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Tai Chi Offers Additional Option for OA Sufferers

Osteoarthritis develops when cartilage deteriorates and the space between bones at the joints narrows, eventually causing pain as the bones change shape.

The first symptom is often pain in a joint after strenuous activity. The joint may be stiff in the morning, but loosen up after a few minutes of movement. Sometimes moving the joint may cause a grating sensation.

When osteoarthritis affects the knee, pain, swelling and stiffness develop. Discomfort can progress to difficulty walking, bathing and even getting in and out of bed. When osteoarthritis affects the hip, pain may be felt in the groin, down the inside thigh or as far away as the knee. When it affects the lower spine, pain can spread to the buttocks or legs.

The knee is the most commonly affected joint. In fact, almost half the population will have knee pain due to osteoarthritis by age 85. There is no cure; the only permanent treatment is a total knee replacement. According to Harvard Health Publications, more than 700,000 of these operations are performed in the U.S. each year, and the rate of knee replacement surgery has nearly doubled between 2000 and 2010.

Short of surgery, traditionally clinicians have relied heavily on NSAIDs to treat OA. But the cardiovascular, gastrointestinal and renal toxicities of NSAIDs have limited their use.

Acetaminophen (an analgesic, such as Tylenol or Anacin, without anti-inflammatory properties) is still widely recommended as an initial therapy due to its relative safety. In a recent meta-analysis reviewing drug efficacy published in *The Lancet*, however, acetaminophen was found to be no better than placebo. The NSAIDs diclofenac, etoricoxib and rofecoxib were associated with the greatest pain reduction for patients with knee or hip osteoarthritis. But etoricoxib is not available in the U.S., while rofecoxib was withdrawn worldwide in 2004.

In another study published in *BMJ*, acetaminophen—though recommended as a first-line analgesic for lower back pain and pain related to hip and knee OA—was again found to be no more effective than placebo for lower back pain and disability in the immediate term (less than or equal to two weeks) or for pain, disability and quality of life for up to three months. In addition, acetaminophen users were more likely to have abnormal results on liver function tests.

There is the potential for adverse events with NSAIDs as well, including exacerbation of heart failure, heart attack risk, GI upset, and bad interactions with the anticoagulant warfarin, which treats and helps prevent blood clots. All of this severely limits drug options for OA-related pain management.

Non-pharmacologic approaches are therefore often sought after, and they also help avoid the side effects from simultaneously using multiple drugs, a situation known as poly-pharmacy that is common among the elderly.

As is so often the case, the treatment with the least side effects and the most promise for OA sufferers, if not quite a magic bullet, appears to be physical activity.

Researchers from Tufts previously have reported that tai chi is more effective than no treatment among patients with rheumatoid arthritis, fibromyalgia or knee OA. Now, the same research group has conducted a randomized trial to compare standard physical therapy and tai chi in 204 patients with knee OA. Tai chi sessions were 60 minutes twice weekly for 12 weeks; physical therapy sessions were 30 minutes twice weekly for six weeks, with close phone monitoring for another six weeks. Assessors were blinded to treatment assignments.

Tai chi is described in the study as “traditional Chinese mind-body practice that combines meditation with slow, gentle, graceful movements; deep diaphragmatic breathing; and relaxation.”

At 12, 24 and 52 weeks, mean pain scores had improved similarly in both groups, and outcomes in the two groups were similar for most secondary measures, including physical function, medication use and overall quality of life. However, the tai chi group showed statistically superior improvement in the secondary measures of depression and the physical component of a quality-of-life measure at 12 weeks.

One limitation of many studies of tai chi is that some of its effect may be related to the personality or charisma of the instructor. In this new study, the investigators thought of that and compared different instructors; no differences between them were noted.

The research adds to the growing body of literature that supports noninvasive therapies for patients with knee OA.

Does this mean you should choose tai chi *instead* of physical therapy if you have knee osteoarthritis? No, as the main finding of the study was that both treatments were similarly effective at relieving pain. But it does lend credibility to the idea that tai chi can be helpful. It's also known to have many more benefits besides pain relief, and it's considered very safe.

More generally, here are four ways exercise can help arthritis:

- It can deliver a better range of motion
- It leads to stronger muscles
- The improvements to endurance strengthen your heart and lungs, increasing overall health
- Better balance decreases risk of injury to joints from falls and spills

The limits to pharmacology as a long-term solution to many health problems become more and more manifest with each new study, it seems. Having strength- and balance-enhancing activities such as tai chi in your arsenal of treatments for conditions like OA is a wise choice that can improve your overall health and quality of life in addition to alleviating the pain of arthritis itself.

The Lancet, [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(16\)30002-2/abstracts](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(16)30002-2/abstracts)

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FDA Announces New Food Labeling Requirements

The FDA recently finalized new requirements for nutrition information on foods. The changes include:

- “Calories from Fat” will be eliminated. Information on total, saturated and trans fat will still be included.
- Information on “added sugars” must now be included.
- New daily values for sodium, dietary fiber and vitamin D will be included.
- The percentage of daily value for vitamins A and C will be removed since these vitamin deficiencies are rare.
- Both "per serving" and "per package" calorie and nutrition information will be listed.
- The "calories" and "servings" section will be more prominent.
- Listed serving sizes will be closer to the amount people actually consume in a sitting.

The new labels will be required by July 2018.

Cane by Another Name

It has become less common for food manufacturers to simply state “sugar” as an ingredient in their foods. Many manufacturers rely on different words for products that are nutritionally similar, with perhaps the most widely-used example being “high-fructose corn syrup.” But as Margot Sanger-Katz, writing in *The New York Times*, points out, “there are also things like the ‘evaporated cane juice’ in the yogurt, and ‘rice syrup’ and ‘flo-malt,’ which are less obvious and amount to the same thing.”

