OCTOBER 2015

MONTHLY HEALTH & FITNESS TOPICS

- Steady State vs. Interval Training
- Yoga Poses to Relieve Back Pain
- What Should Come First: Cardio or Strength Training?
- Should You Consult Your Physician Before Exercising?
Steady State Vs. Interval Training

Which of the following is a more effective strategy for traveling from one place to another in the shortest period of time: (1) adding miles to your trip by driving the back streets of a city to avoid traffic jams; or (2) taking the shortest, most direct route even if it means sitting on a freeway so congested that you only move a few miles an hour? And which approach burns more gas and places more wear and tear on your car: the frequent starting and stopping of city driving or highway driving at a constant rate of speed?

This scenario provides a rough analogy of how the human body responds to different types of cardiorespiratory exercise. High-intensity interval training (HIIT), which, in this scenario, could be considered similar to city driving, can be extremely effective for burning calories and improving aerobic capacity but at the expense of placing high levels of physical stress on the body. Conversely, steady-state training (SST) focuses on maintaining a consistent, low-to-moderate intensity work-rate for an extended period of time, which is comparable to driving on a highway. Like HIIT, SST can be effective for aerobic conditioning and burning calories, but it can require an extensive amount of time to do the volume of work necessary to achieve the desired results.

So, is one form of training better than the other? Like almost all fitness-related questions, the answer depends on a variety of factors. In the car analogy described above, both options can help you get to your destination. Which one you choose depends on your personal preference—would you prefer to sit in slow-moving traffic or being in constant motion?

The following information features, advantages and disadvantages for both SST and HIIT. There is a large body of research validating each mode as an effective form of exercise; however, it is up to you to determine which one is best suited to help your clients reach their fitness goals in the shortest period of time.
5 Reasons Why Steady-State Training Might Be the Best Choice

- You experience a period of high stress or find yourself wallowing in a grumpy mood. Steady-state workouts require lower levels of physiological stress, which could help you to clear your mind and change your mood.

- You want to enter a race like a 10K, half marathon or marathon. According to the principle of specificity, the best way to train for an activity is to do the activity. If you want to complete an endurance race, you will need to plan on making time for long-distance, steady-state training.

- You are visiting a city you have never been to before or have recently moved. A long, steady-state run, bike ride or walk can be a great way to get out and explore an area you have recently moved to or are visiting for the first time.

- You are exercising for the health benefits. Regular, low-to-moderate intensity steady-state exercise can provide a number of health benefits, including helping to reduce the risk of developing a chronic condition like type 2 diabetes, high blood pressure or high cholesterol.

- Because you like it. Some people simply enjoy going out for long runs or training for long-distance endurance events. There is no reason to change your workout habits as long as they provide you with the benefits you are looking for.

Features of Steady State Training

Maintain a consistent speed, level of intensity and work rate during an exercise session. Training intensity can be measured by maintaining a consistent work rate at a specific percentage of maximum heart rate (MHR), heart rate reserve (HRR) or aerobic capacity (VO2 max). Another option is to use ratings of perceived exertion (RPE), which allows you to use a 1-10 scale to judge the level of difficulty (1 being easier and 10 the hardest).
Advantages of Steady State Training

- Exercising below the ventilatory threshold for an extended period of time puts less physical stress on the cardiorespiratory system and can be an effective way to prepare for an endurance event.
- It is an established and proven method for improving cardiorespiratory fitness and enhancing aerobic capacity.
- Increases mitochondrial density in type I (slow-twitch) muscle fibers, which can improve aerobic metabolism.
- Increases cardiac efficiency; specifically, elevating stroke volume and cardiac output at a lower heart rate.
- Enhances ability to use fat as an efficient fuel source, which reserves muscle glycogen to be used for higher-intensity exercise.
- Steady-state training to improve aerobic efficiency generates less metabolic waste and cellular damage than HIIT workouts.

