

Over-40

Muscle-and-Health Diet

Build Your Body
Through Middle Age
and Beyond

by Jerry Brainum

One of the great things about bodybuilding is that it's never too late to begin. Recent studies show that while the majority of sports have physiology-based age limitations, you can build and maintain muscle with advancing age. That's not to say that adding muscle isn't easier when you're young. Those who train in their 20s or younger are at a distinct advantage when it comes to bodybuilding progress. They have a more potent release of anabolic hormones, more complete and rapid recovery from workouts and the ability to get stronger with less chance of injury.

Those advantages may lead you to conclude that bodybuilding should be left to the young, but nothing could be further from the truth. The real advantages of lifting weights occur as you age. While the search for the fountain of youth continues, most scientists agree that the closest things to it are exercise and diet. The human body operates on a "use it or lose it" principle. Aging people who don't present themselves with mental challenges often wind up with the more serious cases of mental degeneration. Those who don't exercise their muscles may lose their ability to move.

The body can tolerate an impressive degree of insult, such as lack of exercise and poor diet, until about age 40. That's when all the physical and mental neglect begins to surface. Those who are out of shape at 40 often say they feel older than their chronological age. The reverse is true for those who engage in judicious exercise and diet. For them the aging process seems to slow to a crawl.

A key aspect of maintaining fitness and health with the passing years is optimal nutrition. The same principles that apply when you're

young also apply when you're middle-aged or older. You still need to eat all required nutrients and avoid foods that promote disease and degeneration. If you ask scientists who study aging about the best nutritional technique for delaying the aging process, many will tell you calorie restriction. That's proved effective in a number of animal species, where reducing calories led to a slowed rate of aging and protection against most diseases associated with aging, including cardiovascular disease and cancer. The experts usually advise reducing daily calories by 30 percent or more.

Despite the apparent success of calorie restriction in animals, there's little evidence that such a stringent eating plan works in human beings. The first hurdle is that curbing calories to the extent demanded by a typical low-calorie plan is apt to lead to long-term failure, or what medical pros call lack of compliance, in all but the most highly motivated dieters. On the other hand, proponents of calorie restriction bristle when it's called a starvation diet, noting that while calories are restricted, nutrients are not. Reducing required nutrients along with calories would lead to a shorter life span.

From an exercise and bodybuilding perspective, restricted-calorie dieting is a negative. That's readily apparent when you take a look at those who have opted for the calorie-restriction lifestyle. Without exception, they appear catabolic and painfully thin. One proud proponent of the calorie-restriction system flexes his arm in a Web site photo, evidently unaware that his biceps resembles a pea on a plate.

Some aspects of calorie restriction that are said to help delay the aging process aren't suitable to successful muscle building at any age. Restricting calories can decrease anabolic hormones, except maybe **growth hormone**—but GH alone isn't associated with muscle size. Prolonged calorie restriction usually elevates cortisol, the primary catabolic hormone, and you don't get enough **protein** and fat to support anabolic hormone function and muscular growth.

Recent studies show that the life-span-related benefits of calorie

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restriction accrue from decreased cellular oxidation, especially in the mitochondria, a part of the cell that produces energy. The other beneficial aspect is less bodyfat, which leads to less whole-body inflammation. That's noteworthy because most degenerative diseases of aging have an inflammatory component. Far from being the passive tissue it was thought to be in the past, bodyfat acts like an endocrine organ, releasing numerous substances that have potent effects on health and longevity. So the less bodyfat you have, the greater your chances of living to an advanced age.

If you're over 40 and want to build or keep your muscle, your primary focus should be on maintaining health and preventing diseases that start in the middle years. That's clearly what differentiates older bodybuilders from their younger peers. The young often show little concern for preventing disease. At the height of their physical prowess, they frequently turn a blind eye toward the future. All that changes when you turn 40. Even if you choose to ignore the effects of aging, they'll soon become apparent.

Good nutrition, however, can diminish or even slow many of the effects associated with aging. That's why you need to know how to eat to maintain and build muscle, as well as provide a hedge against the physical and mental degeneration that would otherwise inevitably ensue.

Start by taking stock of your present condition and setting your goals from that perspective. For example, if you have a close family member who has type 2 diabetes, your diet plan should focus on reducing bodyfat and getting nutrients that will promote insulin sensitivity, including chromium, biotin and most other vitamins and minerals. You should avoid processed carbs and other simple sugars and focus on low-glycemic-index carbs that elicit the least release of insulin.

