Preventing Athletic Pubalgia and Chronic Groin Pain in the Soccer Player

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The Many Causes of Groin Pain

There can be pain in the hip area because of the many different structures there. You have glands that fight off infection plus muscles and tendons located in your upper thighs under the crease of your thigh and abdomen. There is a lot going on in this area. Adding to the situation in highly competitive soccer, even the articulating surface of the hips can cause some pain. With all this it's really hard to differentiate what the pain might be. Is it an articulating surface? Tendonitis? Rupture of a muscle or tendon? Or is it a situation where a tendon separated from part of a bone? There are many causes of pain in this very mobile area. As a coach, to call it pubalgia in the training room or on the soccer field is hard to do. It might be a strain or tendonitis of an adductor, which pulls the hip in. It might be a hip flexor, which brings the hip forward. It might be a pubalgia-type injury where you have strain of the abdominal wall and structures of the lower abdominal area; however, it's hard to determine. It's vague, and that's why you want to have a doctor look at these symptoms early on. A lot of the injuries we think are just muscle strains can be much more than that. A doctor should definitely get involved to help diagnose an injury and give the athletes, coaches and trainers the necessary information for proper therapy.

How Injury Becomes Chronic and When to Seek Medical Advice

If someone has a pain in the groin area, takes a few days off and works back into playing shape, typically this is muscle strain. If s/he stays within his/her limits, the pain will dissipate and go away. But, if an athlete's pain continues for a week or two and becomes chronic, and inflamed tissue becomes chronic inflammation, remaining active will result in weakening the tissue and causing more of a tear. There is greater possibility of a rupture because this area is now weaker.

Pain is an inhibitor. When one strikes the ball in soccer, pain inhibits the muscles from working properly. Other structures of this area of the joint are forced to pick up the slack. We call it a compensatory injury. The other muscles have to compensate for a weakened area. This is when you get other problems with the lower back. You may change your running mechanics and then your knees start bothering you. A lot can happen depending on how bad it is. The most important thing is that you realize if something is still bothering you after conservative treatments or even more dramatic treatment, and it lasts for more than a few days or a week, then you are getting into a chronic situation where the tissue is being damaged repetitively. This is where you get into the situation of hernias, overuse injuries, and other structures becoming involved because your mechanics and mobility have changed due to pain and weakening of the groin area.

In the past this type of injury has been overlooked. The pubalgia and hernias of the adductors or hip flexors were probably overlooked earlier because we thought it was hip flexor strain. But it is a prevalent injury in this league. Soccer athletes, because of the way they kick the ball, sprint, plant and cut, are prone to overuse injury. It is something that needs to be taken much more seriously by coaches and parents because there are a lot of kids out there with anterior hip, groin and lower abdominal pain, which we tend to brush off as a strain. It could be much more than a strain, however, and that is why we need to bring in a doctor to check out these types of pain. For young athletes, say kids in their teens, if they damage this area early, it's going to be a weakened area later in life because of scar tissue buildup. If it's not taken care of in professional athletes, it could be career ending.

It All Starts With The Core

Everything works from the hips — upper body motions, legs and everything these areas do. The hips are your core. That is why athletes should work on core stabilization, because everything works off it and if one is tight or out of balance, problems start to occur. You have to do balance and stabilization work on not just the hip flexors, but also the hamstrings. You have to work on the
abdominal muscles as much as the back muscles because all these muscles are fighting for the privilege of pulling your hips in one direction or the other. If these structures are out of balance, too tight, or one area is weaker than another, you're headed for injury. It's like a tire being out of balance. As you drive, it starts wear and tear on the tire. It's the same thing with the hip joint. If the hamstring strings are tight, they start fighting with the hip flexors to pull the hips backward, which causes low back pain because everything focuses on the abdominals coming down to the front part of the hips. The hip flexors, hamstrings and lower back muscles are all fighting for the privilege of pulling the hip joints. You have to work on balance for all those structures. You have to look at all these structures that work hand in hand.

**Why These Injuries Are So Common In Soccer**

Eccentric loading plays a huge role in the kicking action. When your leg is back and you're coming through the ball, your quadriceps are concentrically reloading (shortening) at impact with the ball. You can't see this unless it's in slow motion; however, you see an enormous change in the shape of the ball as the stress passes through the ball into the hip. Those muscles were concentrically loading and when they hit the ball, there was an immediate ballistic movement within the muscle.

At a microscopic level, they are going into an eccentric (lengthening) loading for just a split second. Then all of a sudden, they go back into concentric loading, and it's this ballistic change from concentric to eccentric back to concentric, this impact, that really stresses at the microscopic level causing tearing, which can weaken the tissue in an overuse situation and this leads to more inflammation and weakening of that tissue because of the ongoing inflammation. It's a vicious cycle. This is when we have a problem with tearing, herniating and scar tissue build up, because of microscopic tearing of the fibers. It's important not to get confused. We're not talking about a muscle tearing at the moment of impact. That's an acute injury when someone kicks something hard or gets hit and tears a quadriceps or rips a tendon off the bone, which are considered acute.

