

Putting Fitness Trends under the Microscope

By Heather Nettle, MA

New fitness trends arise on an almost daily basis. This often leaves people feeling confused as to their benefits, questioning their legitimacy, and reluctant to jump on the band wagon. The dilemma is understandable.

Being adventurous about trying new things is a great way to prevent boredom and overcome certain performance plateaus, but it can be risky. Unfortunately, the fitness community is not well-regulated. In some instances, individuals lacking knowledge of physiology have created fitness options that are ineffective and potentially unsafe.

Here, we examine a few of the most popular fitness trends in an effort to dispel confusion and introduce readers to new and reliable changes to a potentially stagnant routine.

Flexibility: Guidelines for general improvement in flexibility have changed drastically within the last few years. Static stretching prior to starting exercise is no longer recommended for the general exerciser. According to the American College of Sports Medicine, it is most effective to perform stretching either after exercise or independent of it.

That's not to say that warm-ups are not important. Any active person should do at least five minutes of cardiovascular exercise of low-to-moderate intensity to reduce risks of potential injury. For those already suffering from an injury, your therapist may give you specific stretches to perform prior to, after or separate from exercise.

For higher-level flexibility benefits, yoga classes are one of the most popular fitness trends. Most forms of yoga can be safe and effective if done properly. However, certain classes pose more risks than others.

Ashtanga or Power Yoga classes can involve abrupt dynamic movements that are not suitable for anyone with a low level of flexibility. Lower-level yoga classes are more appropriate for those individuals.

Also popular are Bikrim Yoga or "Hot Yoga" classes, which are performed in a room where the temperature is elevated to 90 degrees or higher. These classes can be dangerous for individuals with heart conditions, high blood pressure, diabetes and other chronic health limitations – particularly during the colder months. Before signing up for these classes, it's important to consult a physician and discuss whether their potential risks may outweigh their benefits.

Strength: Resistance exercise has undergone a revolution as well. Functional strength training is replacing the old tried-and-true methods of weight training. Incorporating balance, agility or proprioceptive exercise into strength training routines may allow the body to respond better both in daily living and in sport-specific situations.

Examples of trends in strength training include the stability ball, the half-ball (such as the BOSU®), kettle bells and even high-frequency-vibration equipment.

Performing bicep curls, lateral raises and upright rows while standing on one foot can provide similar benefits.

Cardiovascular exercise: Cardiovascular exercise has seen many trends over the years. The most common trend involves focusing on heart rate and appropriate training intensity. The reliability of heart-rate monitors on exercise equipment is questionable, so using an actual heart-rate monitor that straps around the chest and includes a watch to provide feedback can be helpful. This equipment ranges from the very basic, which displays only the heart rate itself, to the extremely complex, which incorporates a global positioning system (GPS). The type of equipment chosen will depend upon the athlete's needs and performance level.

Classes: Not since the 1980s aerobics class craze have exercise classes been so popular. Spinning classes, pool classes, "cardio boot camp," "piloga" (a combination of pilates and yoga) classes, and ballroom dancing classes are just a few of the hundreds of classes available.

Be cautious about the suggested benefit of a class. In most circumstances, you are likely to gain some benefit from the class in question. However, it may not be the benefit you are looking for.

If a class claims to provide appropriate aerobic exercise, but is largely based on strength, the likelihood that it will improve aerobic fitness is slim. Such classes are largely anaerobic in nature, and the body will use oxygen differently to burn calories. These classes are more likely to improve strength, flexibility and agility. Contact an exercise physiologist, or a health or fitness professional, to clarify any questions over a class's efficacy.

Heather Nettle, MA, is Coordinator of Exercise Physiology Services at Cleveland Clinic Sports Health.



Carbohydrate Loading: What's an Athlete To Do?

By Carolyn V. Snyder, MPH, RD, LD

Interest in the influence of food on our capacity for strenuous physical activity is as old as mankind. Pre-event meal planning dates back to 264 BC, when gladiators would consume the ground teeth and meat of lions before a performance in hopes of acquiring the lion's ferocity.