An exception to that rule would be the intake of high-glycemic carbs just after a workout. Research shows that taking in a **carb-protein ratio** of

about 3-to-1 just after a workout heightens insulin release, which promotes anabolic action in muscle. The greater insulin release not only stimulates amino acid uptake in muscle for increased muscle **protein** synthesis but also activates the rate-limiting enzyme for muscle glycogen replenishment, which aids workout recovery considerably.

A major advantage of keeping a close eye on carb intake is that the aging process may largely be based on resting insulin levels. Too many carbs, especially processed carbs and bad sugars, such as high-fructose corn syrup, promote not only an excessive insulin release and subsequent bodyfat but also a pro-



cess called glycation, which increases deposition of sugars in connective tissue and other body **proteins**. Most scientists think that's what causes the increased stiffness associated with aging. In diseases such as diabetes, which involves disordered insulin metabolism and elevated blood sugar, the process is more rapid, which is why poorly treated diabetics age at a rate three to five times faster than normal.

A few nutrients can retard or blunt the glycation process, including lipoic acid, green tea, vitamins C, E and B₆, niacin and L-carnosine, a complex consisting of a double bond of the amino acid histidine. Small amounts of alcohol also retard glycation. In fact, drinking a glass or two of red wine, which contains potent antioxidants called polyphenols, has many health benefits.

One recent study showed that a nutrient in red wine, resveratrol, not only works against cancer and cardiovascular disease but also seems to retard calorie-restriction-induced aging. Before you go out and down a bottle of wine, though, be aware that the effect has thus far been noted in yeast only. Also, excess

Alpha-linoleic acid [in flaxseed oil] is an overrated source of omega-3s. Fish oils are better.



alcohol intake leads to toxic effects on all muscles in the body—including the heart.

Reaching age 40 also demands that you eat the best-quality **protein**, including the usual bodybuilding staples of fish, chicken, lean beef and eggs. Emphasize fatty-fish sources, such as mackerel, salmon, herring and halibut, which have a higher content of **omega-3** fatty acids. **Omega-3** fatty acids provide numerous health benefits and also appear to modulate the body's inflammatory processes. Recent studies also show that a regular intake of **omega-3s** helps maintain brain function with age, and people with the highest levels of **omega-3** fats during middle age show the least amount of brain degeneration as they get older.

The other type of essential fat, omega-6, offers some health benefits and is a direct precursor of substances that build and maintain muscle, such as prostaglandin F_{2A}. It's available in relative abundance in typical diets, but **omega-3** is considerably scarcer. That explains the focus on **omega-3** fat.

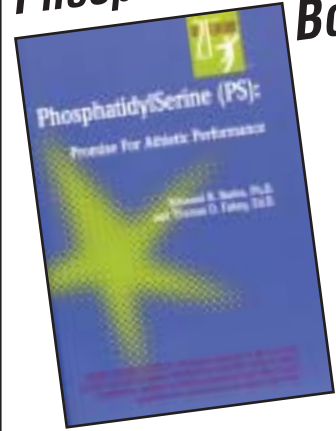
Those who cannot eat fish can get supplemental sources of **omega-3** fats. Some advocate the use of flaxseed oil, which contains alpha-linoleic acid, a precursor of the active **omega-3** fats EPA and DHA. Research, however, shows low conversion rates of alpha-linoleic acid into EPA and DHA, making it an overrated source of **omega-3**. The preferred supplemental form is fish oils, which are higher in EPA and DHA.

Saturated fat, found in meat and other animal **protein** sources, is often linked to cardiovascular disease. It doesn't oxidize in the body, but it acts as a substrate for the increased production of low-density-lipoprotein cholesterol in the blood. On the other hand, studies show that only two types of dietary fat help maintain testosterone levels in the body: saturated and monounsaturated fat. Keep saturated fat intake to no more than 10 percent of total daily calories.

