

Exercise in Pregnancy

By Jeremy Johnson, MD

Pregnancy is an ideal time to start or continue healthy lifestyle habits like exercise. Years ago exercise during pregnancy was thought to be "dangerous." Women were advised to "avoid all strenuous exertion." Thankfully a lot has changed. Exercise in uncomplicated pregnancies is now recognized for its numerous benefits for both mom and baby. The following suggestions are meant to help you design a safe and rewarding exercise program before or during your pregnancy. In healthy pregnancies, exercise does not increase the risk of miscarriage, premature delivery, poor fetal growth or skeletal muscle injury.

Benefits of Exercise During Pregnancy

- Increased fitness for the "work of labor and delivery" as well as carrying around a new baby
- Lower risk of gestational diabetes
- Lower risk of cesarean section and vacuum-assisted delivery
- Lower risk of pre-eclampsia
- Decreased likelihood of varicose veins
- Faster return to pre-pregnancy fitness and weight
- Improved sleep
- Reduced back pain
- Decreased constipation

Body Changes in Pregnancy

Your body changes to prepare you for delivery and support the growing fetus. Body changes you may notice include: loosening joints, weight gain, major



shifts in your center of gravity (balance), and breathing difficulty. To stay healthy during pregnancy, adapt your workouts to accommodate these major changes.

The hormone changes in pregnancy cause ligaments around joints to become more loose so you may need to avoid high-impact and jerky or bouncy type exercise.

Weight gain and shift in your center of gravity can cause you to more easily fall so be sure to adapt your exercise to accommodate for this to lessen the chance of injury.

When you exercise, oxygen and blood flow are directed to your muscles and away from other areas of your body. While you are pregnant, your need for oxygen increases. As your belly grows, you may become short of breath more easily because of increased pressure of the uterus on the diaphragm (a muscle that aids in breathing). These changes may affect your ability to do strenuous exercise, especially if you are overweight or obese.

How much exercise is recommended?

According to the American Congress of Obstetricians and Gynecologists (ACOG), you should include 150 minutes of moderate intensity aerobic exercise per

week. 30 minutes per day, 5 days a week is reasonable for most people. Moderate intensity usually means you can talk but cannot sing during the activity. If you are new to exercise, you may even start with 5-10 minute sessions and build from there. If you were very active prior to pregnancy you should be able to continue exercise to maintain a healthy pregnancy, but if you start to lose weight, you may need to eat more calories.

What Medical Conditions Make Exercise Unsafe During Pregnancy?

Women should not exercise if they have the following complications during pregnancy.

- Certain types of heart and lung diseases
- Cervical insufficiency or cerclage
- Being pregnant with twins or triplets (or more) with risk factors for preterm labor
- Placenta previa after 26 weeks of pregnancy
- Preterm labor or ruptured membranes (your water has broken) during this pregnancy
- Preeclampsia or pregnancy-induced high blood pressure
- Severe anemia

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5 Tips for Exercise During Pregnancy

1) Adjust your goals: Rather than focusing on gaining muscle and losing weight, aim to maintain fitness and gain a healthy, but not excessive, amount of weight.

2) Keep track of your body temperature: Hydration and workout environment are the most important strategies for temperature control. Keep your body

temperature under 100.4 degrees, especially in the third trimester. Try exercising in a temperature-controlled area and avoid exercising in hot or humid conditions (including hot yoga, hot tubs, saunas). Have a goal of drinking 2-5 cups of water per hour of workout.

3) Keep track of your heart rate: You should be able to talk without getting short of breath. This is less than 70-75 percent of your maximum heart rate (estimated by $HR_{max} = 220 - \text{age}$). If you already perform a high volume of exercise, you can continue up to nine hours of exercise per week.

4) Modify your workouts as your body changes: Exercise should be comfortable. Major changes occur to your center of gravity and joint laxity during pregnancy. Therefore, choose activities with low joint stress such as swimming, stair climbing, walking, elliptical and stationary bikes.

5) Weight training is OK: Contrary to popular belief, weight training can be

very beneficial as long as you follow some principles:

- Breathe naturally. Avoid the Valsalva maneuver. This occurs when you exhale without letting air out. The Valsalva maneuver may temporarily decrease blood and oxygen flow to the baby.
- Work your core. Your core includes stabilizing muscles from your lowest rib to your knees. These muscles are on your front, side and back of your body, not just your abs! Back and hip pain tend to increase during pregnancy, exercises that brace the core can reduce pain.
- Use your muscles rather than momentum. Try not to “jerk” weights up, rather lift in a controlled way, being mindful of maintaining your core support.
- Decrease weight and increase reps: A good goal is 10-15 reps at 65-75 percent maximum lifting potential. This level helps maintain natural breathing and decreases stress on joints.

