

JEFF GALLOWAY

NUTRITION FOR RUNNERS



WITH
NANCY CLARK (RD)



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Nutrition for Runners

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Jeff Galloway with Nancy Clark, MS, RD

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Preface From Jeff: “Do we eat to run... or run to eat?”

Barbara Galloway and I have this debate often. The answer is...both are correct. We must accumulate the right collection of nutrients during a week of eating to restock the fuel, to repair damage, and to keep energy flowing. But it's also OK to enjoy foods and beverages. By understanding the circuits in the brain and by using the methods in this book, you can gain control over your eating and exercise.

If one of the goals is to (burn) lose fat and keep it off, Barbara Galloway and Nancy Clark offer this tip: “Give yourself a daily calorie budget.” This is only one of the many contributions from Barbara Galloway to this book. Over the four decades we have been married, she has changed my diet for the better. Based upon research, and food evaluation, she uses seasonings to give wonderful flavor to vegetables, fish, and lean chicken and turkey which are the main components of our diet.

So my content in this book is actually that of Barbara and myself, and you'll find her credited in many of the chapters. I want to publicly thank her for changing my life for the better in many ways.

Introduction: Jeff's Confession: "I was a fat kid."

Like many children in Navy families, I attended 13 schools by the time I finished the 7th grade. At this point my father became a teacher, we moved to Atlanta, and my new school required each boy to exercise with an athletic team after school every day. Because of the moves, I had avoided exercise, did not have sports skills, had become lazy, and gained a lot of weight. The first few weeks were very tough and delivered a series of surprises. Even after the most exhausting workouts, I felt a boost to the attitude and spirit that I had not experienced before. The honest friendships that came from running kept me running through five years of gradual fat burnoff and modest improvement. I was hooked for life because running was transforming my brain in many positive ways. But whenever I was sidelined for a week or more due to injury, I envisioned that the fat would accumulate again. It took 20 years for this anxiety to go away.

During my first two decades of running I could find no books or guidelines on running nutrition, and I experienced about as many problems as one can have. I learned a lot about what worked best for me. But my first guru in sports nutrition was Nancy Clark. She was a marathoner in the 80's and is still a competitive runner. Her advice was based upon research and professionally guiding runners who had nutritional issues. It has been my privilege to conduct clinics with her and work on projects together. While you will find a few different interpretations of research and experience between the two of us, these issues are minor.

We want to cut through the confusing, conflicting, misinformation on running nutrition. The information we offer is based upon research and on what has worked for tens of thousands of runners.

May you run well, eat well, and enjoy both...until you are 100.

Chapter 1: Use Your Brain!

To Manage Hunger, Cravings, Energy, Fatigue, Fat

by Jeff Galloway



As humans, we can activate our conscious brain:

- Avoid mindless eating by managing our nutrition.

- **Ensure we are getting adequate nutrients.**
- **Enjoy food without adding extra layers of fat.**
- **Mind and body can work together to achieve your goals.**

Average Americans today are significantly overweight or obese. I hear from many every week who tell me how dedicated I am for exercising and how they don't have the discipline to work out or eat right. My common response is "It's not really about discipline and dedication but about mentally focusing on the enrichment and pleasure that exercise brings to life." Many look at me like I'm crazy.

The fact is that all of us are capable of using our human, conscious brains to control what we do. In the process we discover far more joy throughout the mind-body network from making healthy food choices and exercising than we did eating potato chips, hot wings, etc. on the couch.

I also hear from thousands of talented runners every year who tell me that they tried to eat better but relapsed back into the "comfort foods" containing sugar, salt, and fat, which don't deliver the nutrients needed for repair and performance. Some are not overweight and some are running quite well. I tell them in the short run they may not notice a difference when they transition to healthier choices.

But I've heard from thousands who have not had the performance capacity to stay ahead of the pick-up bus in their favorite marathon or qualify for the Boston Marathon, who found that a healthy dietary change became a catalyst during their improvement journey. Because they felt better with more energy, the workouts were better—especially on the tough days. A positive change in food choices has been shown to turn on brain circuits to improve quality in exercise.

By using the simple strategies in this book you can set up a cognitive eating plan that will put you in command of your food

intake and feel better every day. This can significantly improve the way you feel when running and in your daily activities. When you combine aerobic, enjoyable running with mental focus on eating, you can feel better, prepare for performance better, reduce general fatigue, and burn more fat.