Far worse than saturated fat from a health and longevity standpoint are trans fats—fats that have been structurally manipulated to extend shelf life and prevent premature

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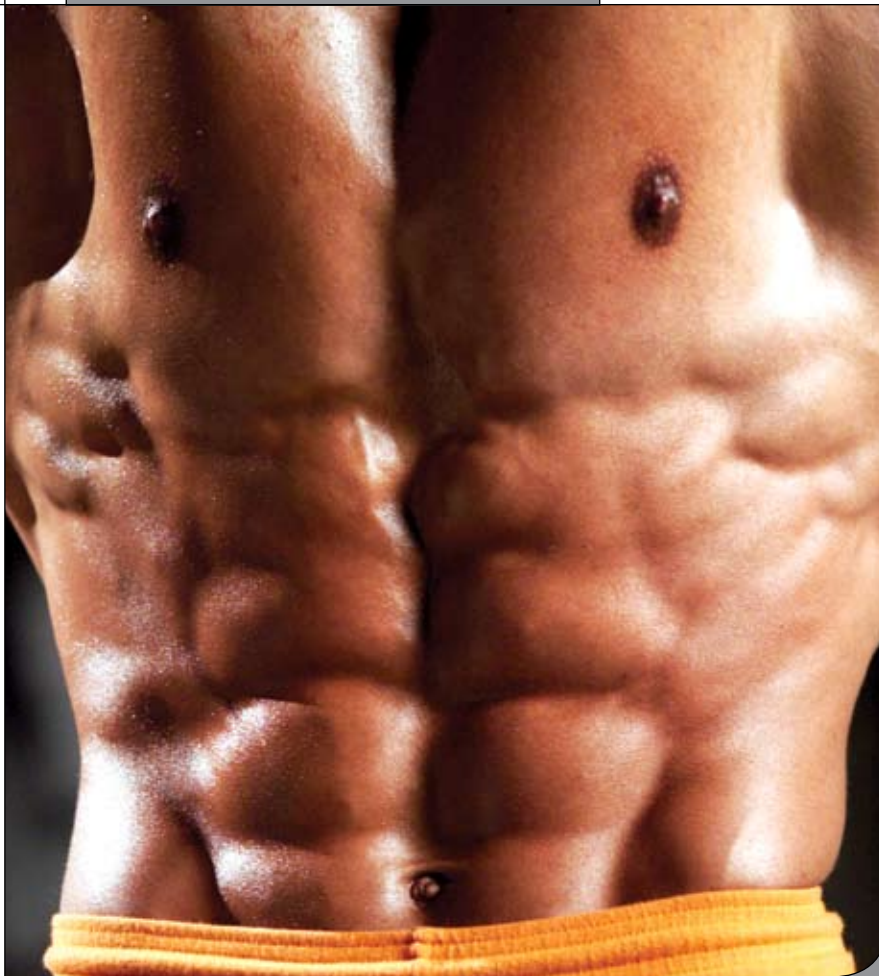
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Scientists believe that some vitamins, like C, can help alleviate joint problems caused by a process called glycation.

spoilage. The body handles them more or less as it does saturated fat; however, unlike saturated fat, trans fat lowers levels of protective factors in the body, such as high-density lipoprotein, which is a primary factor in preventing cardiovascular disease. Trans fats also promote cancer and lead to muscle breakdown by interfering with the synthesis of normal eicosanoids (substances made from fatty acids). Trans fats, found in such processed foods as margarine, shortening and commercial baked goods, are usually identified on food labels as “partially hydrogenated oils.”

Monounsaturated fat, found in olive oil and many types of nuts, is considered a neutral fat in that it doesn't adversely affect cardiovascular health or synthesis of prostaglandins, which are hormonelike acids that have far-ranging effects in the body. If anything, food sources of monounsaturated fat contain potent phenol compounds that provide antioxidant activity. That explains why monounsaturated fat

is a cornerstone of diets linked to increased longevity and freedom from degenerative disease, such as the Mediterranean diet. That diet, by the way, along with the Paleolithic, or Stone Age, diet—both of which have been discussed in *IRON*

Avoid trans fats. They lower levels of protective factors in the body, such as high-density lipoprotein.

MAN—constitute the two best year-round eating plans for maintaining health and muscle. [Note: Watch for an extensive feature on the Mediterranean diet in a future issue of *IM*.]

Studies of men over 40 engaged in weight training clearly show a superiority of animal to vegetable **protein** sources. Animal protein has a better amino acid balance and is easier for the body to process, an important consideration for those

over 40. For that reason, supplemental protein products should also feature the highest quality sources: a combination of the milk proteins **casein and whey**.