The following is a list of synonyms for sugar to watch for on food labels:

agave juice

agave nectar
agave sap
agave syrup
beet sugar
brown rice syrup
brown sugar
cane juice
cane sugar
cane syrup
clintose
confectioners powdered sugar
confectioners sugar
corn glucose syrup
corn sweet
corn sweetener
corn syrup
date sugar
dextrose
drimol
dri mol
dri-mol
drisweet
dri sweet
dri-sweet
dried raisin sweetener
edible lactose
flo malt
flo-malt
flomalt
fructose
fructose sweetener
glaze and icing sugar
glaze icing sugar
golden syrup
gomme
granular sweetener
granulated sugar
hi-fructose corn syrup
high fructose corn syrup
honey
honibake
honi bake
honi-bake
honi flake

honi-flake
invert sugar
inverted sugar
isoglucose
isomaltulose
kona ame
kona-ame
lactose
liquid sweetener
malt
malt sweetener
malt syrup
maltose
maple
maple sugar
maple syrup
mizu ame
mizu-ame
mizuame
molasses
nulomoline
powdered sugar
rice syrup
sorghum
sorghum syrup
starch sweetener
sucanat
sucrose
sucrovert
sugar beet
sugar invert
sweet n neat
table sugar
treacle
trehalose
tru sweet
turbinado sugar
Versatose

FDA, Changes to the Nutrition Facts Label, May 20, 2016,

<http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/LabelingNutrition/ucm385663.htm>

The New York Times, May 21, 2016, "You'd Be Surprised at How Many Foods Contain Added Sugar," by Margot Sanger-Katz, <http://www.nytimes.com/2016/05/22/upshot/it-isnt-easy-to-figure-out-which-foods-contain-sugar.html>

"Sweetening of the Global Diet, Particularly Beverages: Patterns, Trends, and Policy Responses," by Barry M. Popkin and Corinna Hawkes

A Runner's Guide to Interpreting Blood Work by Cathy Fieseler, MD

There's a message on your voicemail from your physician, saying that you need to set up an appointment to discuss abnormal results from lab work that was performed as part of a recent physical exam. Immediately your mind starts racing. Is something seriously wrong? Could the hilly half marathon that you ran the day before the exam have affected the results?

Regular distance running can cause changes to some commonly measured blood values, both in the short term and long term. Let's look at some of those changes, including both ones that can be cause for concern and ones that you needn't worry about.

Anemia and Red Blood Cells

Anemia is a fairly common problem for runners and non-athletes alike, especially females. A diagnosis of anemia is due to a decreased number of red blood cells (RBCs) or a decreased hemoglobin level. There are a number of types of anemia, with iron deficiency anemia the most common. (Iron is a component of hemoglobin, the oxygen-carrying component in RBCs.)

Iron deficiency anemia is due to nutritional deficiencies and blood loss. Small amounts of blood are lost in the gastrointestinal tract on a daily basis; the blood loss may increase during and following a strenuous bout of exercise. Due to menstrual blood loss, women normally have lower hematocrit and hemoglobin levels than men. Anemia doesn't always cause symptoms, but it may impair performance. This is treated by finding the cause of the anemia and supplementing iron intake.

Blood

Regular exercise causes an increase in the number of RBCs in the blood. As an adaptation to training, there's also an increase in plasma volume in the resting state. This volume expansion causes the hematocrit (the percentage of RBCs in blood) and hemoglobin levels to be lower than in non-athletes. The expansion in plasma volume will be reflected as lower hematocrit and hemoglobin levels on a complete blood count (CBC). For most runners, hemoglobin will be approximately 0.5g/dl lower than normal, while it can be 1g/dl lower in highly trained runners. This lower level is a pseudoanemia and doesn't require medications. The dilutional effect of training will resolve after several days off from training.

"Abnormal" Lab Results

An acute bout of exercise can cause a number of "abnormal" laboratory results. A urine test may be positive for blood. This may be due to bleeding from the bladder or kidneys; this is usually not visible to the naked eye, but is detectable in the lab. This resolves within 24 to 72 hours after exercise. If blood is still found on subsequent testing, further evaluation is indicated.

Protein may be detected in the urine within 30 minutes of strenuous exercise. This will clear within 24 to 48 hours. (Persistent signs of this condition warrant further evaluation.)

A positive test for blood in the urine may be due to myoglobin released from muscles injured during exercise; when evaluated under a microscope, red blood cells aren't seen. When myoglobin levels are high, the urine will be dark in color, like iced tea. Blood levels of myoglobin and the muscle enzyme creatine kinase (CK) will be elevated. Strenuous exercise in conjunction with dehydration may produce very high levels of CK in the blood and myoglobin in the blood and urine, a condition known as rhabdomyolysis. This can cause renal failure and may be fatal in severe cases. Blood levels of potassium and phosphorous may be high and calcium levels low in severe cases of rhabdomyolysis.

Blood levels of CK are elevated following exercise. Many factors will affect the level of elevation, including the length and intensity of the exercise. Levels of CK (normal < 200U/L) greater than 200,000 U/L have been reported following the Western States 100-miler. Most athletes will have levels much lower than this following exercise.

Recovery from the workout and good hydration will usually take care of this issue. CK levels will gradually return to normal over the next several days to a week. During bouts of heavy training, the level may remain mildly elevated chronically. The cholesterol-lowering group of medications known as statins may also increase the CK, even at rest. This can be greatly, and potentially dangerously, elevated by strenuous exercise.