Chronic microscopic tearing continues over time and that's where you get the overuse syndrome of the body never getting a chance to repair itself. Then you go out the next day and it's damaged again, and then the other structures have to compensate for that weakness, and that's when you start seeing the other muscles/structures getting out of balance, because now that weakened tissue has set things off. That is why quick assessment by a trainer, with the help of a doctor, is needed to determine an exact diagnosis. Then you can begin conservative treatment before getting to the situation where you have to do more dramatic treatment. This is the protocol you follow with regard to rehabilitating this type of injury before getting to a situation where you might have to have surgery. Research shows that this condition is seen mostly in males and rarely in females, probably due to an inherent weakness of the inguinal canal musculature in males.

**Prevention**

Prevention starts with the exercises, be they stretching or strength training. Prevention may be early detection. Obviously a tough schedule, if you're always playing at a high level, will cause problems. Coaches should consider the type of practice they have. If you end up spending two hours kicking, such as wingers or forwards who are always coming in and constantly kicking from the right or left side of the goal across for someone to do headers. Continuous, repetitive activity like that at a high level is obviously going to cause problems. Varying the types of activity throughout practice sessions is important.

Beyond practice you need to talk about competitions and their intensity and frequency. This is where good coaching and good scheduling comes into play. You know if you have two games in a week, you have to alter your practices so the athletes can rest their muscles and replenish, in order to avoid fatigue. They need a chance to repair themselves and progress and enhance their ability for the next day. Obviously, when you have a game on Saturday and another scheduled for Wednesday, you're not going to train two hours every single day. You'll give the athletes that first day after a game to flush their bodies out, stretch, maybe do some jogging to get the lactic acid out, then you hit it hard on Monday, lighter on Tuesday and then you've got a game.

Scheduling takes in games and practices because the practices should reflect your games and how you get ready. Different coaches have different philosophies. Some coaches are really good about considering recovery time, and that's really important. Preparation is something that is neglected until there is pain and sometimes it can almost be too late.

To repeat, because this is really important, practice should be structured so you're not overusing the muscles in the groin area. Also, after practice when your muscles are really warm from contracting and relaxing over a period of time, take the time to really stretch the muscles. If you feel discomfort in the groin area, be quick to ice it after practice. If soreness continues for three to seven days, it may be wise to seek the help of a doctor or trainer. To summarize, always start with a good warm-up, design good practices doing different activities, and make sure you stretch out afterwards. Add a strengthening program to balance those muscles.

**Warm-up and Flexibility**

Your body is like a car — you don't jump into your car and floor it. You turn it on and let it run for a couple of minutes. When you let it lubricate itself, it's going to perform. Otherwise, it sputters down the road for a little bit or there's wear and tear on the engine. Your body is exactly like that. As the body heats up, lubrication of the joints starts to take place, circulation increases and the core temperature of your muscles deep within the tissues begins to rise. You do this with activity. Most types of hot rubs are not going to go too far into the muscle. As a topical agent, it feels like it's hot but it's really not doing the job needed. Hot packs probably go a little bit deeper, but still don't get to the core of the muscles. Warm whirlpools are very good because they are circumferential in that they run the whole joint, not just the front or side of the leg. But, who has the opportunity to jump into a whirlpool before practice? Your best bet is a progressive movement to get the blood circulating, raising the body temperature from inside out. That's
when you are going to get your deep muscles more prepared for the upcoming activity.

Stretching is key. As temperature of your muscles goes up, they become more pliable. Think of muscles and tendons like taffy — the more you heat it up, the more it stretches out. If cold, it becomes brittle and breaks. That's why I use the taffy analogy in regard to muscle fibers. The more you warm it up, the more pliable it is. Obviously, when properly warmed, your muscles are going to be a little more forgiving when you make that first impact with the ball. If they are cold, brittle and not prepared when you start kicking, chances are that the fibers are not microscopically prepared, which can result in micro tears.

Stretching should be balanced. We talked about the core and how your whole body works off the core; i.e., your hip joints, hamstrings in back of the leg, quadriceps in the front, abdominal muscles in front of your hips and lower back muscles connecting to your hips. If one of those is too tight, it is going to offset the other structures. So, make sure that you have good stretching exercises for hamstrings, hip flexors, low back muscles, abdominal muscles, and for the adductors and groin muscles, because they all work off a very mobile joint.

Stretching one area and not the other is totally detrimental. For example, people usually don't stretch out their hip flexors but do stretch the hamstrings. Hip flexors pull the hip joint forward, the hip joint rotates forward, the stretched hamstrings allow that to happen, and you see a curvature in the spine. This is where you get problems with discs in your lower back. All of a sudden your back is out of line. It's all about balance.

