

# Sports nutrition guideline for the vegetarian

Active individuals often wonder what, and even if, they should eat before a workout -- especially when hunger seems to strike just around workout time - or when the race or tennis match begins too early to consider eating beforehand. Experienced athletes may remember eating the wrong food at the wrong time and wondering why they felt awful or performed poorly. Can the timing and choice of foods consumed close to and during a workout really make a difference in how you perform? Following a good diet with adequate amounts of energy, carbohydrates, protein, vitamins, and minerals is critical for optimal performance. No one performs their best by starting a workout hungry or with low glycogen (carbohydrate) stores or after eating the wrong types of food too close to exercising. Also, failing to replace depleted carbohydrates, protein, and fluids after a workout can decrease performance in the days that follow. Because the recommendations for food and fluid intake before, during, and after exercise vary somewhat with different sports activities, this article will cover guidelines for all types and levels of vegetarian athletes.

## Fueling up before: The pre-event meal

The purpose of eating prior to a workout or competition is to provide the body with fuel and fluid. The idea is to choose foods which will prevent hunger, provide additional carbohydrate fuel, and minimise possible intestinal complications. Generally, the meal should be consumed far enough in advance to allow for stomach emptying and intestinal absorption. A good rule of thumb is to limit the pre-event meal to about 800 calories, and give yourself one hour before the workout for each 200 calories you eat. For example, 5 pancakes, syrup, a banana, and juice would be eaten about 4 hours before a workout. A smaller 200 calorie meal such as a bowl of cereal or a bagel and juice would be eaten between 1 and 2 hours before starting. Meal timing is especially important in activities such as running, aerobic dancing, and swimming, and less

critical in sports such as cycling. Athletes who have a "nervous stomach" before competition may find liquid meals such as blenderised fruit shakes with tofu or soy yogurt easier to tolerate. The pre-event meal should contain fluid and foods that are high in carbohydrates, and low in fat, protein, salt, simple sugars, and concentrated fiber. Cereal with sliced bananas and skim milk or juice, pancakes with fresh fruit topping, oatmeal with fruit, a baked potato topped with soy yogurt and vegetables, and tofu spread on bread with fruit are good examples. Too much protein, fiber, and fat in the pre-event meal can lead to heartburn, nausea, diarrhea, or constipation in certain individuals.

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## Supplementing: Intake during the event

Replacing both fluid and carbohydrate during exercise is important. What and how much to replace depends on the type, duration, and intensity of the exercise. Adequate fluid intake is the single most important recommendation for all types of exercise. The general recommendation is to drink 1/2 to 1 cup of water every 10 to 20 minutes. In a hot environment, when perspiration is especially heavy, drinking up to 2 cups of water every 15 minutes may be necessary to replace fluid losses. Adequate hydration enables the active body to regulate its temperature effectively and allows for good circulation and muscle function. Carbohydrate replacement is necessary in events lasting longer than 90 minutes and may even be beneficial during high intensity exercise of shorter duration. This applies to both continuous events like cycling, running, and hiking, and sports with intermittent activity like soccer and weight training. Under these conditions, consuming carbohydrates during exercise increases both the time and the intensity the athlete is able to exercise before becoming exhausted. Researchers believe that carbohydrate feedings delay fatigue by providing



additional fuel for the working muscle and preventing blood sugar from dropping. A carbohydrate intake of approximately 30 to 80 grams per hour (1 to 3 large bananas or 15 to 60 ounces of a 6 to 7 percent fluid replacement beverage) are recommended for delaying fatigue during prolonged strenuous exercise.

## Refueling: The post-event meal

The meal following a workout is nutritionally the most important meal for aiding recovery from exercise and maintaining the ability to train the following days. Fluid, carbohydrate, and protein intake after exercise is critical, especially after heavy exercise. A high carbohydrate intake is required to replace depleted muscle glycogen stores. Delivery of a protein source may also aid in repairing

and rebuilding damaged muscle tissue and replenishing the amino acid stores. Collective evidence indicates that exercise significantly alters protein metabolism, especially as the exercise becomes more prolonged and more strenuous. Since the body begins to replace its depleted stores and repair any microscopic damage to muscle fibers almost immediately after exercise, provision of these depleted nutrients in the post-event meal may accelerate recovery.