Dehydration associated with exercise may cause elevation of BUN and creatinine, two aspects of a kidney test. The BUN may be markedly elevated in the presence of severe dehydration; the creatinine may be mildly elevated. Rehydration will normalize these values.

AST is one of the tests that evaluates liver function. This enzyme is also present in skeletal muscle; levels will be elevated following exercise. The other tests that are part of a typical liver function evaluation aren't significantly affected by exercise.

A small amount of blood is lost from the gastrointestinal tract on a daily basis; this isn't visible to the naked eye. Strenuous exercise may increase the amount of blood lost for a day or two afterwards; although this is usually not visible, it may be detected on stool cards that are used to screen for colon cancer.

A CBC evaluates the components that make up blood -- red cells, white cells, platelets and plasma. Following an acute bout of exercise, there's a transient increase in the white blood cells and platelets. The hematocrit will be increased from baseline when you're dehydrated.

It's best to wait a few days following strenuous exercise to have laboratory studies performed to lower the possibility of a result that's altered by exercise. The alteration in lab studies as a result of exercise should resolve within a few days. The first step in evaluating abnormal results may be to repeat the studies after several days of minimal training.

Lab Results That Point to Performance

What laboratory studies are routinely evaluated during a physical exam that may affect performance? Blood chemistries will include electrolytes, glucose and kidney function tests. A more comprehensive evaluation will also assess liver function, in addition to calcium and uric acid. Other than the AST (liver) and CK levels, exercise shouldn't have a significant effect on chemistry results. Abnormal results may be due to liver disease, kidney disease, diabetes and other health issues, any of which can hurt performance and require treatment. Electrolyte abnormalities are usually due to altered hydration levels and should normalize as you rehydrate.

A CBC is often performed; as mentioned, the hematocrit and hemoglobin levels may be a little low due to plasma volume expansion. The volume expansion resolves if training is discontinued for several days. Ferritin is commonly used to assess iron stores; if this is low and the hematocrit and hemoglobin levels are low, treatment for iron deficiency anemia may be called for. Anemia may cause a decrease in cardiac output and the oxygen available to tissues, negatively affecting performance.

A low ferritin level with a normal CBC is consistent with low iron stores without anemia. This condition doesn't affect performance, but may progress to anemia over time; improving intake in the diet and possibly supplementing with iron tablets may prevent progression. It's important to determine why the anemia is present. In women, poor dietary intake and menstrual blood loss are the most common causes. In men, gastrointestinal loss is the most common source.

Thyroid tests may be performed as part of a physical exam. A thyroid that's under-or overactive can cause multiple symptoms and negatively impact performance.

Although a high cholesterol level will not specifically affect performance, coronary artery disease due to elevated lipids can. Coronary artery disease may cause fatigue with exercise and worsening performance despite no change in training. Don't ignore these symptoms!

There has been a great deal of research on vitamin D levels recently, and blood levels are being checked more routinely now. Due to use of sunscreen, poor dietary intake and other factors, low levels are fairly common. A multitude of symptoms have been attributed to low levels of vitamin D, including unexplained muscle pain and an increased risk of stress fractures. Supplementing intake will correct this deficit.

It's important to keep in mind that there are many possible causes of laboratory test anomalies, only a few of which I covered above. Although strenuous training may be the cause of the results, other causes must be considered. Don't ignore recommendations for further evaluation

made by your healthcare provider; if the laboratory studies were performed shortly following strenuous exercise, mention this to your provider. Decreasing training and repeating the studies in several days may be all that is necessary.

Cathy Fieseler, MD, is the president of the American Medical Athletic Association.

Runner's World, "What Runners Need to Know About Their Blood Test Results," by Cathy Fieseler, MD, Oct. 2010, Reprinted by permission, <http://www.runnersworld.com/health/blood-test-results-for-runners>

How to Avoid Computer Vision Syndrome

We don't always think to treat our eyes with the same care we might give other body parts, tending rather to take for granted that they will continue to function normally from day to day, as long as we observe the slightest of precautions such as wearing sunglasses in bright sunlight.

At the same time, most of us spend significant amounts of time—if not the majority of our waking hours—staring at computers and other devices with screens. The combination of more or less ignoring eye health and staring at screens all day long has led to an increasingly common affliction known as *computer vision syndrome*.

Sufferers of computer eye syndrome report a burning sensation in their eyes and/or blurred vision that can make working in front of a computer very difficult. It can affect anyone who spends three or more hours a day in front of computer monitors, meaning the population at risk is potentially huge.

A report published in *Medical Practice and Reviews* includes an expansive list of professions that can be affected; it includes accountants, architects, bankers, engineers, flight controllers, graphic artists, journalists, academicians, secretaries and students. The report cites four studies demonstrating that computer use for even three hours a day is likely to result in eye symptoms, low back pain, tension headache and psychosocial stress. Still, the most common computer-related complaint involves the eyes, which can develop blurred or double vision as well as burning, itching, dryness and redness.

Among the causes of computer eye syndrome is the nature of words on a screen: while words printed on a page have sharply defined edges, electronic characters made up of pixels have blurred edges, making it more difficult for eyes to maintain focus. Unconsciously, the eyes repeatedly attempt to rest by shifting their focus to an area behind the screen, and this constant switch between screen and relaxation point creates eye strain and fatigue.

Another cause is the unconscious tendency of people working on computers to reduce blinking. Instead of a normal blink rate of 17 or more blinks per minute, while working on a computer the blink rate is often reduced to only about 12 or 15 blinks. The result, of course, is dry, irritated eyes.