Casein is a slow-acting protein that promotes a gradual release of amino acids over a seven-hour period. That timed release sets off an anticatabolic effect in muscle that's particularly pronounced if you get the protein before sleep. The other milk protein, whey, is a more rapidly absorbed protein that peaks in the blood and is gone after about 90 minutes. The rapid absorption characteristics of whey lead to a rapid release of amino acids that favors increased muscle **protein** synthesis. That's especially useful if you get the whey in a postworkout or even a preworkout drink.

Protein synthesis becomes more difficult as the body ages. Studies that have compared eating several small meals to one or two meals show that eating smaller protein meals at regular intervals, such as every 2 1/2 to three hours, promotes



Small amounts of a soy protein product—say, 25 grams a day—may discourage prostate cancer and cardiovascular disease. Too much, however, can mimic the undesirable effects of estrogen.

Neveux \ Model: Jeff Hammond

other hand, soy isoflavones are also known as phytoestrogens because of their structural similarity to estrogen. That's where the controversy kicks in. While small amounts of a soy protein product—say, 25 grams a day—may discourage prostate cancer and cardiovascular disease, too much begins to mimic the undesirable effects of estrogen, such as water retention.

Ignore all the dire warnings about the alleged dangers of a high-protein diet. A search of the medical literature regarding problems linked to high protein reveals that all cases involved people who had existing kidney problems. Since the kidneys—along with the liver—are the main organs that process protein, a high-protein diet can cause trouble when they're not functioning properly. That doesn't apply to those with normally functioning kidneys. If anything, one amino acid, L-arginine, may prevent the deterioration in kidney function that often occurs with advanced age. One theory is that arginine helps maintain local nitric oxide production in the kidneys, thereby maintaining optimal



Neveux \ Model: Clark Bartram

increased muscle **protein** synthesis in younger men and women. Studies of those over 40 show that eating one or two larger protein meals seems to work better than eating smaller meals more often. Scientists think the larger meals release a greater amount of amino acids in older people, and amino acids are the key to promoting muscle protein synthesis. Unfortunately, the subjects of the studies were sedentary people not engaged in resistance exercise. So the information may not apply to those actively involved in weight training.

Controversy surrounds the question of whether those over 40 should use soy products. Soy protein is inferior to animal protein sources, such as **casein and whey**, and acts like whey in that it's rapidly absorbed and metabolized. Studies comparing the effects of soy and milk proteins show little difference from an anabolic standpoint. Soy protein, however, has a greater antioxidant effect after exercise than whey does.

Soy contains active ingredients

Ignore all the dire warnings about the alleged dangers of a high-protein diet.

collectively known as isoflavones, which have many beneficial health properties. In Asian countries, where soy products are in wide use, people average a daily isoflavone intake of 40 to 60 milligrams. Some studies show that soy guards against breast and prostate cancer. On the



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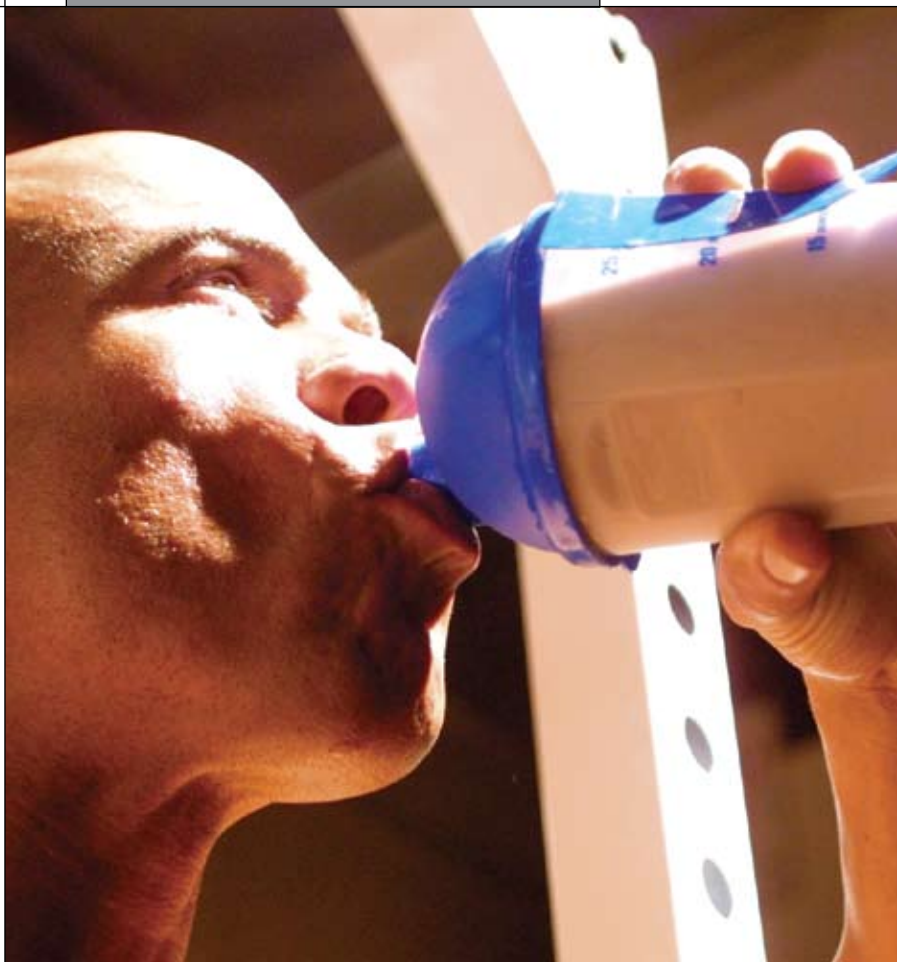