Researchers investigating the role of carbohydrate in exercise performance suggest that consuming a carbohydrate source starting 15 to 30 minutes after exercise, followed by additional carbohydrate feedings, will optimise muscle glycogen replacement. Delaying the ingestion of carbohydrates by

several hours slows down the rate at which the body is able to store glycogen. For the casual exerciser, this means packing a piece of fruit, fruit juice, or a fluid replacement beverage for a post-workout snack, and then eating a mixed high carbohydrate and protein meal (such as pasta with lentil spaghetti sauce or tofu, vegetables, and rice) shortly thereafter. For the heavily training endurance athlete, a meal containing both a good source of protein and 100 grams of carbohydrate is recommended, followed by additional carbohydrate feedings every 2 to 4 hours.

## Fasting: A detriment to performance

Research shows that meal skipping and fasting can be detrimental to performance. An overnight fast depletes sugars stored in the liver (liver glycogen) and can contribute to light-headedness and the early onset of fatigue. A high carbohydrate meal before exercise increases the carbohydrate available for the exercising muscle which provides benefit during both prolonged endurance exercise and high-intensity exercise. Starting any exercise session hungry or light-headed, however, keeps you from performing your best. If time or calories are a factor, eat a small high-carbohydrate snack (banana, bagel, cereal, vegan "energy bar") about an hour and a half before exercise or drink a glass of a fluid replacement beverage about 10 minutes prior to exercise.

## Fibre: A help or hindrance?

Vegetarian diets are generally high in both soluble and insoluble fiber. A small amount of soluble fiber before or during exercise may be beneficial by preventing rapid highs and lows in blood sugar. However, some athletes are sensitive to fiber before exercise, especially major competitions. If you experience stomach or intestinal cramps, or diarrhea before exercise, limiting high fiber foods such as legumes, whole grain products, bran products, and dried fruit in the meal preceding exercise may eliminate this distress. Sensitive athletes may need to reduce their fiber intake 24 to 36 hours before competition. Regular

meal times and bowel habits also prevent exercise-induced intestinal complications.

It is also important to consider that adequate fiber intake is easily met and often exceeded by vegetarian athletes who have high calorie intakes. Sometimes, trying to eat a high calorie diet containing excess fiber can cause discomfort. Cyclists, who had difficulty maintaining adequate energy intake of 8,000 to 10,000 calories when whole grains and high fiber food were selected. Those athletes with high calorie intakes should not be overly concerned about fiber and should select a variety of high carbohydrate foods that both contain fiber and are low in fiber (white bread, pasta, white rice, potatoes without skin, and fruit juice).

## Practical implications

Maintain an overall diet high in complex carbohydrates and low in fat. Eating a well-balanced diet containing adequate amounts of calories, protein, vitamins, and minerals is critical for optimal performance.

Choose pre-exercise meals that work well for you, including complex carbohydrates and fluids. Limit fat, protein, salt, and simple sugar. Before major competitions, don't shock your body by introducing unfamiliar foods.

Fasting or meal skipping before exercise can impair performance. Wait approximately 1 hour for every 200 calories you consume before exercise.

Drink plenty of fluids during exercise. If exercise lasts longer than 90 minutes, eat or drink 30 to 80 grams of carbohydrate per hour to prolong performance time.

To aid recovery from exercise, consume a high-carbohydrate snack within 30 minutes after exercise and follow with a mixed high carbohydrate and protein meal.

If you experience stomach or intestinal complications during exercise, your pre-exercise meal may have been too high in fat or fiber.

Source: <http://www.vrg.org>

## Pregnancy may weaken teens' bones



Teenage girls who become pregnant may be at increased risk for weakened bones, researchers report.

In a new study, one third of teen mothers had low bone mass typical of the brittle-bone disease osteoporosis or a precursor condition called osteopenia.

The findings highlight the importance of adequate calcium intake during teenage pregnancy.

"It is particularly important to insure that pregnant teens consume the recommended amount of calcium during pregnancy, 1,300 milligrams per day, to insure that sufficient calcium is absorbed to meet both maternal and fetal calcium demands," said Dr. Kimberly O. O'Brien of the Johns Hopkins Bloomberg School of Public Health in Baltimore.

"Further research is needed," she continued, "to determine if higher amounts of calcium than currently recommended can minimise maternal bone loss in this age group."

Calcium is in high demand during pregnancy as the growing fetus needs the nutrient for bone formation. While the fetus needs calcium to develop healthy bones, so does the pregnant teen. In fact, girls form 40 percent of their bone mass during adolescence.

