

# RUNNING & FITNEWS®

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## **Soccer Concussions Rise, With Treatment Less Certain**

Even as awareness of youth football-related head injury increases among the populus, alarming new data has emerged on the rate of concussion and other closed-head injuries among the nation's youth soccer participants.

### **Fourfold concussion increase**

A retrospective analysis using data from the National Electronic Injury Surveillance System looked at children ages 7 through 17 from 1990 to 2014, and determined a quadrupling of soccer-related concussion/closed-head injury incidence during that time. Almost 3 million children were treated in emergency rooms over the 25-year study period, with the annual overall injury rate per 10,000 soccer participants more than doubling. But the most dramatic gains by far were for head injury: from roughly 2 to 35 per 10,000 participants.

This is the first broad look at soccer injury among youth at a national level. Soccer is an increasingly popular sport in the U.S., and so a rise in the number of injuries is to be expected along with increasing numbers of young participants. The research also shows that players are now being treated more frequently for injuries, which contributes to the rise in documented incidents.

Still, the astonishing 1600% increase in concussion and other closed-head injuries among children 7 to 17 indicates a clear mandate to prevent and treat these injuries with more rigor. And the rise of the travel-soccer circuit means many kids are playing year-round now; this is a crucial time to implement aggressive concussion prevention and rehabilitation strategies as players are being exposed to more injury risk than ever. Unfortunately, disruptions in our basic understanding of proper treatment are also occurring.

### **The aftermath of concussion**

One recent study analyzed what happens when adolescent athletes continue to play with sports-related concussion symptoms. The study compared recovery time and related outcomes between athletes who were immediately removed from play and athletes who continued to play with a concussion.

Neurocognitive and symptom data were obtained at baseline, 1 to 7 days, and 8 to 30 days after the injury. The subjects who continued to play took twice as long to recover and were nearly nine times more likely to recover more slowly than expected. The subjects who played through their concussion recovery also showed significantly worse neurocognitive performance than those who were suspended from play.

Another study, published recently in *JAMA Pediatrics*, has found that health-related quality of life in children and adolescents can be adversely affected long after concussion symptoms subside. Researchers enrolled about 1,700 children ages 5 to 18 who presented to the emergency department with a concussion. A third of these had persistent post-concussion symptoms after one month. These children had lower health-related quality-of-life scores than the subjects whose symptoms had abated. But even the patients without persistent symptoms had lower quality-of-life scores than published norms. The researchers write that such deficits "may persist for months even in children whose symptoms have resolved."

Complicating matters even further, previous studies have shown that a person's perception of their concussion severity actually increases the risk of enduring persistent symptoms. So it is vitally important to be optimistic when discussing recovery from concussion with children and adolescents.

### **Sit them out?**

Now, a *JAMA* prospective study has found that engaging in physical activity *early* after concussion is associated with a lower rate of persistent symptoms in children. Researchers surveyed 2,400 children ages 5 to 18 years with acute concussion, as well as their parents, at three stages: in the emergency department, and at 7 and 28 days post-concussion.

Physical activity within 7 days, compared with no physical activity, was associated with *significantly lower* rates of persistent symptoms at 28 days (29% vs. 40%). For those with symptoms a week in, rates of persistent symptoms at 28 days were lower in those who engaged in early physical activity at any level, as compared to no activity. This includes not just light aerobic activity but moderate and full-bore physical activity.

Given the results of the prior research, how can this be? It turns out that these findings may not conflict with the above-mentioned studies as much as you might first perceive.

For example, this may mean that immediate return to play is indeed always associated with worse outcomes, but return to play within 7 days may (with a few major caveats) be healthy—for one thing because waiting too long to return to play may influence a child's perception of concussion severity and therefore produce worse recovery outcomes, as the earlier study found.

And in the study that found quality-of-life scores to remain low and persist longer in the aftermath of concussion than we previously thought, could sitting out for too long have been one reason for this? In other words, are we misidentifying the cause of lower quality-of-life scores and moving in the wrong direction, away from return to play, only to make outcomes worse? It's possible, but far from certain at this point.

In the case of the findings that saw worse symptom persistence in adolescents who "played through" their concussion healing process, it seems the large unknown in establishing return-to-play policy is precisely *when* youth ought to be allowed to begin active recovery. Clearly,

immediately returning to play is not necessary nor presently recommended, given that the *JAMA* prospective study's positive associations with return-to-play were observed during a 7-day post-concussion window.

Indeed, young athletes take longer to recover from concussions than older athletes, and so even if return to play turns out to speed recovery, it also puts them at increased risk of so-called "second-impact syndrome" and repeat concussions if they return too soon. Hence the caveats mentioned earlier: among them, risk of reinjury to the head surely limits activity type, regardless of intensity. Yet evolution of concussion management continues, as there is more compelling evidence that we may be wrong to recommend that all children with concussions observe strict physical rest *until symptom-free*.

It's clear that official school and league guidelines are not sufficient to determine when your child is ready to return to play. These seemingly conflicting studies establish that we have not yet found a surefire treatment protocol that can be universally applied, as well as reinforce the idea that there is a range of concussion severity and symptom-recovery stages that require close physician monitoring throughout recovery.