Disadvantages of Steady State Training

- If the goal is weight loss, steady-state training may require extended periods of training time to achieve the desired level of caloric expenditure.
- Using steady-state training to improve aerobic capacity may require lengthy exercise sessions, which can be a challenge for a busy lifestyle.
- Extended periods of exercise can increase the risk of repetitive stress injuries.
- Certain individuals may find it difficult to maintain the focus necessary to train at a constant work rate for an extended period of time.
5 Reasons Why Interval Training Might Be the Best Choice

- You have a busy schedule, which limits your training time; HIIT workouts can be done in 30 minutes or less, making them extremely effective for producing results in a limited amount of time.
- You have been following the same cardio workout routine for a long time and have become stuck at a plateau, adding HIIT workouts could jumpstart your program so you continue experiencing results.
- You want to train for a mud run or obstacle course race. These events feature physical challenges requiring anaerobic strength. HIIT can help you prepare to meet the demands of overcoming an obstacle, while also improving aerobic efficiency so you have the energy to finish the race.
- You are exercising for weight loss. HIIT can help you burn more calories in a shorter period of time, while also providing an EPOC effect to help you continue expending energy even after the workout is over.
- Because you like it. The best exercise in the world is the one you enjoy and will do on a regular basis. If HIIT works for you, go for it and have fun, but make sure you allow time for appropriate recovery because that’s where the real results happen.

Features of Interval Training
Alternate between periods of high-intensity exercise and lower-intensity, active or passive recovery. Both the higher-intensity work intervals and lower-intensity recovery periods can be measured as a percentage of MHR, HRR, VO2max or an individual’s RPE.

Advantages of Interval Training
HIIT can be effective for improving aerobic capacity and/or calorie burning in less time when compared to high-volume, steady-state training.
- The higher-intensity work intervals of HIIT can be based on an individual’s RPE, allowing that individual to start exercising at a relatively low intensity (as measured objectively) and progress from that initial starting point.
- Interval training may be an effective strategy for individuals who become easily distracted or bored during longer exercise sessions.
- Can improve efficiency of type II muscle fibers to produce energy via anaerobic glycolysis, resulting in greater metabolic efficiency.
Exercising above the lactate threshold can help stimulate production of muscle-building, fat-burning hormones such as testosterone, growth hormone and insulin-like growth factor. Increases the effect of EPOC (excess post-exercise oxygen consumption), helping to burn calories after the exercise session is completed.

Disadvantages of Interval Training

High-intensity exercise increases mechanical damage on muscle tissue, which could increase soreness and the perception of exercise as “painful” in deconditioned individuals. Anaerobic metabolism results in an accumulation of metabolic stress that limits a muscle’s ability to function. The high mechanical stresses of HIIT can increase the risk of a muscle strain. The higher exercise intensities required to improve aerobic conditioning with HIIT may be uncomfortable or painful for some people. An extended period of HIIT could deplete glycogen stores and result in gluconeogenesis, which is the metabolic process of converting protein to produce glycogen. This limits the amount of protein available to repair muscle tissue damaged by exercise.

Regardless of whether you choose SST or HIIT, to keep seeing results it’s important to change workouts on a regular basis to keep from becoming complacent, which could result in getting stuck on a plateau and not achieving any results from the exercise program. The best workout program is the one that is done on a regular basis.

Source: ACE Fitness.org
Yoga Poses To Relieve Back Pain

Back pain is one of the most common reasons for visiting an orthopedic doctor. Bad postures while standing and sitting, incorrect sleeping postures, lifting weights the wrong way, excessive restlessness, lack of exercise, obesity, tummy fat, etc. are few of the common triggers behind back pain. Yoga can assist in relieving the pain. Here’s how yoga can help you manage back pain. 1) Strengthens your back, hamstrings, as well as hip flexors, 2) Enhances the flexibility of your back, hamstrings, as well as hip flexors, 3) Eases stress and anxiety levels, and calms you down, 4) Improves blood circulation levels.

Tadasana – Mountain Pose

Stand straight with your spine and neck erect, feet spread out a shoulder-width. Draw your chin inwards and rest your hands on the sides. Taking a deep inhalation, lift your hands and ankles upwards. Standing on your toes and holding your breath, balance yourself for about 15 seconds. Exhale and relax to come back to the initial position.