The head's distance from the screen and position in relation to it are also important risk factors. To give the eyes a comfortable focusing distance, the screen should be about 20 to 26 inches

away from the face. The closer the eyes are to the monitor, the harder they have to work to accommodate to it.

In addition, when looking straight ahead, the eyes should be at the level of the top of the monitor. The University of Pennsylvania's ophthalmology department advises that the center of the monitor should be about four to eight inches lower than the eyes to minimize dryness and itching by lessening the exposed surface of the eyes because they are not opened wide. This distance also allows the neck to remain in a more relaxed position.

Yet research shows that many people—in one study, a whopping 71 percent—sit much closer than this optimal distance. That same study found that 66 percent of the subjects, hundreds of pre-university students in Iran, were also improperly positioned directly opposite or below the monitor.

Lighting is also important. Since contrast is critical, make sure your screen is brighter than the ambient lighting in the room where you compute. Overly bright overhead light and streaming daylight force the eyes to strain to see what is on the screen, and also can create glare. A bright monitor causes your pupils to constrict, giving the eyes a greater range of focus. So do draw those shades in the home or private office, or in an open office ask your employer to lower the overheads if you suspect they're too bright. Consider an anti-glare cover for your computer display, or try glare-reducing lenses.

Have your eyes checked regularly, about once a year, and keep any prescriptions up to date. Set your documents' default View to a large enough size so you're not straining to read what's on the screen before you. Clean the monitor often with an anti-static dust cloth.

If you already have symptoms of computer vision syndrome, there are ways to reduce or eliminate them. Ophthalmologists suggest adhering to the "20-20-20" rule: Every 20 minutes, take a 20-second break and look at something 20 feet away.

Consciously blink as often as possible to keep eye surfaces well lubricated. Consider lubricating eye drops if you feel it's necessary. Keep air from room fans from blowing directly in your face or even try a humidifier to add moisture to the air in the room.

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by Jane E. Brody, <http://well.blogs.nytimes.com/2016/05/30/computer-vision-syndrome-affects-millions/>

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<http://www.academicjournals.org/journal/MPR/article-full-text-pdf/0905F9948599>

Carcinogen Report: Weed Killer and Hot Beverages

Roundup

The weed killer glyphosate, commonly known by the brand name Roundup, is not likely to cause cancer in humans through dietary exposure, according to a joint report on pesticide residues from the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO). The report also notes that glyphosate is unlikely to damage genetic information in cells, which can cause mutations that lead to certain cancers. This is in contrast to another WHO committee report in 2015 stating that glyphosate was probably carcinogenic.

The groups also concluded that the insecticides diazinon and malathion are unlikely to be carcinogenic through dietary exposure.

Since Roundup is frequently used on crops, the public has been concerned for some time about whether ingesting trace amounts can be harmful to humans. The report states, "In view of the absence of carcinogenic potential in rodents at human-relevant doses and the absence of genotoxicity by the oral route in mammals, and considering the epidemiological evidence from occupational exposures, the meeting concluded that glyphosate is unlikely to pose a carcinogenic risk to humans from exposure through the diet."

An acceptable daily intake of glyphosate, the two groups reaffirmed, is up to 1 mg per kg of body weight.

Reuters Health has reported that less than a year prior to the current finding, a different WHO review, then by that group's International Agency for Research on Cancer (IARC), found that glyphosate was "probably" able to cause cancer in humans, classifying it as a 'Group 2A' carcinogen. Yet the U.S. Environmental Protection Agency first assessed glyphosate in 1986 and has reviewed it several times since then, also has previously concluded that it has "low toxicity for humans".

Among the documents released by the FAO/WHO committee was a question-and-answer that countered the notion that their present conclusions contradicted the previous findings by the WHO's IARC. The Q&A said that the findings were "different, yet complementary," with the IARC assessment focussed on hazard while the current investigation looked at risk. A hazard is something that can cause harm, such as an electric current, working up a ladder, or in this case, chemicals. A risk is the actual chance, high or low, that any hazard will cause someone harm.

Hot Coffee

Meanwhile, the WHO's IARC has found that drinking very hot beverages most likely causes esophageal cancer. The report does not recommend drinking coffee, tea, soup, or *mate*—a beverage commonly consumed in China and South America, usually at very high temperatures—hotter than 149 degrees Fahrenheit (65 degrees Celsius).

Writing in *The Lancet Oncology*, the IARC researchers say that "biological plausibility exists for an association between very hot beverages and cell injury and the sequelae that might lead to cancer."

The group has, however, declared that on the basis of more than 1,000 studies, coffee is "unclassifiable as to its carcinogenicity to humans," which represents a significant change from its 1991 findings that concluded coffee was "possibly carcinogenic."

The trouble is, coffee is very often served at temperatures much higher than 149 degrees. For example, at Coffee Detective, a website devoted to all things coffee—from brewing tips, home brewing product reviews, etc.—one article states that "[c]offee is best served at a temperature between 155°F and 175°F (70°C to 80°C). Most people prefer it towards the higher end, at about 175°F." In fact, a pre-lawsuit McDonald's employee manual once recommended that coffee be served at "195 to 205 degrees and held at 180 to 190 degrees for optimal taste."

Coffee Detective goes on to say that "some coffee experts" prefer to drink their coffee at much lower temperatures: "George Howell of George Howell Coffee, who has been sourcing and tasting specialty coffee since the 1970s, likes to drink his coffee at a temperature closer to 130°F." It is at this much lower temperature that the more subtle flavors of coffee are apparently truly revealed.