### **Before it happens**

In the meantime, there are steps to take before a child ever endures their first closed-head injury on the field:

- Know the very latest concussion management and return-to-play recommendations and policies, while acknowledging that these are not sufficient, but a good first step.
- Research concussions. Know the symptoms of the three grades of concussion to better spot them right away.
- Make reporting blows to the head policy among young players. Be sure to emphasize that such blows should be reported even in practice, where most concussions occur.
- Limit heading the soccer ball: Prohibit heading for children under 11 and limit it until children reach age 14.

***Pediatrics***, 2016, Vol. 138, No. 4,

<http://pediatrics.aappublications.org/content/138/4/e20160346>

***Pediatrics***, 2016, Vol. 138, No. 3,

<http://pediatrics.aappublications.org/content/138/3/e20160910>

***JAMA Pediatrics***, 2016, Vol. 170, No.12,

<http://jamanetwork.com/journals/jamapediatrics/fullarticle/2569451>

**JAMA**, 2016, Vol. 316, No. 23, pp. 2504-2514,  
<http://jamanetwork.com/journals/jama/fullarticle/2593568>

## **Sports To Live By**

The *British Journal of Sports Medicine* has published findings on longevity that favor specific physical activities. It seems that racquet sports top the list of pastimes associated with a long life, with swimming and aerobics following in second and third place.

The study had over 80,000 adults in the U.K. complete surveys about sports participation, and then followed those individuals for nine years. Over that time, 11% of the subjects died. Those who indicated involvement in racquet sports in the four weeks prior to the survey enjoyed a reduction in all-cause mortality by almost half (47%) compared to those who reported no racquet-sport activity. Swimming reduced all-cause mortality rate by 28%, and aerobics by 27%. Cycling reduced mortality by 15% as compared to no cycling activity.

Racquet sports, swimming, and aerobics were also associated with reductions in cardiovascular mortality. Interestingly, running appeared not to associate with either all-cause or cardiovascular mortality one way or the other. Playing soccer also showed no association with mortality, and cycling was not associated with reduced cardiovascular mortality.

The study authors point out that few runners died during the nine years of follow-up, which could have limited the study's ability to detect associations between running and mortality. It is likely that running is protective against all-cause (and perhaps cardiovascular) mortality, as previous studies have shown of physical activity in general.

The findings help draw a clearer line between specific lifestyle activity and reduced risk of death. It will be interesting to see through future studies the sport-specific epidemiological evidence unfold, possibly leading to more finely tuned recommendations to the public on how to pursue a healthy life.

**Br J Sports Med**, Published Online November 28, 2016,  
<http://bjsm.bmj.com/content/early/2016/10/31/bjsports-2016-096822>

## **Fish Oil For Childhood Asthma Prevention?**

The *New England Journal of Medicine* has published findings promising to the lowering of asthma risk in children. Over 700 pregnant women entering their third trimester were randomized to receive daily supplements containing either 2.4 g of fish oil or a placebo in the form of olive oil, up until one week after delivery.

The fish oil pill contained the omega-3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). The main assessment on the effect of the fish oil supplementation was for the babies' risk of persistent wheeze and asthma.

The children formed the Copenhagen Prospective Studies on Asthma in Childhood 2010 cohort and were followed prospectively with extensive clinical phenotyping. Neither the investigators nor the participants were aware of group assignments during follow-up for the first three years of the children's lives. There was then also a two-year follow-up period during which only the investigators were unaware of group assignments.

A total of 695 children were included in the trial. The risk of persistent wheeze or asthma in the treatment group was 16.9%, versus 23.7% in the control group. Among women with the lowest blood levels of EPA and DHA at the time of the initial randomization, fish oil supplementation cut the risk for these two primary outcomes in half.

At the same time, it appears that reduced intake of n-3 long-chain polyunsaturated fatty acids may be a contributing factor to persistent wheezing disorders, the prevalence of which are increasing. Supplementation also reduced the risk of infections of the lower respiratory tract in offspring by roughly seven percentage points, or one third.

In an editorial accompanying the findings, *NEJM* notes that we should proceed with caution. While referring to the findings as "highly promising," the author notes that it's "imperative to ensure that [the high omega-3 dose used] had no adverse effects on behavior, cognition, or other long-term outcomes."

*NEJM*, 2016, Vol. 375, pp. 2530-2539,  
<http://www.nejm.org/doi/full/10.1056/NEJMoa1503734?query=pfw&jwd=000013591515&jspc=>

## **Applying Behavioral Research for the Health of the Self**

Insights from the U.K. Behavioural Insights Team (BIT) at the *NEJM Catalyst* were put forth in October to help shape public policy toward health care by using evidenced-based behavioral research to determine the best way to encourage healthy habits among the public.

The *NEJM Catalyst* publishes incites and innovations to improve health care delivery, but the incites, with their focus on how and how not to encourage good habits, are useful for all of us. End-of-year self-improvement initiatives are nothing new; here we attempt to adapt some wider behavioral findings to make them more effective.

How do we best use this behavioral research on ourselves? What works and what doesn't?