Since then, sports nutrition has evolved into a science, but the premise that food affects performance and energy has withstood the test of time. Today, endurance athletes use carbohydrate loading as a performance strategy to improve both performance and stamina. "Carb loading" increases muscle glycogen stores, delaying the onset of exercise fatigue.

The ABCs of Carbohydrate Metabolism

A balanced diet requires carbohydrate, protein and fat. Our bodies use different pathways to metabolize these three "macronutrients." Carbohydrate metabolism is the most efficient, creating glucose that our bodies need to function.

Carbohydrates may be simple or complex. Simple carbohydrates require minimal digestion and are quickly converted into glucose. Examples include juices, sugar-sweetened beverages, hard sugar candies, table sugar, jams and honey. Complex carbohydrates are higher in fiber and nutrients, and take longer to digest. Examples include whole-grain breads and cereals, fruits, vegetables, and dried peas and beans.

When we consume more carbohydrates than proteins or fats, any glucose not immediately needed is stored in the liver and muscle cells as glycogen. Once our liver and muscle cells are saturated with glucose, any excess is stored as fat.

Routine, strenuous aerobic training stimulates enzymes in the muscles to synthesize glycogen. Over extended (greater than 90-minute) periods of exercise, repeated muscle contractions deplete glycogen stores in those muscles. At that point, the liver transports more glycogen to the muscles, boosting endurance and stamina.

Because glycogen is only synthesized in the specific muscles being exercised, athletes must train for the specific sporting event for which they are carb loading.

A new school of thought

There are two schools of thought on carbohydrate loading. The old-school approach had two stages. The first stage was depletion, where the athlete performed exercise to the point of exhaustion, depleting stored glycogen in specific muscles. The second stage was carb loading, where the athlete ate a high-carbohydrate diet (400 to 600 grams per day) for three days while reducing the intensity and duration of training.

In 1981, a study published in the *International Journal of Sports Medicine* created a new school of thought. Researchers reported that carbohydrate loading was just as effective when the depletion phase was eliminated. Also, athletes no longer felt sluggish and irritable the week of the event.

Today, this modified approach to carb loading is seen as more realistic, both from a time and an event perspective, and glycogen stores are increased to similar levels with only a one-day depletion phase.

Make carb loading an automatic part of your preparation for an athletic event, and you will maximize glycogen stores — and your performance.

SIMPLE GUIDE TO CARBOHYDRATE LOADING

Day(s) Before Event	Training Intensity and Duration	Carb-Loading Diet
7	Intense exercise for 90 minutes	Carbs make up the usual 50-60% of your diet
6	Moderate exercise for 40 minutes	Diet is 50-60% carbs
5	Moderate exercise for 40 minutes	Diet is 50-60% carbs
4	Moderate exercise of 30 minutes	Diet is 50-60% carbs
3	Moderate exercise for 20 minutes	Carbs are increased to 70% of diet
2	Light exercise for 20 minutes	Diet is 70% carbs
1	REST	Diet is 70% carbs
Day of Event		Eat a well-tested, high-carb meal before event

Helpful Hints:

1. Eat healthy, balanced meals and maintain adequate hydration; these measures complement each other and optimize performance.
2. Do not wait until the week of the event to try new carbs in the diet.

Carolyn V. Snyder, MPH, RD, LD, is a registered, licensed dietitian specializing in sports nutrition.

The Roster

Meet Dr. Paul Saluan, a board-certified orthopaedic surgeon in the Center for Sports Health and the Center for Pediatric Orthopaedic Surgery. He sees young athletes at Cleveland Clinic's main campus and at our family health centers in Strongsville and Broadview Heights.

Spotlight on: Pediatric Sports Health Physician Paul Saluan, MD



Reason for specializing in Pediatric Sports Health:

I've been involved in sports most of my life, and played football as a linebacker all through college. That mindset draws you to sports; you can relate to the problems you see. During my training, I was drawn to pediatric orthopaedic surgery. So my practice has always focused on young people, and young athletes in particular.

I enjoy working through their surgical issues with an eye toward not just short-term success, but also their long-term growth and development.

Specialty Interests: Pediatric and young adult sports injuries; arthroscopic surgery in the knee (ligament reconstruction, cartilage restoration, and meniscus reconstruction/transplantation) and shoulder (for shoulder instability/dislocations); and pediatric orthopaedic surgery.