It's worth noting that the temperature at which coffee is served is not the same as that at which it is eventually drunk; time and milk or cream obviously contribute to temperature-lowering. But since beverages consumed at, say, 140 degrees are likely safe, why not go with the experts and enjoy a more tepid brew, with all of its flavor subtleties intact?

FAO/WHO, Meeting on Pesticide Residues, May 2016,
<http://www.who.int/foodsafety/jmprsummary2016.pdf?ua=1>

The Lancet Oncology, Pub. Online June 2016,
<http://www.thelancet.com/journals/lanonc/article/PIIS1470-2045%2816%2930239-X/fulltext>

Coffee Detective, "What is the correct temperature for serving coffee?"
<http://www.coffeedetective.com/what-is-the-correct-temperature-for-serving-coffee.html>

Underwater Rugby: Yes, It Exists

Add to the list of Sports You've Never Heard of underwater rugby, even though this unique pastime has been around since 1961, when it was invented in Germany.

Played in a pool with a plastic ball filled with salt water, a.k.a. a "negatively buoyant" ball, the sport requires snorkeling gear and a good degree of respiratory fitness, as players are compelled to hold their breath and dive during gameplay.

Goals the diameter of basketball hoops are placed on the bottom of each side of the pool, and the aim is for each team of six players to put the ball in them, like a fully submerged version of water polo. Contact is allowed only with the player carrying the ball. Substitute players replace exhausted team members on the fly, as in hockey.

The teams start at each end of the pool with one hand on the wall. The ball is in the middle of the pool, on the bottom. When the referee sounds the buzzer both teams race to get possession of the ball.

The playing area is officially meant to be between 3.5 and 5 meters deep (approximately 10 to 15 feet) and 12 to 18 meters long (about 40 to 60 feet) by 8 to 12 meters wide (26 to 40 feet). The game is played in 15-minute halves with a five-minute halftime break. Each team is allowed to take one 60-second timeout per game.

The ball, which is about 10 inches in circumference, is generally passed toward the opposing goal in a leap frogging manner. To score, the ball must be completely below the basket rim, and must never be played totally above the water. The goalie defends the goal but may not hold onto it or put their body into the basket.

As in hockey, penalties are assessed for a variety of fouls, with the offending player usually required to spend two minutes out of the water while the team plays short. As a contact sport, a player can attack another player if they have the ball, but kicks, hits or playing above the surface are penalized. You may not attack or attempt to remove an opponent's fins, diving mask or snorkel.

In addition to temporarily removing an offending player, free throws may be granted or even goals awarded against the penalized team if it is determined that a penalty prevented an almost-sure goal from being scored.

There are different team configurations, but generally a team has one center and one right forward, two backs, a left wing and a goalkeeper.

The ball may be passed in any direction but, as noted, it must not leave the water. It generally sails underwater for about two or three meters before slowing due to water resistance. Strength, speed, agility and breath control are all equally important, as is a sense of positioning yourself tactically to make and receive passes.

Underwater rugby is gaining in popularity in the U.S. It offers a fun, strenuous workout perfect for summer. To find an underwater rugby club in your area, see this list of U.S. clubs: <https://usauwr.wordpress.com/organization/usa-clubs/>.

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UWR Player, Aug. 2014, "Why is underwater rugby the new generation of water sports, and where should you try it?" <http://underwaterrugby.kinja.com/why-is-underwater-rugby-the-new-generation-of-water-spo-1628807685>

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USA Underwater Rugby, 2016, *USA Clubs*, <https://usauwr.wordpress.com/organization/usa-clubs/>

Editorial Advisor and Legendary “Groundpounder” Melvin Williams Has Died

Running & FitNews® editorial board member Melvin Williams, PhD, succumbed to bone cancer in May, at the age of 78. He was a professor emeritus at Old Dominion University (ODU) in Norfolk, VA, an international lecturer, founder of the *International Journal of Sports Nutrition* and author of many books, including *Nutrition for Health, Fitness & Sport*.

A former paratrooper in the U.S. military and ergogenics expert who characterized himself as blessed with good biomechanics, Mel had completed 112 marathons. He was a member of the Groundpounders, a running group now down to just three other people who have completed every Marine Corps Marathon since 1976. Health issues prevented him from finishing the 2014 race, though he had won his age group 18 times in that race and in the Boston Marathon at ages 51, 60 and 61.

Melvin Williams was born in 1937 in Kingston, Pennsylvania. He described the area at that time as something of a "hotbed for football and wrestling." As an offensive lineman, Mel was on the lighter side. His lifelong interest in ergogenics, essentially the study of sports performance enhancement, can quite possibly be traced to an early need to use every available tool to make up for lost pounds on the line of scrimmage. Then one day when Williams was preparing for a high school game, he observed his quarterback drinking whiskey, explaining that it made him play better. The incident stuck with the skeptical young Mel over the years; he would eventually write his doctoral thesis on the effects of alcohol on muscle strength and endurance.

Williams moved on to wrestling (where opponents are carefully matched by body weight). But he soon encountered a teammate whose premeet ritual included tea with honey. Everywhere he turned, it seemed, someone had a half-baked idea on how to enhance their athletic performance.

During his three years in the military stationed in Munich, Mel was next intrigued by an ex-football player he'd befriended who intended to study physical education when he got out. Williams had been in the medics as a paratrooper, and it all seemed to flow toward an interest in physiology, so he soon found himself studying physical education himself, at East Stroudsburg University in 1958. Mel played football there, and in 1961 when a teammate collapsed due to an overdose of amphetamines after a game—the best he'd ever played, according to Mel—Williams was permanently hooked on the budding field of ergogenics.