We have a powerful mind-body network that is interconnected. Eating influences mental activity and mental activity influences eating—all day long. But we have many subconscious eating patterns that are deeply embedded. In this chapter I will tell you about the exciting new research that shows how you can consciously activate brain circuits to give you control over subconscious eating patterns that lower our energy and reduce motivation for running.

Yes, you can harness this network to be the master of your nutrition, feel better, improve health while controlling diet, weight, and performance nutrition.

Who's In Charge: Conscious Brain or Subconscious Reflex Brain?

At any given moment, you can choose one of two brain operating systems: 1) the more ancient subconscious brain (SBC) located in the brainstem or 2) the conscious brain (or human brain) located in the frontal lobe.

The challenge: subconscious brain gratification eating patterns. Most humans, most of the time, allow the subconscious “reflex” brain to choose what and when to eat. This is natural because the subconscious brain (SBC) conducts most of our activities throughout the day. Hardwired in this ancient and continuously upgraded brainstem are thousands of genetically embedded and learned behavior patterns that evolved millions of years ago in response to the constant threat of starvation. To enhance survival, our SBC developed many circuits that stimulate us to eat whenever food is available and make us feel good when we

eat sugar and fat. Brain circuits keep rewarding us with a “joy” hormone called dopamine even when we’ve eaten far more than we need for the next day or two—without feeling satisfied.

Overeating can compromise goals even for skinny runners. Even if you don’t need or want to lose weight, subconscious eating patterns can cause gastrointestinal issues that may keep you from your goals. The simple cognitive eating plans in this book can help you make the best choices before and after workouts and races so that you can perform at your best.

Use Your Conscious Brain and Gain Control Over Eating

You can take control of your nutritional destiny by having a cognitive strategy for eating (or any other activity). This shifts control out of the subconscious brain and into the frontal lobe. As you focus on what you eat, how much and when the conscious brain overrides the SBC brain. This interrupts embedded emotional subconscious eating patterns and gives you a chance to choose foods that will keep you energized and healthy, while you avoid overeating. By having an eating plan, you can combine the foods you need to balance your nutrients, keep the energy supply flowing, and avoid dehydration.

You don’t have to give up the foods you love. But whether you want to ensure that you’re getting the right nutrients for health and strong running, or whether you want to burn some fat, an eating strategy will allow you to achieve your goals for eating and running.

How Subconscious Brain Circuits Work

1. SBC circuits are set up to eat when food is available. Most of the energy and eating circuits were developed over millions of years ago when food was scarce and starvation was common. For survival, our appetite circuit is turned on when food is available and is not turned off until we have eaten far more than we need for that day and often the next day or two (i.e., a visit to the buffet). The extra volume not only promotes fat accumulation as a hedge against starvation, but a wealth of vitamins, minerals, and protein for repair and body function.
2. Subconscious dopamine reflex eating—no accountability. Many of the subconscious reflex brain eating patterns are not healthy or beneficial for running. Take the dopamine reflex reward pattern, for example. Dopamine is a neurotransmitter—a hormone that delivers a more powerful sense of joy than most. When you eat a food that has sugar, salt or fat, such as a potato chip (which has all three), you get a happy dose of dopamine which feels so good and is gone so fast that you reach for another and then another. If you choose to stay under the control of the subconscious brain, there is no accountability as you pile on the calories. Such eating patterns produced greater fat storage by our ancestors, which gave them a chance to make it through the weeks when food was not available. You'll find out more about this in the fat burning chapter of this book ([chapter 13](#)).
3. Stress stimulates subconscious eating patterns. Subconscious brain, when we allow it to be in control, will monitor overall stress. As stress level increases to (what it determines to be) overload, SBC will trigger the release of anxiety and negative attitude hormones. One of the most common circuits that is activated to counter this stress-negative attitude build-up is the dopamine reflex. Stress will trigger the release of negative attitude hormones. The simple subconscious fix, over millions of years, is to reach for sugar, salt, or fat and feel better quick (but only temporarily). Many runners justify “carbohydrate loading” by SBC snacking to counter the stress of an upcoming race or long run.

So it is common, when stressed or very tired, to subconsciously reach for sugary, salty, or fatty snacks to get a

dose of dopamine. Unfortunately the reward is very temporary and then requires multiple doses, with no accountability. Again, the way you can gain control is to have a strategy which, will be presented in the fat burning chapter ([chapter 13](#)).