Advice for young athletes: I see a fair number of overuse injuries from kids being involved in one sport or multiple sports for too long, without any significant breaks or rest. Not having a certain amount of recuperation time creates problems for these young people that become issues that eventually require medical attention. Therefore, it is important to focus more on *playing* sports and not overtraining for sports.

Words of wisdom for coaches: Young athletes' health should come first, and their involvement in sports should follow. Usually the two can be meshed appropriately. Coaches who are attentive to young athletes' health needs will actually maintain top performance longer and more safely than coaches who are not as vigilant.

Education: Case Western Reserve University School of Medicine; Cleveland Clinic for Orthopaedic Surgery residency (including Sports Medicine and Pediatric Orthopaedics); Denver Children's Hospital for Pediatric Orthopaedic fellowship.

Professional Highlights/Affiliations: Winner of the 2005 Pinnacle Award from The Pinnacle Performance Center for Service, Excellence and Education in Sports Medicine; consulting physician at Gym World, an elite gymnastics facility in Brecksville; member, American Academy of Orthopedic Surgeons, Arthroscopy Association of North America, American Orthopedic Society for Sports Medicine, American College of Sports Medicine, Pediatric Orthopedic Society of North America, American Academy of Pediatrics.

Call 877.440.TEAM (8326) to see Dr. Saluan at Cleveland Clinic's Main Campus, or at our Strongsville or Broadview Heights family health centers.

Competitive Edge

Competitive Edge offers active individuals, athletes, coaches and athletes' parents updates on health, nutrition and injury prevention from Cleveland Clinic Sports Health professionals.

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Home Gym Hang-Up

The abdominal muscles are a part of the “core” muscles in your trunk. The abs play a vital role in stabilizing your back, and in maintaining balance and control for your whole body. Strengthening these muscles as part of your general conditioning program is important in improving function not only for athletics and recreation, but for typical daily activities as well.

BASIC CRUNCH: Lie on your back with knees bent and feet flat. Place arms across chest. Tighten abdominal muscles to lift shoulder blades off the floor slowly, keeping your low back against the floor. Pause, then slowly return to starting position. Do two to three sets of 10 repetitions.

BEGINNER

1



2



3



HUNDRED: Lie on your back with legs elevated. Keep your low back against the floor and your stomach tight, with your arms extended by your side. With small, controlled movements, pump your arms up and down 10 times. Inhale with each of the first five pumps, and exhale with the last five. Do two to three sets of 10 repetitions.

INTERMEDIATE

1



2



3



HAND TO FEET: Holding the exercise ball, lie on your back with legs extended and with arms extended over your head. Using your abdominal muscles, raise your trunk and bring your arms and legs together. Transfer the ball to your legs and then slowly lie back down. Repeat the movement, transferring the ball back to your hands. Do two to three sets of 10 repetitions.

EXERCISE BALL: The exercise ball is a great way to add variety to your workout, and to increase its intensity. It challenges your balance and core stability. The exercise ball comes in several different sizes that correspond to the user's height, so be sure to use one that is appropriate for you. Also, be sure that the ball is properly inflated and inspect it for any damage that might make it unsafe to use.

ADVANCED

1



2



3



4



5



By exercise physiologists D. Andrew Robinson, MEd, ATC, CSCS, and Elizabeth Sprogis, MA

Disclaimer: Always check with your doctor before starting a new exercise routine or increasing intensity. If you experience pain while doing these or other exercises, stop immediately and contact your physician.

MYTHBUSTER: Tennis Elbow

By Robert Gray, MS, ATC, and Richard Figler, MD



Myth: You only get “tennis elbow” from playing tennis.

Fact: Believe it or not, the great majority of patients with this condition don’t even play tennis! They play other sports, or have occupations that call for repetitive movement of the forearm muscles, such as dentists, plumbers, painters, gardeners or musicians.

Tennis elbow, or lateral epicondylitis, is caused by repeatedly stressing the forearm muscles. It can occur at any age, but is most common among 30-to-50-year-olds, and can develop slowly or suddenly.

