.5 liter with breakfast



- Slushie for a hot day

- reduce core temperature and perceived heat stress
- If race day is > 24 degree, consider Slushie





# Prerace Nutrition – Secret Weapons



- Caffeine (Optional)
  - caffeine level peak one hour after consumption
  - caffeine pill vs. coffee
  - 2mg/kg – 6mg/kg body weight



- Acetaminophen / Tylenol (Optional)
  - reduce pain during the race. i.e. after 32k
  - Will not mask the pain
  - 30 minutes before the race
  - 500mg dose



# Prerace Nutrition – In A Nutshell

- 3-2 hours before the race: Breakfast: 1-4/g carbohydrate per kg.
- 3-1 hour before the race: Hydrate: 12-16 ounces water, sports drinks, or juice, or 0.5L beet juice.
- 1 hour before the race: stop drinking. Take 3-6 mg caffeine per kg (optional)
- 30 minutes before the race: Take 500mg acetaminophen (optional)
- 2 minutes to 1 minute before the race: one energy gel or 4 ounces of sports drink

# Race Nutrition



## 3 Thresholds

1. No benefit for 10k race consuming carbs
2. 60 – 90 mins at least 30g/hour
3. >90 mins 60-90g/hour is better than less (GI distress alter!)

**For most runner, you are lucky if you can tolerate 60g/hour!**



## 5 Marathon and half marathon fueling strategies

1. Sports Drink + Gels + Water
2. Gels + Water
3. Sports Drink Only
4. Water Only (Plus Sports Drink Mouth Rinsing)
5. Nothing



# Race Nutrition – Fact Sheets



1. Sport Drink: 4 ounces in paper cup at aid station with 7g carbs (Gatorade)
2. Energy Gel: 22 carbs / gel
3. 2019 Toronto Goodlife Marathon has 18 aid station located at 3 km • 5 km • 7 km • 10 km • 12.5 km\* • 13 km • 15 km • 17 km • 20 km • 23 km • 25 km • 28 km • 30 km • 33 km • 35 km • 37 km • 40km • 41.5km
4. 2019 Toronto Goodlife Marathon has Gatorade as the official sports drink





# Race Nutrition – All Strategy Disclosed

## 2019 Toronto Goodlife Marathon Fueling Strategy Analysis

	No Gel Period					Gel Period												No Gel Period				
Aid Station	3K	5K	7K	10K	12.5K	13K	15K	17K	20K	23K	25K	28K	30K	33K	35K	37K	40K	41.5K	Total	Finish Time	Carbs /Hour	
Aid Station Suplies	G	G	G	G	B	G+C	G	G	G	G	G	G+C	G	G	G	G	G	G				
Time (minutes)	0:15:00	0:25:00	0:35:00	0:50:00	1:02:30	1:05:00	1:15:00	1:25:00	1:40:00	1:55:00	2:05:00	2:20:00	2:30:00	2:45:00	2:55:00	3:05:00	3:20:00	3:22:30	3:31:00			
# of Calories																						
Gatorade Only (1 cup) *	7	7	7	7		7	7	7	7	7	7	7	7	7	7	7	7	7	119	3.52	34	
Gatorade Only (2 cup)	14	14	14	14		14	14	14	14	14	14	14	14	14	14	14	14	14	238	3.52	68	
Gatorade Only (1 cup & 2 cup switch)	7	14	7	14		14	7	14	7	14	7	14	7	14	7	14	7	14	182	3.52	52	
Gatorade Only (1 cup) (Skip 1st aid station) *	0	7	7	7		7	7	7	7	7	7	7	7	7	7	7	7	7	112	3.52	32	
Gatorade Only (2 cup) (Skip 1st aid station)	0	14	14	14		14	14	14	14	14	14	14	14	14	14	14	14	14	224	3.52	64	
Gatorade Only (1 cup) (Skip 1st and last aid station) *	0	7	7	7		7	7	7	7	7	7	7	7	7	7	7	7	0	105	3.52	30	
Gatorade Only (2 cup) (Skip 1st and last aid station)	0	14	14	14		14	14	14	14	14	14	14	14	14	14	14	14	0	210	3.52	60	
Gatorade Only (1 cup) (Skip first 2 aid stations)	0	0	7	7		7	7	7	7	7	7	7	7	7	7	7	7	7	105	3.52	30	
Gatorade Only (2 cup) (Skip first 2 aid stations)	0	0	14	14		14	14	14	14	14	14	14	14	14	14	14	14	14	210	3.52	60	
Gateorade (1 cup) + Gel (Every 2 stations) *	7	7	7	7		25	7	25	7	25	7	25	7	25	7	25	7	7	227	3.52	64	
Gateorade (2 cup) + Gel (Every 3 stations)	7	7	7	7		25	7	7	25	7	7	25	7	7	25	7	7	7	191	3.52	54	
Gateorade (1 cup) + Gel (Every Hour) *	7	7	7	7		25	7	7	7	7	25	7	7	7	7	25	7	7	173	3.52	49	
Gateorade (1 cup) + Gel (Every 2 stations) Skip 1st & last*	0	7	7	7		25	7	25	7	25	7	25	7	25	7	25	7	0	213	3.52	61	
Gateorade (2 cup) + Gel (Every 3 stations) Skip 1st & last	0	7	7	7		25	7	7	25	7	7	25	7	7	25	7	7	0	177	3.52	50	
Gateorade (1 cup) + Gel (Every Hour) Skip 1st & last*	0	7	7	7		25	7	7	7	7	25	7	7	7	7	25	7	0	159	3.52	45	

### Note:

1. G: Gatorade, B: Banana, C: Cliff Energy Gel
2. Based on a 5min/km or 3:31 marathon runner
3. \* indicates preferred fueling strategy based on past experience

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# Race Nutrition – Secret Weapons



- Protein Power
  - work with carbohydrate to enhance endurance
  - 1g / 4g carbohydrates
  - Choose energy gel contain protein & amino acid



- Caffeine during the race
  - Take it during the race by using energy gels with caffeine
  - mentally effective



# Let's Face The Wall !



- When you got cramps, you are hitting the wall!
- No nutritional measure can prevent hitting the wall
- The most possible reason is the fatigue, not dehydration and sodium depletion.



- It is not due to sodium depletion but salt will help depending on how you take it.
- Pickle Juice
- Salt pill. Bite and break it, let your tongue taste the salt!





## Bonus



The bends, also known as decompression sickness (DCS) or Caisson disease occurs in scuba divers or high altitude or aerospace events when dissolved gases (mainly nitrogen) come out of solution in bubbles and can affect just about any body area including joints, lung, heart, skin and brain.

**The Bends** is the second studio album by the English rock Radiohead in 1995. *The Bends* reached #4 on the UK Album Chart. However, it failed to build on the success of their single "Creep" outside the United Kingdom. As time goes by, it was ranked as No. 2 greatest album ever by Q magazine. And the No. 1 album ranked by Q magazine is Radiohead's next album after *The Bends*: *OK Computer*!