The basic summation of the authors' research-backed approach to behavioral change is this: In order to encourage a behavior, make it Easy, Attractive, Social, and Timely (EAST).

### **Easy**

The more effort that a behavior requires, the less likely someone will be to do it. This is obvious, but what's less so is how behavioral science research shows that even small amounts of effort can have a disproportionately large effect on outcomes. This works both to deter and to encourage. Small negative influences matter. At the same time, small positive steps are often easy—and very worth taking.

For example, a U.K. law that made it slightly more difficult to buy painkillers in large quantities (and to release them from their packaging quickly) was found to have prevented around 800 suicides over 11 years. The slight increase in effort required was enough to save lives.

Big changes that are nevertheless easy to implement (driving directly to the gym after work) aren't always necessary. Small inconveniences can also stack the deck toward fitness: purposely park on the far end of the megastore lot; forgo the elevator; walk to lunch. When set in motion properly, minor changes that require increases in caloric expenditure don't deter active behavior; they deter sedentarism. These changes are tolerable and can have big gains over time.

The same goes for caloric intake: only cook the pasta you'll need for one meal, so overeating seconds or thirds simply isn't an option; purchase smaller plates so piling on is less easy; skip the dinner rolls before the meal to avoid the empty carbs. Remember, by reducing caloric intake by just 10 calories a day—that's less than a single LifeSaver candy—you will lose over one pound of bodyweight per year (there are 3,500 calories per pound). That's enough to at least stave off the annual weight *gain* that so readily accompanies us as we age.

### **Attractive**

People are exposed to a vast amount of information every day. We in turn develop strategies for filtering out most of this and focusing only on a few pieces. Therefore, information is only likely to influence behavior if it's delivered in a way that attracts attention effectively.

Because one in 10 hospital appointments is missed (according to U.K. data), reminding patients by text message is widespread. But the BIT team points out that little thought has been given to the wording of these messages. BIT randomly allocated patients to receive several different reminder messages, and found that the best-performing message stated the cost of a missed appointment to the National Health Service. It reduced no-shows by almost 25%.

The lesson for us? Take time to brainstorm your specific reasons for wanting to eat healthier, wake up earlier, exercise more, or other goal. After the list is compiled, winnow it down to the top five reasons, and post the list in a position of prominence in your home, perhaps in several places: on the fridge, by the bed, or next to your running shoes. The attractiveness of these core

priorities can help bring you back to a place where your desired habit has poignant emotional meaning, and is not simply a lofty abstraction.

### **Social**

Individuals are strongly influenced by what they see others do—or even by what they are told others do in the same situation.

In another randomized trial led by BIT and Public Health England, this idea was applied in an effort to reduce the use of antibiotics in primary care. (As we explored in the last issue, microbial resistance to antibiotics is of growing concern.)

The trial used online prescribing data to identify the primary care practices that were prescribing antibiotics at a higher rate than other practices in the local area. The practices were politely notified, and reduced their collective prescription rate by 3.3%, which sounds paltry until you realize that across 800 over-prescribing practices, this resulted in an estimated 73,406 fewer doses over six months at a savings of £92,356 in direct prescription costs. The authors note, “As a point of comparison, in the same year, the National Health Service spent £23m to [monetarily] incentivize general practitioners to achieve...a 1% reduction in their prescribing rate.”

Apps like MyFitnessPal, Runtastic and others encourage users to share their goals and achievements in the online community for precisely the same reason. The social accountability is in itself powerful, but the establishment within the community of what is normative can provide people with even more motivation to perform up to a certain level. This is, in a way, a new spin on the age-old practice of mailing a letter to all of your friends and family members announcing that you are, say, quitting smoking. The thought of any social encounter going forward during which you are seen ingesting tobacco, the thinking goes, is sufficiently negative as to cause deterrence.

### **Timely**

Behavioral research shows that the likelihood that someone will accept an offer can vary greatly depending on when it's offered. Certain moments can disrupt existing patterns of behavior and provide the opportunity for change.

In one study, the experience of having even minor surgery was shown to increase the likelihood of quitting smoking by nearly 30%, and receiving a short smoking cessation intervention at that time increased this effect even further.

Look for opportunities in your own life when your susceptibility to change in pursuit of a desired outcome may be high. For example, think of how common a practice it is for brides and grooms to try and shed extra pounds in the approach to their wedding day. But it's entirely possible to force change without it revolving around a (hopefully) once-in-a-lifetime event. Sign up for a road race that's still months away, plot out a sensible training regimen, and focus on the

necessity of raceday preparedness in order to maximize pleasure and reduce injury risk. This is the kind of high-susceptibility time period that can keep you on track.

After the race, think of all you've gained that you now don't wish to lose. As 79-year-old masters champion [Imme Dyson once put it](#), "The first two weeks that I ran I was hurting, truly hurting...Now I might have some pains and aches, but I never have to go through that again." That knowledge motivates one to keep going. Why put your body back through such an unpleasant, detrained phase once you're past it? Better still: sign up for another race.

