



HyHealth TALK

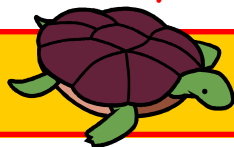


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Editor: Sarah Hoppe

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The Tortoise & The Hare



(Source: The New York Times, May 2007)

Each of us has our own style when it comes to working out at the gym. Some of us are like tortoises who would rather amble at a slow and steady pace from station to station. Some of us are like hares who frantically sprint through miles of intense cardio work. Both approaches provide the same essential health benefits: decreasing the risk of heart disease, warding off Type 2 diabetes and lowering body weight.

New fitness research indicates that it is beneficial to have a workout at least once per week that incorporates both tortoise and hare exercise philosophies, also called interval training. Career athletes have used this regimen for many years to heighten their performance. It has been found in studies that the dramatic peaks and troughs can profoundly increase cardiovascular wellbeing and the body's capacity to burn fat in a matter of weeks.

A study published in a 2005 *Journal of Applied Physiology* found that after just two weeks of interval training, six of eight college-age men and women doubled their endurance, or the amount of time they could ride a bicycle at moderate intensity before exhaustion. The participants were made to sprint for 30 seconds and then either stop or pedal at a comfortable pace for four minutes. Over a two week period there was a remarkable improvement in endurance after 15 minutes of vigorous cycling, even in these individuals who were already moderately fit.

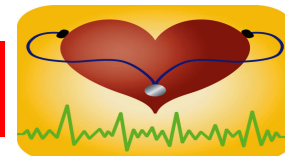
Engaging in intervals of hard exercise improves not only cardiovascular fitness but also the body's ability to burn fat, as was illustrated in another recent study also published in the *Journal of Applied Physiology*. Eight women in their early 20s who were either fit or borderline sedentary, bicycled for 10 sets of four minutes of intense riding, followed by two minutes of rest. After completing seven interval workouts, the amount of fat burned in an hour of continuous moderate cycling increased by 36 percent, while cardiovascular fitness improved by 13 percent.

Interval training is not for everyone. Forcing the heart rate up to high rates with intense bursts of physical activity can put certain individuals at risk. For example, those with heart disease, hypertension, arthritis, or those older than 60 years should consult with their physicians before starting such a regimen.

Although the ratio between hard workout and moderate pace to resting phase may vary, especially person to person, fitness coaches suggest varying the duration of activity and rest. Coaches also agree that the high-intensity phase should be long and strenuous enough that the individual is out of breath – roughly one to four minutes of exercise at 80 to 85 percent of their maximum heart rate. The recovery phase should not last long enough for the pulse to return to its resting rate.

Also people need to remember to sufficiently warm up prior to the first interval. Coaches recommend that interval training not be done on successive days to allow the body to recover properly and avoid burnout.

The Price of Inflammation



It happens any number of ways: a scuff to the knee; a bee sting; a burn from the grill. This is the perfect welcome to foreign invaders to set up camp and thrive in your body. You apply a damp, cool cloth or some ice to counter the telltale redness and swelling, as well as possible infection.

This is the immune response known as inflammation, and it is designed to protect your body from infection. Without this immune response and its corresponding protective immune cells, every germ, virus and bacteria could be a potential threat to your health and well-being. Vital to our survival, immune cells work hard to overcome foreign bodies while chemicals called *eicosanoids* (i-KO-sa-noids) trigger inflammation and its familiar symptoms of redness, swelling, heat, pain and even itching (think bug bites). Once healing begins, another line of anti-inflammatory eicosanoids responsible for alleviating swelling comes to the front line.

Some eicosanoids promote inflammation, others quell this defensive reaction, and it is imperative to maintain the proper balance between the two. Ideally, you want this chain of inflammatory events to respond to injuries and infections without over-reacting and attacking the body's own organs. "I would say almost every illness begins with this basic inflammatory response," says Eliot Edwards, ND, and adjunct professor at the State University of New York College at Oneonta. "Wherever there is inflammation, there is a chance of oxidative damage occurring, specifically in relation to cardiovascular disease."



disease.”