Shin Splints or Medial Tibial Stress Syndrome (MTSS)

By Donella Herman, MD

Presentation

MTSS or “shin splints” often time present as generalized pain on the inside of the lower leg bone during exercise. Many associate this injury with runners, but it can occur in many activities, including but not limited to tennis, soccer and dancers. The underlying cause of MTSS is often multifactorial. Athletes often develop pain after a change in running or playing surface, changes in footwear, or sudden increase in how much or how hard they are exercising. It can stem from changes in these external factors but may also be an indicator of flat feet, lack of flexibility, weak lower leg muscles or a weak core. Athletes will notice the pain when first starting their workout. Sometimes the pain will improve with continued activity but sometimes it is strong enough that they have to stop their exercise.

Treatment

Most of the time shin splints will heal with simple treatments that can be done at home. Rest is important to reduce the stress on the muscles and bones. Low impact cross training, such as an
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elliptical or swimming, can allow athletes to continue to condition while decreasing the stress on the shins. Athletes should adjust their workouts based on pain; if pain is worsening, they are likely doing too much. They can also use ice after activity and over the counter pain medications as needed to reduce pain. They should also make sure that their shoe has enough support for their foot type. Adding an over the counter arch support may help to improve symptoms.

There are also simple stretching and strengthening exercises that improve symptoms and can help them return to activity. Stretching the calf muscles by dropping the heel off the edge of a step is one good stretch that can be held for 10 seconds and repeated 2-3 times.

Stretching the front of the ankle may also improve symptoms. This can be done by kneeling on a soft surface with your legs/feet together and toes pointing back and slowly sitting back onto your calves until you feel a stretch on the front of the ankle. By simply sitting in a chair and writing the alphabet in the air with your big toe, one can improve range of motion and strength in the ankle, which can improve MTSS as well as prevent it from happening again.

Prevention

To prevent shin splints athletes should focus on maintaining good flexibility along with ankle and core strength. They should also take caution when increasing their activity. For example, runners should never increase their mileage more than 10% a week to allow the muscles to adjust to an

increase in training. All athletes who are recovering from shin splints should be careful to ease back into their activities to prevent them from happening again. Being mindful of shoe wear during activity as well as training surfaces can also help athletes avoid developing shin splints.

When to seek medical help

Several other conditions can cause pain in the lower leg with activity, including compartment syndrome and stress fractures. If you continue to have pain even after rest, stretching and a slow progression back to activity, you should seek the advice of a sports medicine physician to see if you need further diagnostic testing to rule out other conditions.

COACH'S CORNER

Coaching an Athlete Through Injury

By Stephen Shaheen, MD

Athletes and coaches alike are heavily invested in sports in many aspects of their lives. Injuries can affect everyone; not only are they rarely expected, depending on age and experience they can also provoke stress responses in all details of well-being. Understanding these responses and why they occur can help facilitate fast recovery without lasting detriment and get athletes back to play.

A large component of the injury recovery process requires those involved to step back and recognize the role of sport in the athlete's life.

1. Sense of Identity: Athletes, especially by the high school and collegiate level, have invested significant time and energy into their athletic pursuits. It is an important part of who they are both on and off the field.

2. Self-esteem: In general, sport is something that provides a challenge and medium for continual improvement. Overcoming these obstacles is a source of great accomplishment and happiness – after all, it is a game.

3. Stress management: Multiple studies over the years have repeatedly shown that physical fitness is an excellent source of stress relief. For many, it is the primary outlet to deal with difficult social situations by providing opportunity for escape, whether it temporary (e.g.



through a run) or more permanent (e.g. athletic scholarship).

Injuries can create voids in an athlete's life. Time, self-worth, teamwork – all of these become major questions as both practice and games are put on hold and potentially less-skilled players move up the depth chart in their absence.

The expectation of return to play can be less anxious for those with prior injury but it is still important to anticipate the stressors involved.

On the athlete side, **allow yourself to be sad**; you've invested an

enormous amount of time and effort - acknowledging that is a large part of the healing. **Accept the injury** and don't focus on the things that could have changed the situation surrounding it. Take the injury as a challenge by **setting new goals** for your recovery process. Most importantly, throughout the recovery, make sure that a **positive attitude** persists; negative feelings contribute nothing to the process and will only get in the way of your healing. To whatever extent possible, **stay**
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involved with the team and practice. Whether the work-out is mental or physical rehabilitation (as approved by your physical therapist) it will only serve to help keep your mind sharp and body ready. Don't be afraid to accept, or even request, **the help of your teammates and coaches**. You are a large part of their lives and most would do anything they can to help. If the injury is career-ending, **consider using the skills you've picked up in another field. Never be afraid to admit when your mind isn't in the right place** – sports counselors and psychologists exist to help players

through all aspects of competition and a significant part of that is mental preparedness. Finally, **be patient**. Injuries take time to heal so don't rush yourself back to service or you'll risk a poor outcome.