4. Damage from addictive eating patterns. Dr. Pam Peeke in her book *The Hunger Fix*, has noted the research showing how addictive eating patterns can damage the natural reward centers of the brain so that more and more junk food is needed for gratification. Ultimately there is no satisfaction and less and less dopamine when large amounts are ingested. She has also identified a detox program with exercise and eating plans that have helped thousands to enjoy eating healthy food. Here are some of the many insightful tips from this book:
 - A diet full of unhealthy fat, salt, sugar switches on certain genes to cope.
 - As one savors sugar, histones direct genes to increase insulin.
 - Increased insulin, with excess unhealthy sugar calorie intake, increases fat storage.
 - Regular, repeated insulin ingestions and secretions CAN result in insulin resistance and type 2 diabetes.
 - Too much food intake stimulates creation of fat cells.
 - Higher levels of fat trigger hormones that increase pain in joints and “weak links.”

Energy is #1 Priority

Forward movement kept our ancient ancestors alive: the more territory covered, the more food gathering possibilities. Maintaining energy is top priority throughout the mind-body network, and there are many effective brain circuits that keep the energy flowing even when there are challenges.

The brain’s primary fuel is blood glucose. When the supply of blood sugar is adequate, the brain will keep the many complex systems going, including an adequate energy system for muscles to do their work. If we don’t eat regularly, and there is an

interruption or lowering of blood sugar level, the brain will start reducing blood flow to key areas, tuning down metabolism energy level, reducing brain function, and shutting things down. Be sure to read the chapter on blood sugar maintenance.

Fat is the Back-Up Fuel

We are hardwired to store fat—for survival. Numerous internal circuits connect mind and body to ensure energy supply when food supply is below current energy needs or unavailable (periods of starvation). The brain circuit commonly called *set point* maintains and monitors fat storage and triggers an increase in appetite when set point is low and food is available. (See more in the fat burning chapter.) When on a dramatic calorie reduction, fat is released. Set point has memory, however. When one has lost 30 pounds due to a continued starvation diet, for example, and returns to eating normal levels, set point stimulates hunger a bit more, day after day, until the (before diet) set point of fat is added—often with a few additional pounds around the waistline.

- The crucial role of regular, aerobic exercise—Your energy supply system is designed to adapt to regular aerobic exercise. Exercising about every other day will keep these circuits in good operation, while the executive brain searches for more efficient ways of eating, repairing, storing, and burning.
- In most workouts, intensity should be low so you can exercise longer and burn more calories. Workouts need to be aerobic, meaning no huffing and puffing.
- Read [chapter 21](#), the Run-Walk-Run Method. By adjusting the amounts of running and walking, you can reduce the intensity and stress—staying in the aerobic zone.
- Gentle aerobic running stimulates production of BDNF—miracle grow for the brain and nerves, also important for memory, learning, critical thinking, and decision making
- The meditative effect of a gentle run-walk—can help in the healing of dopamine damage from addictive eating patterns (Dr. Peeke).

- Once you burn a threshold of calories each day (usually 700-900 calories), the appetite circuit tends to curb hunger.
- The satisfaction circuit.

The hunger reduction brain circuit is turned on by reaching a threshold of calories burned each day. The amount needed is between 700 and 900 calories from all sources, according to Portman and Ivy in *Hardwired for Fitness*. Gentle exercise in the morning can give you a head start on managing appetite for the rest of the day—if you are looking to lose weight and burn fat.



Running Turns On Brain Circuits To Give You Motivation To Control Eating Behaviors

Running turns on brain circuits to give you a feeling of control and empowerment. When these circuits are activated, one is empowered to take control over eating, nutrition, and other areas in life.

The good attitude circuit—It is well established that running activates your “good attitude” better than just about anything you can do. Run gently, turn on a good attitude, and you will be less susceptible to dopamine eating.

The vitality circuit—Thousands of runners have reported experiences similar to the following: Arriving home after a long day, I often feel too tired with, no energy to exercise. The run was scheduled but there seemed to be no resources to run for a minute or two—30 minutes seemed impossible. Promising myself that I would only go for 5 minutes, I got out the door. Surprisingly, the energy started flowing. Day after day I have to break my promise, running 30, 45, 60 minutes with no problems. Often I had more energy afterward than was experienced all day long, and did many more projects that evening than was the norm. Running at the right pace from the beginning (with the right ratio of walk breaks) activates the vitality circuit. This often reduces the craving and intake of snacks normally done to boost blood sugar on a stressful day.

The empowerment circuit—Finishing a run, especially on a tough day, turns on the empowerment circuit—which can give you the mental control to take care of your eating and your life. Running tends to activate the conscious brain which overrides the SBC. When running regularly, runners tell me that they feel more motivated to change their diet for the better. This is backed by research.