**Strength Training**

There are many exercises that can be done for strength training. You can use leg weights or tubing. To strengthen the groin area it's important to train one leg at a time. Tubing works well. It allows you to easily do hip flexion, hip extension, abduction and adduction. Using tubing, I do exercises that I call four-way stabilization. Four-way stabilization is important because the leg you are training is the one on which you are balancing. Tubing forces you to do this when the leg you are balancing on is the one on which you are doing the work.

The same concept of stretching, working all the muscles of the hip, applies to strength training. It's the same process of getting the body prepared for what it needs to do and it's got to stabilize the joint. We talk about core stabilization and everything works out from the core. If one muscle is really strong and another weak, you will again find yourself in the situation of not being symmetrical but rather, being out of balance.

How you work in your strength program is a matter of choice. A lot depends on the level of athletes with whom you are working. You have to realize that the body is going to do only so much. But if you want it to do more and be able to work at peak performance, you must take the time to do strength training. At the MLS level, athletes might do three sets of some exercises up to 25 repetitions or to fatigue. This is an individual choice. Forwards are going to be different than goalkeepers. The fact of the matter is, what you put in is what you'll get out. If a person just wants to play on weekends, s/he is not going to play at a very high level and may never experience groin problems. We know that groin injuries and athletic pubalgia are very common in high level, elite athletes because of the demands they put on their bodies.

Tubing exercises can be done every day. You would never do this with traditional weight training programs that are done in a gym. We're not talking about loading up the muscles with a lot of weight; we're doing high volume activities just to work these muscles. Also, it's going to depend on how much work you put in at practice and your competition schedule. It comes down to how much recovery time you're going to need. It's all individual.

**Beginning Level Considerations**

Beginning level athletes who want to begin working on strength exercises can start before practice. Since they are high volume, these exercises can be part of warm-up because they are going to increase circulation and not fatigue you enough that it will affect your practice. Or you can do it after practice. The athletes may really be tired so you can do it later that day. With tubing exercises, even with beginners, you can do them every day. The demands aren't that great and the benefits are there.

**Advanced Level**

At this level we do a lot more exercises focused on the hip area, which means certain types of running, agility drills and plyometric work. We have a program we go through that could be an hour long. We can do this because in the training room of an elite professional organization you have whirlpools, hot packs, massage to increase circulation, and ultrasound to work deeper in the tissue. We have more tools to do more work and recover faster.

**Stretching Program for Prevention of Athletic Pubalgia and Chronic Groin Pain**

**LOW BACK STRETCH**

**Action 1:** Lie on back on a bench or the ground. Grasp a knee and pull to the chest creating a good stretch in the lower back area. Repeat with the other leg. Then do with both legs.

**Action 2:** Sitting upright bring ankle over knee that is straight on the ground or bench. Place opposite elbow over the knee thus stretching the rotational muscles of the back.
ABDOMINAL STRETCH
Action: Lie on stomach on a bench or the ground in a push-up position. Extend the arms at the elbows. Try to keep hips on the ground or bench thus isolating the muscles in the abdominal region.

GROIN STRETCH
Action: Sit on a bench or the ground. Feet are placed together and held by the hands. Feet are pulled toward the body, hold this position. From this position try bringing the knees down to the ground.

HAMSTRING
Action: Place heel on a bench, leg straight, hand outstretched. Bend at the hip trying to touch the hand to the toes. Repeat in the other direction.

HIP FLEXOR
Action: Place arm overhead, touching the opposite shoulder. Step forward to lunge position, bending at the knee.

Strength Training Program for Prevention of Athletic Pubalgia and Chronic Groin Pain

FOUR-WAY STABILIZATION
Start: Secure the tubing around a solid object and your ankle. Walk to a point where the tubing is stretched enough to allow you to balance on one leg. Stabilize the hip of the leg on the ground. This is the leg that will be trained. Raise the other leg slightly in the air, knees bent.
Movement: Bring the leg in the air back and forth by doing small oscillation movements. Face forward when doing oscillating movement and do one-quarter turn. Repeat oscillating movement, then face back repeating the oscillating movement. Do one-quarter turn; repeat oscillating movement, completing the sequence. Do four different ways.
Per form 25 reps in each of the four positions, then do opposite leg.

FOUR-WAY HIP TRAINING
Start: Secure the tubing around a solid object and your ankle. Walk to a point where the tubing is stretched enough to allow you to balance on one leg. Stabilize the hip of the leg on the ground, knees bent.
Movement: Perform hip flexion, hip extension, abduction and adduction.
Coaching Point: In this exercise, the leg where the band is attached has a greater range of motion than in the four-way stabilization exercise where the stabilized leg is doing the work. The key is how much resistance the tubing provides. In the four-way stabilization exercise there is greater tension so the stabilized leg has to work hard to hold the position. In this exercise it's less as the leg can achieve a full range of motion.
Per form 25 reps in each of the four positions. Do opposite leg.

V-UPS
This exercise strengthens the core area
Start: Lie on back on a bench or the ground. Only the buttocks are in contact with the ground or bench. Knees are bent, back straight.
Movement: Simultaneously bring the knee and chest together, trying to touch.