O'Brien and her colleagues studied 23 pregnant girls ages 13.5 to 18.3 years. Fifteen of the girls were available for follow-up during the first couple of months after giving birth.

As is typical in adults during pregnancy, calcium absorption was higher during pregnancy than after delivery.

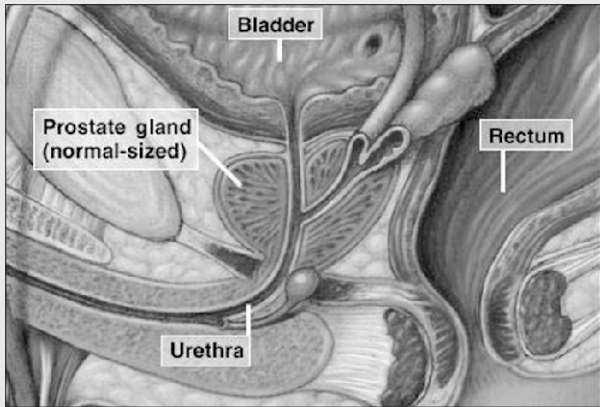
About one out of every three teen mothers showed signs of significant bone thinning after giving birth, the researchers reported in the December 2003 issue of the American Journal of Clinical Nutrition.

Of the fifteen girls whose bone mass was measured 3 to 4 weeks after giving birth, two girls fit the criteria for the brittle-bone disease osteoporosis. Another three girls showed signs of osteopenia.

Not all pregnant girls are doomed to have weak bone, however. The study showed that a higher intake of calcium during pregnancy was directly related to improved calcium balance. This suggests that greater calcium consumption during pregnancy may protect against bone loss, according to the report.

Source: American Journal of Clinical Nutrition, December 2003.

## Fruit nutrient may fight resistant Prostate Cancer



Men with prostate cancer who have not responded to conventional treatments may benefit from supplements containing a modified form of a fruit ingredient, preliminary research suggests.

After 13 men with prostate cancer that did not respond to conventional treatment tried supplements containing modified fruit pectin (MCP) for 12 months, 7 of the 10 men who completed the study showed signs that their tumors were becoming less aggressive.

The study was sponsored by EcoNugenics, the company that sells the MCP supplements used in the current research.

All of the men underwent previous treatment for their tumors, including surgery and radiation, after which they had all experienced an increase in prostate specific antigen (PSA) in their blood, a sign their cancer was continuing to grow.

Three of the patients did not complete the full course of treatment with MCP due to mild abdominal cramps or diarrhoea, which resolved after they stopped the treatment.

In an interview, study author Brad Guess said that the results are too preliminary to warrant recommending MCP to all men with prostate cancer. However, the findings show that, for men with recurrent cancer who can handle the side effects, MCP may help, he noted.

"It may have some benefit as a relatively non-toxic agent in a select group of guys with a rising PSA," Guess, a physician's assistant at Prostate Oncology Specialist in California, told.

He added that pectin naturally occurs in the peel of citrus fruit, and is generally not absorbed by the bloodstream. So eating large quantities of fruit likely will not bring about the same benefit as taking a supplement, which contains pectin that is modified so that it is absorbed in the bloodstream, he said.

During the study, reported in the journal Prostate Cancer and Prostatic Diseases, Guess and his team asked 13 men with prostate cancer to take six capsules of MCP three times per day for one year, for a total daily dose of 14.4 grams.

Among the 10 patients who completed the study, seven experienced a slower rise in blood levels of PSA, a sign that their tumors were becoming less aggressive.

In an interview, study co-author Dr. Stephen Strum, an oncologist specialising in prostate cancer in Oregon, explained that previous experiments have shown that MCP may block an important substance that enables cancer to grow and spread.

According to Strum, our immune system is typically strong enough to fight off individual cancer cells. To outwit our natural defenses, he said, cancer cells exhibit a protein on their surfaces that enables them to combine together, forming a clump large enough to become a threat to health.

"The cohesiveness of the enemy cells, the tumor cells, is an important factor for the cancer to grow and spread," Strum explained.

Recently, investigators discovered that MCP blocks this surface protein, known as galectin-3, which may explain why it helps men with prostate cancer, Strum noted.

Guess added that MCP may also work in people with other types of cancer, as well.

Source: Prostate Cancer and Prostatic Diseases, December 2003.