Benefits:

- Stretches and elongates your spine and back muscles
- Strengthens and tones the back, hips and hamstrings
- Corrects the posture
Yoga Poses To Relieve Back Pain

Vrikshasana – Tree Pose

Stand erect with your hands on the sides. Rest your right sole flat on the left thigh by bending the right knee. The sole should be placed firmly on the thigh. Keeping the left leg, spine and neck erect, balance your body. Inhaling deeply, lift your hands above your head, palms joined in Namaskar mudra. Keeping your head erect, focus on an object placed along the line of sight. Breathe deeply and hold the pose for about 15 seconds, enjoying the relaxation that creeps into your body with each breath. Exhaling gently, bring your hands to rest on the sides, while bringing the legs back to the starting position. Repeat the procedure with the left leg.

Benefits:
• Strengthens and elongates the spine
• Strengthens and stretches the hamstrings
• Corrects your posture
• Strengthens the back muscles

Utthita Trikonasana – Triangle Pose

Stand erect, hands by the side of your body. Stretch your left leg outward and turn your left foot to make a 90 degree angle with the leg. Take a deep inhalation and lift your right hand above your head while your left hand touches the left foot. Alternatively, you can place your left hand on a block for support. Make sure that your thighs are engaged. Gaze towards the fingertips of the right hand. Breathe deeply and hold the pose. Taking a deep exhalation, relax, lift your body and come back to the starting position. Repeat the same with the other side. Make sure to keep your spine erect during the entire back pain yoga process.

Benefits:
• Stretches and strengthens your hamstrings and hips
• Opens the chest, shoulders and hips
• Stretches and tone the groins and calf muscles
Yoga Poses To Relieve Back Pain

**Bitilasana – Cow Pose**

Here is another best yoga for back pain relief. Come down on all your fours. Make sure that the wrist is in line with your elbows and shoulders, while the knee joints and hips come in line. Rest your palms on the mat with your fingers spread out. Taking a deep inhalation, push your chest and seat bones up, sinking your abdominal muscles towards the mat. Your neck and eyes should be up. Hold the position for about 15 counts, exhale and come back to the initial pose.

**Benefits:**

- Stretches and strengthens the back, torso and neck
- Tones your abs
- Corrects posture problems
- Eases and prevents back pain

**Adhvo Mukha Savanasana – Downward Facing Dog Pose**

Stand erect with your hands resting on the sides. Taking a deep breath, bend forward, allowing your body to fall off from the hips. Allow your hands to touch the floor. Stretch your right leg backwards first, and then stretch out your left leg. Allow your palms to be placed on the floor firmly. Balance yourself on the toes and stretch till you feel a tingle on your hamstrings. Your head should face the ground with your chin touching the chest. Breathing normally, relax while trying to stretch your back by pushing the shoulders and head inwards. Exhale and come back to the starting pose. One of the best yoga asanas for back pain.

**Benefits:**

- Stretches and elongates your spine and back
- Strengthens and tones the hips, arms, legs, back and spine
- Tones and flattens your abs
Pashchimottanasana – Seated Forward Bend Pose

Sit erect on the mat, legs stretched out and held firm. Taking a deep inhalation, lift your hands over your head. Exhaling, bend your body while allowing your hands to touch your toes. Hold the pose while indulging in deep breaths for about 6 seconds or 15 counts, without bending the knees. Take a deep inhalation, relax and come out of the pose.

**Benefits:**

- Strengthens and elongates the spine
- Improves flexibility and elasticity of the spine and back
- Eases a stiff back and spine
- Corrects spinal deformities
- Alleviates posture-triggered back issues

If you would like to try some of these moves with an yoga instructor, NCE fitness center offers yoga classes Monday-Thursday. Check out the group exercise schedule for more details (pg. 19).
No matter how good we get at understanding exercise, there are still some basic things about it that are endlessly vexing. What should come first in your workout, cardio training or strength training? If you or someone you know has recently joined the new “Never Do Cardio” cult, that’s not the answer and please read this first.