The danger begins when a flood of the eicosanoids that bring on swelling go overboard and create a situation called *chronic* or *silent inflammation*. Although pain usually goes hand in hand with inflammation, this chronic type occurs at such a low level that no pain is involved. And since there is no discomfort, the situation can go on for years without the individual being aware of it or its consequences. Left unchecked, it can develop into a chronic inflammatory disease such as allergies, arthritis, type 2 diabetes, heart disease, even cancer and Alzheimer’s.

Research indicates that this low-grade systemic inflammation may be the root cause of heart attacks and arteriosclerosis. Since the 1960’s, cholesterol was believed to increase the risk of cardiovascular disease. This may be only one of the factors, as more than half of all heart patients have normal cholesterol levels in their blood. However, scientists are working to find the link between chronic inflammation and *low-density lipoprotein* (LDL), the “bad” cholesterol that tends to cause plaque deposits to develop on arterial walls. Remember, though, that *high-density lipoprotein* (HDL), is the “good” cholesterol that flushes these plaque deposits out of the arteries.

New studies infer that LDL turns threatening when it hooks up with its ne’er-do-well pals, inflammation and *oxidation*; think of rusting inside of your body. “There has to be some sort of inflammation or damage to the lining of that vessel for something to happen,” explains Edwards. “So oxidative damage to the lining causes cracking and allows for plaque to begin building up, because that lining is no longer smooth. Once that happens, then cholesterol and other compounds can infiltrate that area and the plaque-building process starts.” To offset the damage, immune cells called *monocytes*, one type of white blood cell, enter the scene and adhere to the vessel walls and morph into plaque-thickening foam cells. These irritated plaque formations have a tendency to rupture, causing the development of blood clots that may, in turn, plug the artery and bring about heart attack or stroke.

Statistics indicate that more than half of all sudden heart attacks are associated with inflamed plaque build-up in arteries. Scientists are investigating new ways to anticipate the threat of cardiovascular disease, focusing on the elevated blood levels of various inflammation markers like homocysteine, fibrinogen, leptin, interleukin-6 and C-reactive protein (CRP). The FDA-approved hs-CRP blood test, for example, was developed to measure the blood serum concentration of CRP levels, thus projecting the risk of cardiovascular disease, heart attack and stroke.

Anti-inflammatory drugs, either prescription or over-the-counter (like ibuprofen and aspirin) can lessen inflammation but over-time may suppress the immune system, tax the liver, and can actually aggravate inflammation. Lifestyle factors play a profound role in this scenario and nutrition changes can have a powerfully protective affect on the body. Chicago-based nutrition and fitness consultant John Pierre recommends eliminating the most inflammatory items from the typical diet, including meat, eggs, dairy products, hydrogenated oils, refined sugar products, coffee, alcohol and processed foods. Even drastically limiting these foods can have a healing effect. He also suggests introducing omega-3 fatty acids, fruits and vegetables, whole grains, and spices like ginger and turmeric.

The assault on *free radicals*, unstable oxygen molecules that are a by-product of metabolism, pollution and stress, is also recommended. Incorporating foods rich with beta carotene, vitamins A, C and E can dismantle these volatile molecules. Think of fruits and vegetable that are green and leafy, red, purple and yellow. Supplementing these vitamins can also be beneficial, though you may want to consult with a nutritionist or physician first.

Constipation can cause more inflammation since the body is not eliminating properly. Elimination is the key to reducing inflammation. Drink plenty of filtered water and eat whole grains, fiber-rich foods and those fruits and vegetables.

Emotions can also help create an environment prone to inflammation. The cardiovascular system reacts poorly to unresolved conflicts and other life stresses. This on-going “fight or flight” response encourages adrenal fatigue, boosts cholesterol levels and weakens the immune system – things that inflammation thrives on. Pierre suggests taking “time to be with nature, spend quality time with family, friends and companion animals, getting plenty of sleep and smile a lot.”

Dietary, emotional and physical choices all play a role in dousing the inflammatory fires that wreak havoc on the body. Healthy nutrition, exercise and recreation can help lead you to the path toward a healthier, happier and longer life.