Inflammation (swelling) occurs on the outside of the elbow, where the tendons attach the forearm muscles to the joint. Studies have shown a chronic “micro-tearing” of the tendon away from its attachment at the elbow right where the pain is felt. The tendon doesn’t rupture and the elbow still functions, but the pain persists.

Signs and symptoms

If elbow pain is not properly treated, it will gradually worsen over weeks and months. In severe cases, burning sensations can develop on the outside of the elbow. Pressing on the outside of the elbow and gripping or lifting objects intensifies the pain; sometimes simply moving the elbow or lifting a small object causes pain to radiate down the forearm.

Be sure to seek medical care if:

- your elbow is hot and inflamed or you have a fever
- you can’t bend your elbow
- your elbow looks deformed
- you suspect a broken bone

Medical treatment for tennis elbow

Depending upon the severity of the problem, Cleveland Clinic orthopaedic specialists will consider several treatment options. They generally use a multi-pronged, step-wise approach.

The initial phase of treatment involves rest and pain control, and can be overseen by occupational and physical therapists, who employ bracing, stretching, strengthening and other treatments aimed at decreasing pain and inflammation. They will modify equipment and techniques to limit strain on the elbow (typically arising from the wrist).

Acetaminophen (Tylenol™), ibuprofen (Advil™) or naproxen sodium (Aleve™) or prescribed medications can be used unless patients have a medical condition that prohibits their use.

Sometimes physicians will use injections in conjunction with the above treatments. Medications such as corticosteroids, which reduce inflammation, can be injected along with a numbing medicine to help the healing process.

Promising treatments emerge

Two exciting new treatments can also be considered in special cases. Nitroglycerin patches, proven to help with healing of the tendon, can be worn on the skin overlying the painful part of the elbow.

Another treatment involves injection of platelet-rich plasma. Powerful growth factors that help with healing can be extracted from the patient’s own blood and injected into the inflamed tendon. This technique has been shown to be as effective as surgery, which is the final option when all conservative measures fail.

Self Care

No matter what treatments are used, it is wise to remember the “PRICE” of keeping your elbow healthy:

- Protect your elbow from further injury until your symptoms have improved.**
- Rest your elbow.**
- Ice it two to four times a day, especially when sore.**
- Compress it with a forearm splint or elastic wrap to reduce swelling and provide support.**
- Elevate your elbow above the level of your heart to prevent or limit swelling.**

To reduce your odds of developing tennis elbow, we recommend:

- Building up your arm strength through a pre-season conditioning/strengthening program that includes your elbow, forearm and wrist.
- Practicing moderation by gradually increasing your activity level over a period of several weeks.
- Reviewing your technique to ensure that you are using the proper motion and biomechanics when competing. In racquet sports, lowering string tension will produce less force at the elbow.
- Warming up properly by gently stretching the forearm muscles at your wrist before and after your activity.
- Using ice, not heat, after an activity that causes pain or discomfort.

Bob Gray, MS, ATC, is Coordinator of Athletic Training/Community Affairs, and Rick Figler, MD, is a non-surgical Sports Medicine specialist at Cleveland Clinic.



Cleveland Clinic Sports Health Specialists Now in Brunswick

Paul Gubanich, MD, and Morgan, Jones, MD, can now see you at our Brunswick Family Health Center. Dr. Gubanich specializes in injury prevention, performance enhancement, medical problems in athletes and sports concussions. Dr. Jones specializes in orthopaedic sports medicine, including shoulder, knee, foot and ankle disorders.

Call **877.440.TEAM (8326)** for appointments.

Convenient Locations to Serve You

Sports health and rehabilitation services are offered at Cleveland Clinic's main campus and at community locations including Beachwood, Brunswick, Euclid, Independence, Mentor, Solon, Strongsville, Westlake and Willoughby Hills.

877.440.TEAM
sports-health.org

For expert advice on how to handle your sports injury, or for an appointment at any location, call our toll-free number or visit us on the web.

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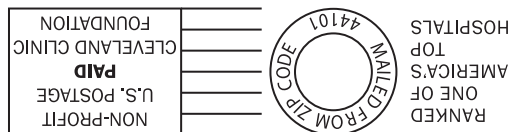
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Sports Health Competitive Edge



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