When simple questions continue to puzzle us, it is often because the “simple” question has a nuanced answer that is dependent upon numerous factors. And we run into trouble whenever we take what works for an individual and try to make that the template for all of humanity to follow. The “correct” answer to this question can vary from person to person, but by the end of this blog, you should have a better idea of how to answer this question for you.

A recent ACE-commissioned study found that performing cardio exercise after resistance training created a heart-rate response that was 12 beats per minute higher for the exact same workout intensity and duration. This would seem to present clear evidence that cardio should be performed first due to the increase in perceived effort from this shift in heart rate and a potential shifting of the intensity from “moderate” to “vigorous” with no modifications to external intensity. In fact, these were the general conclusions of the study.
Which Should Come First:

However, both Lance Dalleck, Ph.D., the lead researcher in the study, and Cedric X. Bryant, Ph.D., ACE’s Chief Science Officer, agree that the results of this study don’t mean every single person should always do cardio first. “When working holistically with a client,” says Dr. Dalleck, “the client’s needs and goals should drive the development of the exercise program.”

Indeed, you can find other, equally well-designed studies that conclude that it’s better to perform strength training first because it depletes the body’s carbohydrates stores, which means it uses slightly more fat for fuel. Furthermore, most studies have looked at the impact of strength and cardio on a *single session* as opposed to over a period of time. More recent studies are investigating what is happening to the body’s response and recovery from exercise as a result of strength and cardio together. Some highlights: Running negatively affects strength training more than cycling. Endurance training volume should be limited to 20 to 30 minutes to minimize potentially negative effects. Moderate-to high-intensity endurance training decreases the efficacy of strength training.

Feeling confused? As with most things related to fitness, it is never a good idea to try to turn general guidelines into hard and fast rules that apply to all people. The more deeply you look into this question, “Should I do strength or cardio first?” the clearer it becomes that the only correct answer is: “It depends.” It depends on…

**Goals:** Fat loss? Weight loss? Feel better? Have more energy for recreational activities? Get stronger?

**Attitude/Mindset:** Hate exercise? Love it? Sort of enjoy it, but sometimes struggle? Don’t like it, but you do it consistently because you want the benefits badly enough to do it? Hate cardio? Hate strength training?
To help you make sense of the best choice for you, take a look at this chart:

<table>
<thead>
<tr>
<th>GOAL</th>
<th>PLAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is your main goal better endurance performance (i.e., shorter times or better performance when running, competing in triathlons, etc.)?</td>
<td>Cardio First</td>
</tr>
<tr>
<td>Is your main goal to get leaner or lose weight?</td>
<td>Strength First</td>
</tr>
<tr>
<td>Are you mostly concerned with improving strength?</td>
<td>Strength First</td>
</tr>
<tr>
<td>Are you doing upper-body strength training?</td>
<td>Either One First</td>
</tr>
<tr>
<td>Are you doing lower-body strength training?</td>
<td>Strength First (strength alone for serious strength goals)</td>
</tr>
<tr>
<td>Do you have general fitness goals with no emphasis on strength or endurance?</td>
<td>Your Choice (do the one you least enjoy first. You’ll ensure it gets done do it when you are less fatigue.)</td>
</tr>
</tbody>
</table>

Simple is better, but we can't always reduce a question to a simple answer for everyone. Sometimes, the best answer is “It's complicated,” which then becomes simple again when filtered through the needs of the individual.

"Consult a physician before using this equipment." Have you seen this statement before? If the exercise equipment was manufactured in the last 30 years or so, this statement or a similar disclaimer is likely placed somewhere in small print. I see it (well, ignore it) just about every day when I step onto my elliptical. Gyms, exercise videos, and weight-loss reality shows for example all typically have similar disclaimers such as "consult a physician before starting any exercise program." Even though we tend to ignore them, they're there!