After earning his masters in Physical Education at Ohio University in Athens, Williams coached football and wrestling at the high school level in Reading, Pennsylvania. His desire to coach college-level athletics motivated him to earn his PhD, which he did in 1968, from the University of Maryland. He arrived at ODU in 1968, and promptly founded the Human Performance Laboratory and Wellness Institute.

You might say Mel's early interest in alcohol eventually led him to explore other substances. Amphetamine use by professional football players appeared to be widespread at the time, and an interested team physician for the Norfolk Neptunes, a local professional football team, agreed to help with a study. Soon Williams was researching the effects of other ergogenics, such as caffeine and blood doping, on athletic performance. In the 40 years since, he has explored everything from skin-tight swimwear to the effects of hypnosis on athletes.

If there's a guiding principle to Mel's major life pursuits, it is quite possibly the question "Why?" Williams' voracious appetite for information and up-to-date research made him an extremely valuable asset to the *Running & FitNews* editorial board. He will be fondly remembered and greatly missed. He is survived by his wife, Jeanne Kruger-Williams, also an accomplished distance runner who has won her age group at the New York City Marathon and placed second in Boston.

AMAA Journal, Summer 2004, "Member Profile: Mel Williams, PhD: Over 100 marathons and counting," by Jeff Venables, Vol. 17, No. 1, pp. 20-21

The Virginian-Pilot, May 19, 2016, "Long-distance runner and ODU professor Mel Williams dies," by Harry Minium, http://pilotonline.com/sports/college/old-dominion/long-distance-runner-and-odu-professor-mel-williams-dies/article_759ac5b8-a673-5e3f-bfe0-2e6714b98261.html

Editorial: Is Body Dissatisfaction Always Bad? by Jeff Venables

On the morning in mid-June when the article first appeared in *The New York Times*, it quickly reached third most popular, behind only a piece on the tragic Orlando shootings and news of Garrison Keillor's retirement. The article, "Parents Should Avoid Comments on a Child's Weight," <http://well.blogs.nytimes.com/2016/06/16/parents-should-avoid-comments-on-a-childs-weight/?r=0>, resonated strongly with readers, as not only its high ranking in Most Popular but a scroll through the comments section made clear.

The trouble is, the article concluded from the results of a study on parental comments made about their *daughters'* weight that parents should never make such comments to their *children*. Yet the study in question merely concluded that there can be significant adverse effects for *women* later in life—no men were even included in the study.

The article goes on to state that "Harsh comments about weight can send the message that parents are 'tying weight to some kind of perception about how the child is valued,' Dr. Puhl said, and that can trigger negative feelings." Yet this statement represents even further mission creep from the claim made in the article's headline. Somehow, the descriptor "harsh" was slipped in front of "comments" later in the article. We can probably all agree that *harsh* comments are definitely not the best approach. But the reality that comments *affect* children at all says nothing about whether that effect is always negative. To be fair, the study unequivocally

leans toward a proscription on commenting on weight at all; but by coyly conflating “harsh comments” with any comments, the article does a further disservice to journalistic accuracy.

The study concluded: “In this retrospective study, a parent's comments about [a woman's] childhood weight were related to her weight and body dissatisfaction as an adult.” Perhaps no good can come of mentioning body image to a young girl, harshly or not. There seems to be evidence that the practice, if not inevitably, very likely could lead to unhealthy psychological outcomes. The reader comments by and large emphatically buttress this view. To avoid a recipe for bulimia or body-image and self-esteem issues in girls, parents should probably avoid commenting.

Yet the article's headline imploring parents to “...Avoid Comments on a Child's Weight” is highly misleading in its implied reference to all children, male or female, and under all circumstances.

While other studies may have shown that comments to children of either gender about their weight do have the potential to backfire, I would argue that there can sometimes be appropriate and constructive ways to make comments about body weight to children—perhaps mainly boys—that can yield positive, behavior-modifying results with desirable long-term health outcomes. It is not the case that commenting *always* results in backfire. I say this because I directly benefited from a body-image comment made to me as a child. What was said immediately raised my awareness of where I might have been heading and caused a minor crisis of body dissatisfaction for which I am now highly grateful. I therefore wonder: is body dissatisfaction *always* bad?

On New Year's Day 1980, a month and a half after my eighth birthday, I shattered my elbow in several places in a way that required surgery and a very long period of physical rehabilitation. Always an active kid, I soon found my limited ability to play sports for six months an unpleasant situation in more ways than one. In addition to a certain loss of sports prowess, a major deleterious side effect of this sedentary time was the acquisition of a significant amount of belly fat, something that was utterly new to me.

My eight-year-old self was at first scarcely aware of this stealthy incursion on my personal appearance (which was largely all that it was; I had by no means become significantly unhealthy, just a bit overweight). My best recollection is that I initially did not view my weight gain as particularly good or bad. It simply had occurred. Still, there may have been, particularly later on when my arm had more or less healed, a subconscious feeling within me that something had gone wrong that derailed my self-perception as a skinny, active person. I couldn't have been happy with my new jeans size—yet I definitely recall that I saw no urgency to do anything about it.

It wasn't until my older brother by 14 years, who at 22 had been living on his own and visited infrequently, remarked on my belly in a joking manner. He had the perspective my parents and other siblings did not. You might say those living under the same roof had been too close to it to

notice the gradual development of my new unfit body, but this hadn't escaped my adult brother and he spoke up, not unkindly but not at all sensitively either.