The BIT authors argue that EAST principles "should be part of the basic approach for anyone working in health care policy and service design." Here the case is made that EAST principles can and should be kept close at hand when designing any *individual* life-improving regimen, to maximize the odds that good habits will take hold for the long term. It has certainly worked for Imme Dyson.

**NEJM Catalyst**, Oct. 12, 2016, "Applying Behavioral Insights to Improve Health and Health Care," by Michael Hallsworth, MPhil and David Halpern, PhD, <http://tinyurl.com/gv7ss2n>

**AMAA Journal**, Nov. 2009, Member Profile, "Imme Dyson: Running for Joy," by Jeff Venables, <http://www.americanrunning.org/w/article/member-profile>

## Reducing Waist, Part 2

In the *Jan/Feb* issue we looked at how visceral fat—the type that accumulates in the abdominal area, surrounding your vital organs—has been linked to metabolic disturbances and increased risk for cardiovascular disease and type 2 diabetes.

This type of fat responds well to exercise and healthy dietary changes. The other type of fat—what is sometimes called "flab"—is the subcutaneous, pinchable kind that must be sculpted out with more targeted exercises. Though not as much of a health concern as fat that accumulates around the viscera, many people find this type of fat unsightly. Here are a few more multi-move, abdominal-sculpting exercises to help you shape up and lose any "muffin top" that may be stubbornly hanging on, even if you are regularly active.

### Core control rear lunge

This is a variation on the classic lunge that targets your arms, shoulders, legs, glutes and core.

Reps: 15/side

- Hold a dumbbell in your right hand and stand with your feet together.
- Extend your right arm overhead with your palm facing forward. Hold your left arm straight out to the side at shoulder height.
- Step your left leg back into a low lunge, keeping your arm straight up and abs tight.



- Slowly rise up and lift your left knee in front of your body, bending your right elbow in until your knee and elbow are almost touching.
- Keep your balance and extend your left leg behind you without touching the floor as you press your right arm overhead. That's one rep.
- Do 15 reps on the first side, and then switch legs and repeat.

### **Core crawl**

This exercise will increase your heart rate while strengthening your core, helping to take on both types of fat.

Reps: 20, alternating sides for each

- On your hands and knees, brace your abs in tight.
- Keeping your back naturally arched, lift your knees a few inches off the ground. Avoid pushing your hips in the air.
- Quickly step your right hand forward on the floor, slightly in front of your right shoulder, as you bend your left knee up toward your chest.
- Lift your foot off the ground, keeping your abs tight and your hips below your shoulders.
- Step your foot back to the floor as you return your hand back to the starting position. Repeat on the other side. That's one rep.
- Continue alternating sides as quickly as you can for 20 reps total.

### **Turkish plank push**

This enhanced plank will help sculpt your abs while also working your arms, shoulders and hips.

Reps: 15/side

- Hold a dumbbell in your right hand and sit on your left hip, left leg extended out straight under you, foot flexed.
- Bend your right knee and place your foot flat on the floor just behind your left leg.
- Place your left hand directly below your shoulder and in line with your left hip to support your body.
- Bend your right elbow so that it's lightly touching your left thigh, palm facing forward.
- Press the weight straight up, extending your arm to the ceiling as you lift your hips off the floor. Your left leg should stay straight with the edge of your foot on the ground the entire time.
- Push up with your right leg. Your knee should stay bent, and your right heel should lift slightly.

- Slowly lower back down, bending your arm back to the starting position, and lightly tap your left hip to the floor without fully resting on it.
- Instead of using your supporting arm to lift, be sure to focus on lifting up with the bottom side of your torso to really engage your core muscles.
- Immediately repeat.

### **Triceps crunch**

This exercise will tone your arms at the same time it works your abs.

Reps: 15

- Holding a pair of dumbbells, lie faceup on the floor with your arms straight above you, palms facing in.
- Bend your hips and knees 90 degrees.
- Keep your elbows pointed forward and about shoulder-width apart as you lower the dumbbells just outside your ears.
- Brace your abs in tight and lower your legs slightly toward the floor, maintaining the 90-degree bend in your knees.
- Slowly extend your arms straight up over your shoulders as you lift your head and shoulders off the floor and bring your knees in closer to your chest.
- Be sure to keep your lower back pressed into the floor as you lower your legs in preparation for the crunch.
- If it's too difficult to crunch up during the extension, do the move with your head and shoulders resting on the ground.

**Shape**, *Shrink Your Muffin Top! Fat-Blasting Workout* by Jessica Smith,  
<http://www.shape.com/fitness/workouts/shrink-your-muffin-top-fat-blasting-workout>

### **Turmeric: World's Oldest Superspice?**

Turmeric (pronounced TUR-mur-ick) is a plant stem that is finely ground and used in cooking primarily to provide curries and other foods with an enticing yellow color. Due to its rather mild flavor, many people overlook this spice that's hiding in plain sight in the spice rack, but the health benefits of turmeric (aka *Curcuma longa*) are now getting documented with Western academic rigor, validating what ancient medicinal practice has believed for thousands of years. Turmeric has been used in food and as medicine for at least 4,000 years, first in India and other parts of Asia, and later in Africa and the Caribbean.