blood flow. Those over 40 typically complain of joint pain resulting from exercise. It may be due to arthritic changes in joints over the years or from glycation. Nutritional supplements may offer help: glucosamine sulfate (1,500 milligrams daily) and chondroitin sulfate (800 milligrams daily); MSM, 4,000 to 6,000 milligrams daily; and turmeric or curcumin, 3,000 milligrams daily. Like the COX-2 inhibitor drugs that have gained such a notorious reputation, curcumin offers potent anti-inflammatory effects; unlike them, curcumin isn't linked to heart attacks. Curcumin also promotes the conversion of relatively inactive T4 thyroid hormone into the five times more active T3 version, which helps maintain metabolism and better body composition, meaning less fat.

Flavonoids naturally found in grapeseed extract inhibit the enzymes that degrade joint proteins. **Omega-3** fats also offer relief through decreased production of inflammatory mediators in joints. Green tea provides some joint

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Neveux \ Model: Skip La Cour

A little wine each day can augment a healthy diet. It contains antioxidants that have been shown to reduce the risk of cardiovascular disease.

About 75 percent of Americans don't eat the recommended five servings a day of fruits and vegetables.

protection through its antioxidant effect, known to be more than 50 times more potent than that of vitamin E.

Perhaps the most vital component of nutrition for those over 40 is eating functional foods and nutraceuticals; that is, foods that contain such elements as flavonoids, which help protect against degenerative diseases. One example is lycopene, a carotenoid found in tomatoes and other red fruits and vegetables. Studies show that lycopene works against prostate cancer and cardiovascular disease.

The foods that offer the most protection are fruits and vegetables. The nutrients they provide include

fiber, flavonoids and polyphenols, which are difficult or impossible to get from supplemental sources. The usual recommendation is to eat at least five servings a day of fruits and vegetables, with nine or more servings being ideal. But studies show that 75 percent of Americans don't eat even the minimal five servings a day.

Small wonder that cardiovascular disease and cancer continue to be the major killers of Americans. The only true antidote to such diseases is to exercise and eat fruits and vegetables. The older you are, the more important it is, since the onset of these diseases begins in earnest at about age 40. The processes that initiate them, however, start even earlier. As an example of just how protective such foods can be, a recent study showed that eating the following in one meal, termed a "polymeal," can reduce the risk of cardiovascular disease by 76 percent:¹

Wine, 150 milliliters a day

Fish, 114 grams, four times a week

Dark chocolate, 100 grams a day

Fruits and vegetables, 400 grams a day

Garlic, 2.7 grams a day

Almonds, 68 grams a day

Following the nutrition principles outlined here ensures many years of successful training and health maintenance for those past 40 and beyond. The aging process is inexorable, but the quality of life is largely under individual control, with good nutrition and exercise being the keys to a higher quality of living.

¹ Franco, O.H., et al. (2004). The polymeal: a more natural, safer and probably tastier (than the polypill) strategy to reduce cardiovascular disease more than 75%. *Brit Med J.* 329:1447-1450. ■■