Notably, there never followed any conversation about it; it was simply an offhand, humorous remark. But it had an amazing effect. The very next day, I approached another brother much closer in age, who had been for several years a classic older-brother advisor and mentor, particularly when it came to sporting skills and physical activity in general. I told him flatly that I no longer liked this version of my body, and was ready to take steps to change it. What should I do? Without judging me in the slightest way, he suggested I start that night before bed with 25 sit-ups, do 26 the next night, 27 the next, and proceed along these lines adding one sit-up each night until I reached north of 50 sit-ups per night. I was then advised by this sage 14-year-old to simply stick with the sit-up habit at this training volume for as long as I wished.

I followed the plan, and it worked. I not only lost all of my excess abdominal fat but went on doing sit-ups, Forrest-Gump-like, for the next six years, almost never missing a night. In my freshman year of high school, in fact, I set the record for the entire student body for number of sit-ups completed in one minute. That number was 63, more than one per second.

This isn't about washboard abs or even personal goal-setting as much as it is about the direct effect that my brother's comment had on me back in the third grade. It was literally transformative. Yes, making comments on a child's weight *can* have an effect on that child. I just caution readers to avoid drawing the universal conclusion that the effect is always bad. And the media needs to be more careful with their word choices in headlines—don't say "child" in your headline and then write exclusively about daughters. The entire article was focused on the negative impact body-image remarks can have on girls and the women they grow into. That is certainly important, as important as the headline was misleading.

Parents (and siblings) do need to be very cautious when discussing body image with even, perhaps especially, overweight or obese children. The study looked at 500 women in their 20s and 30s and found that comments about weight are often predictors of unhealthy eating habits years later. That is not a positive outcome. But there is a distinction to be drawn between some body-image dissatisfaction in childhood that may motivate positive behavioral changes, and overly self-critical thinking years later due to inappropriate parental comments or judgments. Let us not draw overly broad conclusions or think in simplistic absolutes, particularly where boys are concerned. We need an honest dialog about what constitutes a constructive conversation, and all of the suggestions in the article for steering your kids toward fitness—keeping healthy food in the house, setting an example by being active yourself—are excellent and important.

But I can only relay my truth in this instance, and it is that for this eight year old kid, a single offhand comment pointing out a material fact—that I did not have such a large stomach before—did wonders in a way that nothing else happened to, and I do not regret the call to action it finally inspired in me.

Jeff Venables is the Editor of Running & FitNews®.

THE CLINIC

Understanding Post-marathon Heart Rate

I am a 38-year-old female, 5'4 and 107 pounds. I have been running competitively for 9 years. I ran the Boston Marathon in April, starting and finishing uninjured. My time was 3:45 due to heat and my heart rate was normal.

In the past few weeks it has been difficult to keep my heart rate below 172 bpm when I run, even when I've dropped my pace by a minute. Before the marathon I ran tempos at a 7:10 pace with a heart rate between 170-174 and felt fine. My last pre-marathon long run was 22 miles at a comfortable 7:35 pace. Yesterday I ran 12 miles, slowing down to an 8:30 pace and my heart rate was over 170; I felt miserable.

I have never had this problem before and am very frustrated. Is it over-training/not enough recovery or lost fitness? How do I get my heart rate to drop and still maintain fitness?

Carol Ann Gibbons
Oakland, California

Congratulations on surviving a very warm Boston Marathon. Running a marathon is stressful on the body. Add in the travel required for you to get to Boston and the stress is increased.

Heat is very stressful on the body, especially early in the season; add to that the exertion of a marathon and this is quite taxing. All of these stressors take a toll on the body. Your body's response will be similar to those seen with over-training: increased resting heart rate, and heart rate with exertion. Sleep disturbance, recurrent mild illness, loss of appetite and fatigue may also occur.

It can take weeks to months to recover from this stress. Since you are struggling through your training, I would recommend 2 weeks off from training. You are not adding to your fitness by suffering through a slow (for you) workout but you are continuing to tear down your body. Let your body recover. Get more sleep. Make sure that you continue eating well as your body needs the calories to heal.

Hang in there. You are not going to lose much fitness by taking some time to recover.

Cathy Fieseler, MD
Tyler, TX

Is Alkaline Water a Sham?

Advanced Hydration Technology

Alkaline drinking water is slightly alkaline on the pH scale. This mild level of alkalinity is perfect to help maintain the 7.35—7.45 average pH level that is optimum for your blood...pH is a factor that has a critical effect on your blood's capacity to uptake, carry and deliver oxygen to all parts of your body...A lower pH means blood is leaving your lungs with less oxygen, delivering less oxygen and eliminating waste less efficiently...

—Xtreme Technologies (Coeur d'Alene, Idaho) sales literature

I've recently been told that water, either bottled or tap, probably has a PH level too low for good health and that we should purchase enhanced waters, PH level testers, etc. What is the real story on this issue? If true, what recommendations do you have for purchases?

Karen Brennan
Jonesboro, AR

Sometimes nature provides for dissolved elements in potable water which can influence water's total benign presence. If calcium is dissolved, which can happen with some mineral waters, if anything, it would be slightly basic with a pH greater than 7.0 The body can handle this but in general its biochemical processes prefer slightly acidic chemistries.

Most waters, whether tap or bottled, are not acidic enough to warrant any concern. Too acidic, and our teeth would start to mottle, pit, and crack over time...not seen as far as I know.

Ed Nessel, MS, MPH
Viera, FL

I am no authority on bottled water, but if I remember back to high school chemistry, tap water is very close to neutral pH (i.e. 7.0). In either case, the pH of any water is certainly higher than orange juice or vinegar (ascorbic acid and acetic acid) and nobody worries about ingesting those.