The key active compound in turmeric is curcumin, a polyphenol with increasingly evident anti-inflammatory properties, first identified in 1910. So what does modern science tell us about the health benefits of turmeric and, specifically, curcumin?

### **Slowing degenerative illnesses**

One recent study, published in the journal *Stem Cell Research & Therapy*, linked turmeric extract to the growth of stem cells in the brains of live rats, potentially paving the way for new treatments of degenerative brain diseases like Alzheimer's.

Another study, published in the journal *Gut*, looked at damage to the liver caused by progressive inflammatory illnesses (primary sclerosing cholangitis and primary biliary cirrhosis). These conditions cause the liver's bile ducts to become inflamed, scarred and blocked. The damage to the tissues can be irreversible and cause progression to cirrhosis of the liver.

Researchers from Austria and the U.S. studied tissue and blood samples taken from mice with chronic liver inflammation. The samples were looked at before and after adding curcumin to their diets for a period of four or eight weeks. Being fed curcumin led to fewer blockages of the bile duct and less damage to cells in the liver and less scarring, while no such effects were seen in mice fed a normal diet. Interestingly, there were no extra benefits if the mice were fed curcumin for eight weeks rather than four.

### **Breast cancer therapy**

The anti-cancer potential of curcumin was examined in a study that found with controlled release, the compound was toxic to the breast cancer cell line known as MCF-7. One shortcoming of curcumin is its poor bioavailability, meaning that the body does not easily absorb it, but this study illustrates how this can be overcome. Here the researchers loaded curcumin in gum arabic aldehyde-gelatin nanogels to improve its bioavailability. The researchers were confident enough in the cancer-killing properties of curcumin that they observed to declare its suitability in nanogel form as a cancer therapy.

### **Treating colitis and IBS**

Researchers are testing the effects of turmeric on everything from achy joints to blood sugar management and finding various promising results. Some of the most promising, however, have been found in curcumin's application in inflammatory disorders, as with the liver-disease study above. Treatment of irritable bowel syndrome (IBS) and ulcerative colitis are two other areas of promise.

In one study, the preventive effects of curcumin on inflammation were assessed using dextran sulfate sodium (DSS)-induced colitis in mice. After curcumin treatment for just six days, the disease activity index of the mice with colitis was alleviated. Levels of the pro-inflammatory cytokines TNF $\alpha$ , IL-1 $\beta$  and IL-6 were also consistently repressed.

This study did not find the curcumin as deployed to be of antioxidant value, though other studies have. The authors write, "Curcumin reduced the amount of nitrite in DSS-induced colitis but did

not affect total S-nitrosylation level on proteins on day 6, indicating that curcumin inhibited NO oxidation.”

### **Alleviating renal dysfunction**

And finally, a study in the journal *Cytokine* has found that curcumin ameliorates chemotherapy-induced kidney damage in rats. Curcumin also effectively reduced a type of white blood cell that encourages inflammation (M1 macrophages).

Treatment with curcumin additionally suppressed inflammatory protein expression and increased M2 macrophage presence, the type of white blood cell that can turn off damaging immune-system activation and promote tissue repair while reducing inflammation. M2 macrophages can also remove cholesterol from blood cells.

A good deal more research seems warranted to further understand this potentially health-changing compound, so readily available in what ought to become an everyday spice. To that end, below are a few ideas on how to increase the curcumin in your diet.

### **Cooking with turmeric**

Its mild flavor makes curcumin-rich turmeric an easy addition to your daily diet. Sprinkle turmeric generously in pasta, rice or potato dishes; on fish or chicken and in meatballs; and in soups, stews, curries, casseroles and chili. If you are considering a curcumin supplement, on the other hand, discuss with your doctor whether it may interfere with any medications you are on, most notably blood pressure meds like talinlol, a beta blocker whose effectiveness high daily doses of curcumin may adversely affect. Turmeric only contains between 2 and 5% curcumin, so recipes involving the spice are another matter from pill forms of the compound.

If you're looking for ideas, [try the turmeric recipes listed here](#) that you may not have considered before.

*Materials Science and Engineering*, Aug. 2016, Vol. 65, pp. 331-337

*International Immunopharmacology*, Sep. 2016, Vol. 38, pp. 1-7

*Cytokine*, Aug. 2016, Vol. 84, pp. 1–9

### **Three Destination Races to Escape the Cold**

Way down near the southernmost tip of the U.S. stretches the scenic Florida Keys Overseas Heritage Trail. Featuring stunning Atlantic Ocean views, this trail's genesis is surprisingly recent. The trail was designated a National Recreation Trail only in 2004. In fact, the 106-mile paved

trail is still being completed; it will eventually connect Key Largo to Key West for travelers who want to explore the Florida Keys separately from travel on U.S. Highway 1.

### **Key West Half Marathon**

What better way to experience this unique greenway than by running it? If that's your first thought, look no further than the incredibly panoramic Key West Half Marathon, over half of which takes place on the Florida Keys Overseas Heritage Trail ([keywesthalfmarathon.com](http://keywesthalfmarathon.com)). It also races through Key West's historic Old Town district.