# Gynecomastia, a cause of embarrassment for suffering young men

## STAR HEALTH DESK

Male breast growth can have a major emotional impact on a young man. There is just something about protruding breasts in a male that can result in teasing from peers. Typical behavior is to hide the chest when in public or shun others. Those bothered by the problem avoid swimming, taking their shirts off, and other activities where others can see their breasts. Many do not discuss their concerns with parents, peers, and do not understand the problem. Starting that dialog is important.

Gynecomastia is a common condition affecting between 40 and 60 percent of all males. Breast development easily happens during adolescence and

may have many possible causes. It can appear as a small lump just under the areola (colored skin around the nipple). During growth, this mass can be tender.

Gynecomastia has been divided into four types: Type I: (pubertal or benign adolescent breast hypertrophy) refers to the common entity seen in pubertal males. Incidence may be as high as 60-70 percent. It is typically a firm, tender, subareolar mass anywhere from 1-5 cm in diameter. The pubertal adolescent frequently complains of pain in the breasts, particularly when wearing binding clothing. It usually spontaneously resolves within 2 years.

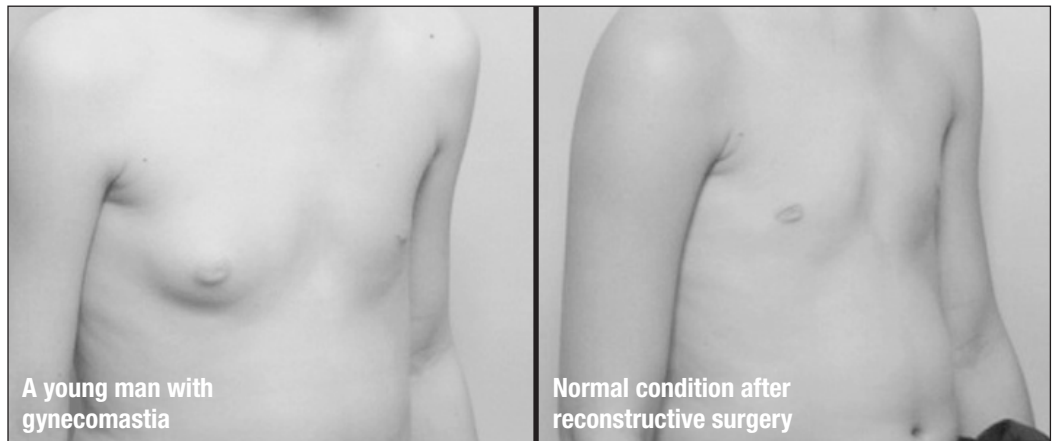
Type II (physiological gynecomastia without evidence of underlying disease, or with evidence of organic disease

including the effects of specific drugs) refers to a generalized, nonpainful breast enlargement. It is essential to differentiate between physiologic gynecomastia and breast enlargement due either to a pathologic process or to the use of a specific drug. Careful history taking regarding the time of onset, family history, duration of enlargement, history of systemic illness, weight change, and drug or medication use, is important. Physical examination should include height, weight, blood pressure, breast size, and Tanner staging of both breasts and genitals, in addition to a neurologic assessment.

Type III gynecomastia is general obesity simulating gynecomastia, and Type IV is pectoral muscle hypertrophy.

## Common causes of type II gynecomastia

- I. Idiopathic
- II. Familial causes
  - a. Associated with anosmia and testicular hypertrophy.
  - b. Reifenstein's syndrome (male pseudohermaphroditism 2ry to partial androgen insensitivity)
  - c. Associated with hypogonadism and small penis
- III. Specific illnesses or syndromes
  - a. Klinefelter
  - b. Male pseudohermaphroditism
  - c. Testicular feminization syndrome
  - d. Tumors
  - e. Leukemia
  - f. Hemophilia
  - g. Leprosy
  - h. Chronic glomerulonephritis
- IV. Miscellaneous drugs
  - a. amphetamines
  - b. anabolic steroids
  - c. birth control pills
  - d. cimetidine
  - e. diazepam
  - f. corticosteroids
  - g. digitalis
  - h. estrogens
  - j. human chorionic gonadotropin
  - k. insulin
  - l. isoniazid and other TB drugs
  - m. ketoconazole
  - n. marijuana
  - o. methadone and other narcotics
  - p. reserpine
  - q. tricyclic antidepressants



A young man with gynecomastia

Normal condition after reconstructive surgery