Tools That Give You Control Over Nutrition

As noted, most humans allow the emotional subconscious brain circuits to guide our eating behaviors, craving sugary, salty, and fatty foods for the temporary good feelings of a dopamine release. Other subconscious circuits are triggered to continue eating, well past nutritional needs, to store fat.

You can choose the circuits in your brain that you want to use every time you decide to eat something. Deciding will activate the conscious brain. If you have a cognitive eating strategy, you can control what goes in your mouth, maintain energy and blood sugar level, balance nutritional elements, and avoid fat increase. This is frontal lobe eating with accountability. You are in charge! You don't have to eat a large quantity of food to get the right balance of nutrients—you simply need to engage your conscious brain and do the accounting.

1. Write everything down that you eat: food, amount (ingredients if in a product).
2. Enter your data into a website or app.
3. Analyze your results each day or two.

All of these activate the frontal lobe so that you are in control. As you do this regularly you will shift to conscious brain control as you consider something to eat. Most runners who have done this, tell me that they have progressively made healthier choices and reduced the “junk dopamine” choices.

You will learn more about how and why fat is deposited in the fat burning section of this book. For now, realize that starvation was a major cause of death until recent times, and there are significant brain networks to ensure that we maintain fat levels that are usually higher than we consciously want them to be. The fat burning section will also explain how conscious control over eating and exercise can often help you adjust the fat level on your body.

By using the frontal lobe you can set up an eating strategy, monitor intake, and ensure adequate intake of vitamins, minerals, and protein. In this book you will learn the key principles in each area, with cognitive strategies. This means that you will focus on each issue several times a day, and set up your plan to stay on track.

Chapter 2: What Do Runners Need to Eat?

by Jeff Galloway



As an endurance athlete, you will not need a significant increase in vitamins, minerals, and protein. But if you don't get these ingredients for several days in a row, you will feel less

energized and more tired than sedentary people. By following the guidelines below and monitoring nutrition by an app or website, you can avoid running out of gas.

Calcium, Iron, Protein

Inadequate intake of these three nutrients for an extended period can result in some serious interruption in performance. Don't worry if you miss the daily requirement of these for a day or two, you can make it up during the next few days. Here are the problems that can occur when each of these is neglected:

- Calcium is necessary for bone cell replacement and production of connective tissue and healing microtears in muscles and tendons during daily workouts.
- Iron is needed in the production of red blood cells. These transport oxygen to the muscles so they can perform.
- Protein is used in the repair and ongoing replacement of muscle cells. Runners on plant-based diets need to monitor intake and ensure that all of the amino acids are combined from the protein sources.

Carbohydrate Reloading Within 30 Minutes of Finishing

Runners often focus on loading up with a big meal before a long run or race which can cause unloading during the run. In fact, the reloading meal is much more important. If you don't reload the glycogen with a carbohydrate snack — preferably within 30 minutes of finishing a run—your

muscles may not have as much bounce or capacity on the next run. Those who reload within 30 minutes of finishing a run report feeling less hungry during the rest of the day. Reload most effectively by eating within 30 minutes of finishing a run (80% carb, 20% protein). 100 calories if the run is 4 miles or less, 300 calories if the run is 13 miles or more.



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Eating a big meal the night before a morning run or race can result in unloading during the run. Use common sense during your evening meal, eating smaller portions of food that digests easily. Many runners eat a bigger meal, earlier in the day. Avoid food that tends to cause problems: high

fiber foods, fatty or fried foods and any food, that has caused problems for you in the past.

Most Important Nutrient: Water

- **Whether you prefer water, juice, or other fluids, drink regularly throughout the day.**
- **Strive for eight 8-oz (240ml) glasses.**
- **Caffeine drinks don't dehydrate you, so coffee and tea can count toward your fluid content, if desired.**
- **Alcohol has a dehydrating effect. For every glass of wine or beer, drink two glasses of water.**

Drinking too much? If you have to take bathroom stops during walks or runs, you are drinking too much—either before or during the exercise. During an exercise session of 60 minutes or less, most exercisers don't need to drink at all. The intake of fluid before exercise should be arranged so that the excess fluid is eliminated before the run. Each person is a bit different, so you will have to find a routine that works for you.

My rule of thumb before long runs or races: Drink 6 oz (180ml) as soon as you wake up. That's it until you start running to avoid a lot of potty stops. There are individual differences, so practice drinking before long runs and find what works best for you.