Have you seen the one that reads: "stop exercising if you feel pain, faint, dizziness or shortness of breath"? This one may leave you thinking "you forgot sweat." Take it from someone who has gone from a sedentary to active lifestyle. I felt all of those things (still do on days when I do strength training for my legs)! I didn’t exercise to extreme pain, I never passed out, and I didn't feel severe pain, but certainly I felt all of those symptoms to some extent!

I’m sure many of you do what I did when I started exercising. I completely disregarded the warnings and started working out because I was tired of being overweight and unfit. I didn't want to overcome yet another obstacle by waiting to talk to my doctor. (Doctors are notorious for being bad patients, by the way.) Let’s get serious for a few moments and examine these disclaimers. Let's determine whether you actually need to consult with a physician before embarking on your exercise plan.
Should You Consult Your Physician Before Exercising?

I feel slightly conflicted: I ignored the ubiquitous warnings to consult my doctor before I started working out 140 pounds ago, but I’m encouraging you to take an extra step to visit a physician before engaging in an exercise program. I know that when the inspiration to change strikes you need to take advantage of it, but as a doctor I know it’s better to be safe than sorry.

Thankfully, most people who choose to disregard these disclaimers do not suffer any consequences. But, some people will find out that they have a heart condition during exercise, injure themselves, or exacerbate their existing medical conditions. They may not even realize that they are putting their health at risk by trying to do what they believe is the right thing. The rest of you will be relieved to know that you can start exercising without pulling out your wallet for a co-pay (and not sitting in the waiting room at the height of flu season). So how do you know which group you're in? Should you see your doctor or not?

The PAR-Q (Physical Activity Readiness Questionnaire), which is used by doctors, trainers and health clubs the world over, determines whether someone needs to take extra precautions when starting an exercise program. The questions below are based on that and can help rule out any underlying health concerns that could worsen with exercise. Answer yes or no to the following questions.

1. When you do physical activity, do you feel chest pain?
2. Have you felt chest pain in the last month when not exercising or being active?
3. Do you have balance problems (due to dizziness)?
4. Do you ever pass out (lose consciousness)?
5. Do you have problems with your bones or joints that could be worsened if you were active?
6. Do you take prescription medication for your blood pressure or a heart condition?
7. Have you been diagnosed with a heart condition?
8. Have you been told that you should only do specific, physician-approved activities?
9. Do you have any other problems that should prevent you from being active? (Smoking, high blood pressure, high cholesterol, type 1 or 2 diabetes, being overweight, being sedentary, current or recent musculoskeletal injury are all examples.)
10. Are you 69 or older?
Did you answer yes to even one of these questions? If so, then please contact your physician before starting an exercise program. (Note: These questions are intended for people under the age of 69, according to the American Council on Exercise. If you are 69 or older, you MUST consult with a physician before starting an exercise plan.)

While we're on the subject of exercise... what are the "official" exercise recommendations anyways? For healthy adults ages 18-65, the American Heart Association recommends getting at least 150 minutes of moderate-intensity exercise once per week. These exercise recommendations can be met through sessions that are 30-60 minutes 5 days a week or 20-60 minutes of vigorous-intensity exercise 3 days a week. If you're trying to maintain a healthy weight (or lose weight), you might need more exercise.

Exercise in the context of weight loss and maintenance is a frequent topic. The calorie-burning benefits of exercise are certainly important, but don't forget that exercise is important for heart health and to disease prevention. But, it's OK if you're doing it to get into your skinny jeans, too!

**What is the bottom line?** You need to assess your risk of causing yourself harm before starting an exercise program. Obviously, hearing warnings or seeing the fine print right before you start exercising isn't the most convenient time to think about whether or not you should be exercising. Take a couple of minutes right now to assess your risk. If you find that you are possibly at increased risk, then make an appointment with a physician. You are better safe than sorry. Don't use the above risk factors as an excuse not get checked out and to abandon your plan to start an exercise program. In most cases, you can get cleared for exercise with modifications. Even patients who have had heart bypasses can be cleared to do some form of exercise in many cases.

Birdie Varnedore, MD. Sparkpeople blogger, December 2011