From the coaching standpoint, **empathize with your player** and allow them to share their emotions without encouraging unsafe return to play or self-pity. Reach out and help them understand that they still have value by **building up their self-esteem** – really let them know that you care about them as much more than a jersey. This can be accomplished by **finding a new role**

on the team to keep them involved. In addition, this **avoids the isolation** in which some athletes find themselves when they cannot participate. When the time comes, under proper supervision, **allow them to practice** – whether it be mental or physical. Finally, if things become more permanent, **embrace other places of personal strength and be quick to recognize signs of depression or thoughts of self-harm**.

Adapted from the "Mental side of athletic injuries" by Alan Goldberg. <https://www.competitiveedge.com/rebounding-injuries-0>

Choosing Wisely®: Avoid Performing Plain X-Rays in Instances of Facial Trauma

By Ryan Freedman, MD

Choosing Wisely® is an initiative of the American Board of Internal Medicine and is supported by multiple medical societies, including the American Medical Society for Sports Medicine. Each society was asked to contribute five diagnostic tests or treatments that both physicians and patients should question. The highlight this issue is the American Society of Plastic Surgeons' "number 4" recommendation: Avoid performing plain X-Rays in instances of facial trauma.

In the United States, over 150,000 patients present to the emergency department with facial trauma every year. Many of these patients are evaluated by trauma teams or emergency physicians with trauma protocols for evaluating injury. The same injuries can affect athletes. These injuries are common to many athletes in both collision and non-collision sports. An athlete can be injured in contact with another player, the ground, or with athletic equipment. Evaluating these injuries in the clinical setting has been controversial in the past. Aside from a thorough history taking and physical examination, there has been debate as to what imaging is most appropriate. Imaging is often required to detect the

presence of any bony injury.

Presently, most trauma centers have easy access to maxillofacial computed tomography (CT). It is the most sensitive test to detect a break in the facial bone structure (fracture). This means it has the lowest chance to miss finding a broken bone. Previously, many physicians have used x-rays as a screening tool to identify injuries to the face. The drawbacks of using x-rays for facial injuries are multiple. Not only do x-rays miss many bony injuries, they will need to be followed by a CT scan to fully evaluate the extent of an injury if it is seen on an x-ray. This exposes patients to increased cost and unnecessary radiation. X-rays have been shown to not improve quality of care. Alternatively, the advantages of a CT scan include the ability to define the complexity of a fracture, three-dimensional reconstruction to help identify fractures and plan for surgery, and allows for a more complete diagnostic evaluation.

Instead of an x-ray, experts recommend physical exam as a screening tool to determine which patients need to have CT imaging. If a physician sees something concerning on examination of a patient, the first step should be to

obtain a CT scan to evaluate the facial bones. If the patient is seen in a clinic setting and there is concern for a fracture of the face, there is still no benefit to obtaining an x-ray. This patient should be referred to the emergency department for evaluation if necessary.

There are still some uses for x-rays in the setting of a facial injury. If a physician is concerned about an isolated injury to the jaw or teeth, x-ray still has a role. In this setting, a CT scan is not necessary as plain x-ray has a low miss rate for these types of fractures. For facial injuries, the current expert recommendations for evaluation of someone with a facial injury is to perform a thorough physical exam. If a more serious facial injury is suspected other than an isolated jaw fracture, the first imaging that should be performed is a CT scan of the facial bones.



Choosing Wisely®

An initiative of the ABIM Foundation

Editor-in-Chief: Jeffrey Bytowski, DO AMSSM is a multi-disciplinary organization of 3,000+ sports medicine physicians dedicated to education, research, advocacy and the care of athletes of all ages. The majority of AMSSM members are primary care physicians with fellowship training and added qualification in sports medicine who then combine their practice of sports medicine with their primary specialty. AMSSM includes members who specialize solely in non-surgical sports medicine and serve as team physicians at the youth level, NCAA, NFL, MLB, NBA, WNBA, MLS and NHL, as well as with Olympic teams. By nature of their training and experience, sports medicine physicians are ideally suited to provide comprehensive medical care for athletes, sports teams or active individuals who are simply looking to maintain a healthy lifestyle. Find a sports medicine physician in your area at www.amssm.org.