This half, which annually now has about 4,000 finishers, is one of many upcoming in 2017 that can be accurately described as *destination races*, a growing phenomenon that organizes vacation planning around road running events in one-of-a-kind places, for not just maximum fitness while traveling, but unique experiences that people may only discover because such events exist to induce them to visit in the first place.

Taking place on January 15, 2017, the Key West Half Marathon is in its 19th year. If you're not quite up to speed to cover the 13.1-mile course, there is also the Hemingway 5K Sunset Run. Despite the name, the gun immediately follows the start of the half at 7 a.m. (The Hemingway 5K is also held in July, with a start time of 7:30 p.m. to take in the amazing sunset.)

In true festive Key West style, participants pick up their bibs at the expo held inside the Waterfront Brewery, and finish in walking distance to the famous Half Shell Raw Bar, where you can enjoy delicious seafood after the race.

The larger lesson is this: This winter, if you happen to live in a northern city, why not indulge your inner snowbird and plan to join a road race in a temperate clime of spectacular beauty?

### **Bermuda Marathon Weekend**

Another favorite destination race—occurring during the same January 13-15 weekend—is the cluster of events known as Bermuda Marathon Weekend, featuring up to three days of races. If you have no work on Martin Luther King, Jr. Day on January 16, you just might consider trying all three, given the extra day to put your feet up. In any case, there's something for everyone at this first-class destination race. The 2017 schedule is as follows:

On Friday (the 13th—tread carefully!) the Front Street Mile kicks things off at 7 p.m. Saturday morning features a 10K that also permits walking. Sunday is the main event, 26.2 miles of rolling course with scenes of clear waters, lush foliage and pastel buildings to distract and entertain you the entire time.

Less ambitious travelers can also choose the half-marathon on Sunday. But complete either the first two plus the half, or the first two plus the marathon, and consider yourself a bona fide Bermuda Triangle Challenger. At postcard sending time, that's something to write home about.

At [bermudaraceweekend.com](http://bermudaraceweekend.com), the race organizers proudly note that Bermuda is only a two-hour (or less) flight from most east coast cities and Toronto.

### **Gasparilla Distance Classic**

For a third option, coming up on February 25-26, 2017, it's back to Florida for the Gasparilla Distance Classic in Tampa, Florida ([tampabayrun.com](http://tampabayrun.com)). This time there are four races over two days from which to choose: a 5K, 8K, 15K and a half-marathon. The race distances are staggered across the two days, with the 5K and 15K on Saturday and the 8K and half on Sunday.

As with the Bermuda Triangle Challenge, participants are eligible to run as many of these as they like. However you choose to experience the Distance Classic, you'll be doing something good—the Gasparilla Distance Classic Association is a nonprofit “dedicated specifically to raising funds for charitable youth organizations and running programs in the Tampa Bay area,” according to their mission statement.

Since the first running back in 1978, the group reports that they have raised and donated some \$4.4 million to the Boys & Girls Clubs of Tampa, Girls Inc. of Pinellas, The Friends of Tampa Parks & Recreation and youth running-related programs. It most likely does not hurt their cause that the half-marathon offers sweeping views of Tampa Bay along Bayshore Boulevard and as you cross the bridge out to Davis Islands.

*Runner's World*, May 14, 2015, "Bucket List: 9 Destination Half Marathons," by Kit Fox, [www.runnersworld.com/bucket-list-races/9-best-destination-half-marathons](http://www.runnersworld.com/bucket-list-races/9-best-destination-half-marathons)

**Key West Half Marathon & 5K**, [www.keywesthalfmarathon.com/event-details/](http://www.keywesthalfmarathon.com/event-details/)

*Rails to Trails Conservancy*, Dec. 2013, "Connecting the Keys: Florida Keys Overseas Heritage Trail," by Sher Jasperse, <http://tinyurl.com/oejf54w>

**Bermuda Marathon Weekend**, [www.bermudaraceweekend.com](http://www.bermudaraceweekend.com)

**Gasparilla Distance Classic**, [www.tampabayrun.com/](http://www.tampabayrun.com/)

### **Pokémon Go Update: Research Weighs In**

Back in August, we posited that the new trend of “enhanced reality” gaming—known to many people solely from the rise of Pokémon Go—may not simply be an irritating distraction preventing kids from enjoying the unenhanced outdoors. There seemed cause for hope that Pokémon Go and more games sure to follow in its wake could possibly lure people into activity who otherwise may be more sedentary.

Now, a study published in *BMJ* finds that, indeed, there is some promise here. The cohort study used online survey data to estimate the effect of playing Pokémon Go on the number of steps taken daily up to six weeks after installation of the game.

About 1,200 iPhone 6 users in the U.S., ranging in age from 18 to 35 years, were recruited for the survey, which gathered information on the number of steps each participant had taken in the four weeks prior to installation of the app, as well as during the six weeks after. Steps were recorded automatically in the iPhone Health app and reported by the participants.

Just under half of the participants reported playing Pokémon Go. These folks walked an average of 4,256 steps per day in the four weeks before game installation. During the first week after installation, the daily average steps for these users increased by 955 steps. This amounted to about 11 minutes of additional walking daily. Gains slowly declined from there over the next five weeks, presumably as the novelty of the game wore off. The effect appears to have completely receded by week six, as the number of daily steps returned to pre-game installation levels.

