



and women, were without hypertension before age 35. Blood pressure trajectories for each participant were estimated by using measurements from seven examinations over the course of 20 years. Blood pressure in the prehypertension range from age 20 to 35 was calculated and then related to the presence of coronary calcium, as measured at each participant's last examination (which occurred at a mean age of 44 years). Prehypertension before age 35, and in particular systolic prehypertension, showed an association with coronary artery calcium prevalence later in life, as measured by CT scan.

Coronary calcium, which does not always result in clinically significant cardiovascular disease, is nevertheless a strong predictor of it. Plaques on the linings of blood vessels have been well linked to heart attack and stroke. The condition is known as atherosclerosis. The study found that the longer prehypertension is present, the greater the risk and severity of atherosclerosis in middle age. Young adulthood, then, is now viewed as a critical period for hypertension maintenance, for even if blood pressure is close to normal, atherosclerosis can present.

The study concluded that prehypertension during young adulthood is common and is strongly associated with coronary atherosclerosis 20 years later. Keeping systolic pressure below 120 mm Hg before age 35 may provide important health benefits later in life. The researchers advocate lifestyle changes to treat prehypertension in young adulthood, rather than use of blood pressure drugs, at least until further data is available.

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For Periodized Training, A Periodized Diet

Most of us know about periodization of our running training program, whereby you break the year into four large segments and proceed through a series of steps within each that help you reach certain fitness goals. In his excellent book *Food for Fitness*, Lance Armstrong trainer Chris Carmichael applies the principles of periodization to nutrition as well. Carmichael reasons that every phase of training ought to work in tandem with dietary changes supportive of them.

The largest segment divisions in periodization are called mesocycles, and they are each several months long. Within them are approximately one-month chunks known as macrocycles. Each macrocycle is composed of weeklong microcycles. Different training periods require different fuel mixtures, and when the fuel matches the demands, you may reap huge rewards. In this article, we'll examine the first mesocycle of your training, known as the Foundation period.

In the roughly four-monthlong Foundation period, you are starting fresh from an off-season rest or are simply getting back to basics after a period of inactivity. Regardless of how much you are currently eating, you can select a goal weight (as long as it is within reason), and assume the dietary requirements for the Foundation period of an athlete of that weight. The Foundation period consists of moderate-intensity exercise several times a week. This means in the 40- to 65-percent range of maximal effort, perhaps starting with three times a week and working up to five times somewhere in the second or third month. A good rule of thumb is to run at a pace that you can sustain for one hour, and not much more.

Carmichael divides his athletes into those exercising less than eight hours a week and those who do more than that. Most of us probably fall into the former category, which puts us at the low end of the caloric spectrum he recommends for a given body weight. Whatever your goal weight, the percentages of carbohydrate, healthy fats, and protein in the Foundation period diet are the same. These percentages are: 65 percent carbs, 22 percent fat, and 13 percent protein. By counting the gram amounts of each of these nutrients rather than merely overall caloric intake, you will maximize your chances of meeting



your training goals because you will be serving the exact right cocktail of nutrients daily to facilitate muscle repair, aerobic energy availability, and greater energy storage.

You need not keep a detailed food diary over the course of four months. But by taking the time to count both calories and these gram amounts in the initial week or two of your Foundation period, you'll get a great feel for approximately how much overall you ought to be eating, the portions of each nutrient, and when you should be eating. If when you log your portions you find a dietary overhaul necessary, Carmichael recommends changing the composition of your diet gradually to ensure the change sticks. Try focusing on modifying breakfast one week, lunch the next (while sticking to the breakfast change as well!). Take two weeks to tackle and sustain the breakfast change if you find it necessary before moving on to lunch.

The following table represents total calories and gram amounts for nutrients in the Foundation period for a 180-lb. runner on a given training day. On off days, reduce your calorie intake by 10 to 15 percent.

Calories	Carbs - 65 percent	Fat - 22 percent	Protein - 13 percent
2,800	450 g	65 g	90 g

The following table represents total calories and gram amounts for nutrients in the Foundation period for a 150-lb. runner on a given training day. On off days, reduce your calorie intake by 10 to 15 percent.

Calories	Carbs - 65 percent	Fat - 22 percent	Protein - 13 percent
2,300	375 g	55 g	75 g

The following table represents total calories and gram amounts for nutrients in the Foundation period for a 120-lb. runner on a given training day. On off days, reduce your calorie intake by 10 to 15 percent.

Calories	Carbs - 65 percent	Fat - 22 percent	Protein - 13 percent
1,800	300 g	45 g	60 g

Most food labels contain gram information, but there are many reliable sources online to help you figure out the exact caloric and carb, fat, and protein content of almost any food you could imagine. The government has many foods listed in the USDA Nutrient Database, at www.nal.usda.gov/fnic/foodcomp/search. If you can't find it here, a simple Google search of your favorite foods usually lists the most reliable nutrition information in descending order. It might be a good idea to cross reference a few sites. Don't be surprised if in your research you learn that you are close to the 65-22-13 values already. Athletes have a way of self-regulating their dietary needs, in the same way that we learn to perceive exertion and monitor pain during workouts, separating "good" pain from "bad" pain.

As exercise intensity increases, so does the amount of carbohydrate you burn. In later issues, we'll examine the three-month Preparation period, the three-month Specialization period, and the two-month Transition period diets, all of which adjust the percentages of these vital nutrients to keep you fuel-efficient and working toward a winning competitive season.

Chris Carmichael's Food for Fitness, 2004, G.P. Putnam's Sons, New York, NY, 414 pp.