Besides, whatever you ingest is going within seconds into the stomach which has a pH of 2 or 3 (if I remember my medical school gastric physiology). I doubt that ingesting any amount of water would significantly affect the pH of our stomach contents. If anything, Pepcid or any of the H₂ antagonists would be far more effective at raising the pH of the stomach contents than artificially altering the pH of ingested water. This sounds to me like classic Madison Avenue pseudoscience. "I just happen to have a product in the back of my wagon which is guaranteed to cure your (fill in the blank)."

Klaud Miller, MD

Evanston, IL

There does appear to be an optimal pH level for drinking water. It is just above the neutral point of 7.0. However, most public health supplies meet that standard and there doesn't appear to be any need for concern.

**D.C. Huddy, PhD, CHES
Athens, WV**

I know of no credible scientific studies that indicate that the pH of water is important. The stomach is highly acidic anyway so any water you drink is not likely to make a difference once it enters the highly acidic stomach. If you want a lower pH water, simply buy regular water and add lemon juice to it and save yourself some money.

**John McPhail, MD
Okemos, MI**

Electrolyte Loss is Often the Cause of Cramps

When I reach mile 12 or so of a half-marathon or long run, my right calf cramps up, and has for years. What do you think of electrolyte replacement drinks, which promise an end to cramping. Information I've read in the past seems to indicate that the causes of cramping remain uncertain and therefore I'm skeptical of a surefire remedy. I'd like to cease experiencing these calf cramps but I shy away from electrolyte overloading. After all, I use Gu and PowerBars, yet the cramps remain.

**Dave Ramankutty
Glen Arbor, MI**

Your problem is common, as is the belief that electrolyte loss is responsible. Theoretically, loading with an electrolyte replacement beverage might minimize the losses and shifts, but I am unaware of any controlled studies looking at this drink and rates of cramping. If your kidney function is normal (and one would think that it is if you're running half-marathons) there should be no harm in giving the drink a try prior to long runs.

**William M. Simpson, Jr., MD
Charleston, SC**

I've found that if a person's calcium intake is too low, especially when their phosphorus intake is too high, they may be vulnerable to calf cramping.

**Sarah Harding Laidlaw, MS, RD
Mesquite, NV**

The majority of research leads knowledgeable exercise scientists to conclude that exercise leg cramps are a result of deficient fluid, sodium and other trace minerals, and/or overheating of the body. Meeting fluid and mineral requirements would not be overloading. The Gatorade Sport Science Institute's publication has a well deserved, highly regarded reputation, and I advise you to read further about electrolyte replacement and muscle cramping there: www.gssi.com.

Earl J. Carstensen, MD
Aurora, CO

A Clicking in the Calf

I am a 48-year-old triathlete. In 1996 I had a knee operation to remove a cyst and then turned to triathlons shortly after. I competed in Ironmans and trained without many injuries until 2005 when I had another meniscus operation. A few months later it began.

I was out running and my right calf muscle kind of clicked or popped. There was no pain just a click feeling. But I had to stop my run and walk home because it got painful after that. Because I had similar injuries in the past I knew I just had to stop running for some weeks and it would be okay, and it was. I started training again and was doing hill sprints, track work and lots of tempo work, no problems. And then one day while I was just jogging to the track it clicked out again. Being only a few days before a race I was so frustrated I packed it all in and stopped sport completely for the next 4 years! I did nothing and got fat and unfit.

Then last January I started to run again, very slowly, more like shuffling really. And in the next 3 or 4 months it happened three more times, twice in the right calf and once in the left calf. I let it heal for a couple of weeks and by October was full into triathlon training again. My right calf popped again and I went to doctors but got no real help, just creams to put on my calf, tablets, the offer of injections and usually "take a couple of weeks off and you'll be right."

While out cycling one day one of my training partners recommended a sports physiotherapist to whom I went. He diagnosed that my pelvis was a little crooked and was probably the reason for the injury.

It popped again in April, and now I also have orthotics in my shoes and have changed my running style to a more Chi kind of style. Three weeks ago it popped again. The funny thing is I can do fast running and it is either okay, or it may pop. Or it also may pop just doing slow running. I am at an end now, I do not know what to do. I love running and I don't want to stop it.

Peter Rocha
Gaithersburg, MD

An exact diagnosis cannot be made without examining you, but you most likely have strained the gastrocnemius and/ or soleus—the 2 big muscles in the calf. You probably were not fully extending (straightening) your knee following surgery. This would place stress on the calf

muscles; a strain occurred due to this. This type of injury usually occurs at the musculotendinous junction—where the muscle starts to become tendon. In the calf this is near the bottom of the muscle bulge.

Rest may allow the pain to resolve, but you have not described any type of rehabilitation exercises for your calf muscles. Due to persistent weakness, recurrent injuries occurred. Over time, your gait abnormalities can cause problems from the feet up to the back. This could produce the pelvic alignment issues that you are describing.

To strengthen the calf muscles, stand on a step with your heels hanging over the edge. Lower your heels (this should not be painful) and then rise on your toes. Perform 30-40 reps. Repeat this exercise with your knees bent. As your strength improves, increase the speed of the repetitions. You can then progress to performing these exercises on one leg at a time, starting slowly and increasing the speed over time.

Continue working on core and hip strength. A prolonged injury has produced strength deficits throughout your body.

Additionally, have your knee evaluated. The gastrocnemius begins above the knee. If joint motion is decreased, there will be abnormal stresses on the muscles.

Cathy Fieseler, MD
Tyler, TX

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