There were no significant differences in effect by gender, age, race group, body weight status, urbanity or walkability of players' areas of residence.

While this increase in activity was moderate and short-lived, it provides some evidence that enhanced reality apps can change whether and how much we move. From here, it's not hard to imagine the development of a different game, specifically designed and optimized to increase physical activity in participants. There may also be more dramatic behavioral change in children; the present study was only of U.S. adults.

Through Cloud technology and the features built right into today's smartphones, the automatic acquisition of information on people's physical activity itself presents an opportunity for many more cohort studies and may be a useful tool in the formation of public health recommendations down the road. More research is needed, but it's a promising start and quite literally a step in the right direction.

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## **The Clinic**

### **When Nerve Pain Calls for MRI**

I am a 160-lb, 58-year-old male who runs on average 15 miles a week at 9 or 10 minute pace. I had also been using weights three days a week to strengthen my upper body, but three months ago I started experiencing debilitating symptoms down my left leg that feel like sciatica. I have no direct back pain. The pain was severe enough at the time to cease both running and weight

training. I began to make good progress with regular back stretching exercises, acupuncture, muscle relaxants, anti-inflammatories and chiropractic adjustments. I see a sports medicine doctor who oversees these treatments.

I had reduced my pain considerably in the mornings, with no pain for the rest of the day. I gradually started walking, then walking and running, then running for three miles. I was down to just the anti-inflammatory drug and regular stretching when I had a major setback a month ago, while I was out of town. I was unable to even stand from the terrible pain down my leg. I ran the day before this occurred without any problem.

I am back on acupuncture, avoiding the chiropractic, and making progress, though numbness on the bottom of my left foot continues. I walk as much as I can, which is only for about 10 minutes. How should I go about starting my weight training and running once the nerve heals?

**Kevin Donahue**  
**Woodland Hills, CA**

I think your spine is a likely source for your symptoms. Even without back pain, sciatica usually arises from the spinal nerve roots. Some practitioners diagnose piriformis syndrome as a sciatica source when back pain is absent. This is a deep muscle in the buttock that lies over or around the sciatic nerve. The notion is that the nerve gets compressed by this muscle when it is tight, spasmed or externally compressed, such as by a wallet. These scenarios are medically possible, but in reality probably very rare. The problem, if it is truly nerve related, is almost always the spine.

A combination of degenerative disc bulging and bony joint enlargement compresses an existing spinal nerve root, usually the lowest lumbar or the first sacral nerve. The majority of sciatica resolves. But your case is unique in that you are 58, you want to get back to running and you may not be getting better. I recommend an MRI study of your lumbar spine; recommendations for activity will be in part based on the results. This can also help the chiropractor determine how best to apply his/her skills.

The initial rehab sounds like it was appropriate. You will have to start from scratch again. When symptoms return like this, you need to see your doctor and work up the problem for a more definitive diagnosis. Generally speaking, return-to-running programs involve starting at a pain-free level and only increasing mileage by 10 percent per week.

**Robert Scott, MD**  
**San Diego, CA**

**Simply Stressed or Overtrained?**



I've been running for several years, usually 30 to 35 miles a week. Lately I've been very tired. Running has become a chore, but I used to look forward to daily runs.

About a year ago at the blood bank where I usually donate two or three times a year, I learned I had low ferritin. The doctor there gave me some iron pills and asked me to return in a few months. I did, and he said my ferritin had gone up from 9 to 23, which was encouraging. After a few more months it went down to 20, and he said I should see my doctor.

I did, and he said there was nothing wrong with this, and I shouldn't take iron supplements because my hemoglobin was normal. My doctor said low ferritin was not the cause of my fatigue, and hinted it was psychological. What should I do?

**Amy Abernathy**  
**Bryn Mawr, PA**

Ferritin is a measure of your iron store, and hemoglobin is the iron carrying protein in red blood cells that transports oxygen from your lungs to the rest of your body. Iron is transferred from the store to your bloodstream, as needed. There is much debate about whether low ferritin with normal hemoglobin can cause fatigue.

My feeling is that your low ferritin is not the cause of your fatigue, because ferritin does not transport oxygen like hemoglobin does. You should be able to increase your iron store by eating more iron rich foods, such as lean red meat or dark poultry.

As for your symptoms, I would look for other causes of stress. Our bodies react to the total amount of stress: physical, such as running, and emotional stress. I find that when I am stressed in areas such as family or job concerns, running loses some of its appeal. So stress in other aspects of your life could cause you to feel running is a chore.

You may also be burned out or stale, and perhaps need a change of routine to get you motivated again. Your symptoms sound like what I see in runners who are overtrained. They can also arise from not eating enough carbohydrate to provide the energy for an active lifestyle.

I would not worry about your ferritin level. I suggest you examine the stresses in other areas of your life, your running and eating habits. If you feel your running is stale, try something new, such as a new route, or running with a group, to spark your interest again. If you think you are overtrained, decrease your mileage for a couple of months. Perhaps you should try some other activities instead, such as biking, or swimming, until you feel refreshed.

**Nancy Evans, MD**  
**Bend, OR**

**Sodium Consumption Concerns**

Oddly, two running buddies recently developed hypertension. They are well above average athletes and I wonder what's going on here.

I'm a 53-year-old female who has been running for 25 years, currently 35 miles per week. I am 5' 5" and 120 lbs. I run a 5K in 24:30 and a marathon in about 4:15. I do tempo runs, long runs and speedwork.

I consume an enormous amount of salt, most often in the summer, when I actually crave it. I sweat profusely, but I do have a history of hypertension in the family. My blood pressure is okay right now (120/75), if slightly higher than the 110/60 from 10 years ago.

Without a lot of salt, my training schedule makes me very lethargic. Can my sodium intake be harmful? I really wish to avoid developing hypertension.

**Kylie Hersthurder**  
**Huntsville, AL**

With a blood pressure of 120/75 and clearly a salty sweater, you are doing the right thing and should not worry unless you actually develop hypertension.

Athletes sweating in the summer sun should not abide by the dietary limit established for sedentary adults: 2,300 milligrams of sodium daily. As internist for the Oklahoma Sooners, I have found some OU football players, during two-a-day workouts, to lose five teaspoons of salt a day. Heat cramping and exhaustion result from lack of sodium. Never drink more than you sweat. Overdrinking, even fluids with sodium, can dilute blood sodium. If you gain weight during a long run, drink less next time.

If you see salt on your skin or clothing or sweat burns your eyes, you may need more salt than most people during a workout in the sun. Foods with lots of sodium include tomato juice, canned soup, pickles, pretzels and pizza.

**Randy Eichner, MD**  
**Oklahoma City, OK**

As noted above, your desire for salt seems like your body's appropriate response to your exercise regimen. You might obtain a home blood pressure monitor at your local pharmacy and monitor it twice a week. Keep a diary of these readings to be sure you're on the right dietary track. While excess sodium does carry the risk of hypertension, the dangers of hyponatremia—dangerously low blood sodium—are worth reading up on as well.

**Lloyd Lense, MD**  
**Hauppauge, NY**

## **Hypothyroid Meds Should Mitigate Performance Declines**

I take 10 micrograms of the generic form of levothyroxine (brand name Levoxyl) for an underperforming thyroid gland. I've been doing this for seven years. I take the medication with a low-dose aspirin and, during the summer, Claritin. My internist tests for thyroid-stimulating hormone (TSH) each year. Last year it was 5.084. The year before, it was 5.1.

I began jogging almost three decades ago and got serious about running and entered my first races about three years in. I am now 63 years old, and run four days a week, with a base of two 4-milers and two 6-milers, with increases when I'm marathon training. I currently weigh 165.

Last year I dropped out of a marathon after 21 miles, then entered another marathon four weeks later, posting a 4:03:58. In both cases I ran at a comfortable 9:05 pace for 12 miles, then died. The struggle in the 13th mile has become more like what I would not encounter until 16-18 miles in previous decades.

Could my premature falloff be linked to my hypothyroidism? I've always understood the medication is to be used for maintenance and there shouldn't be a wide swing even for a missed dosage. Might there be a cumulative effect over the weeks of longer runs that go along with racing prep?

**Leonard Sirk**  
**Colorado Springs, CO**

There are multiple factors which may be affecting your marathon performance. First of all, performance decreases with age. Training will slow the rate of decline, but will not stop it.

Hypothyroidism can negatively impact performance, though on medications, this should be a minimal/negligible impact. Your TSH is at the upper end of normal limits (a high level is consistent with hypothyroidism); too much thyroid replacement can cause a number of medical problems. Your TSH levels are consistent over time, though levels do need to continue to be monitored. Adjusting the medication dosage so that your TSH is on the low side of normal would probably not have a significant impact on training and could cause side effects.

I think that you need to look at your training schedule and racing pace. It looks like your fastest miles are at the start of the race; most runners perform best with even or negative splits. Are you using too much energy (for your level of training) early in the race and paying for it in the middle of the race? Possibly incorporating a medium length run at planned marathon pace in your schedule will be helpful; start at 6 miles and gradually increase to 12 miles. This could replace your speedwork. Make sure that there is sufficient recovery between this and your long run. You might also consider working with a coach to tailor a training program to your needs.

**Cathy Fieseler, MD**

## **Tyler, TX**

Your TSH is indeed at the upper end of the normal range (at least in most labs), so there is probably room to increase your thyroid replacement slightly (by 12.5 to 25 micrograms), followed by a repeat TSH in three months. If it has not decreased below your lab's lower limit of normal, your replacement dose may be more optimal.

In addition, though small variations in the amount of active thyroid hormone in each pill are probably not significant, some generic brands of levothyroxine are not considered reliably potent. I would suggest using the brand name Levoxyl for your replacement (it has the most consistent potency data).

Whether this minor thyroid abnormality is the reason for your relative decline in performance is uncertain, but these small changes are easy to accomplish and will allow you to test whether the thyroid is the culprit.

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

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