

THE LOWBACK LOWDOWN



"IS IT MY DISCS?" CONDITIONS OF THE LOW BACK

BY ALYSIA HENDERSON, MS, LAT, ATC

When evaluating a patient's back in the training room, I have found that 75% of the time, I will have to reassure the patient that their injury is not a disc herniation. The question, "is it my discs?" is quite the popular one among patients, and I can see why. When we watch television shows or movies we hear all different kinds of jargon about the low back and our intervertebral discs. Fictional doctors on screen diagnose their patients with "disc ruptures," or "slipped discs," making the condition sound grave. For a young physically active individual, a disc herniation seems like the worst physical activity ending injury, but lucky for them, most disc herniations occur in individuals between the age of 30-50 (2).

Even knowing to expect this question, I still find it rewarding seeing a patient's look of worry turn to relief and note the sudden sense of calm in the room. From there, I then go about educating the patient on what their actual low back pathology is and what the athletic training staff can do to help them. This edition of "The Low Back Low Down," will go over a few of the most common low back pathologies, ranging from soft tissue, bony, congenital, and joint dysfunctions. While the conditions discussed may not be exhaustive of what Thomas and I see in the training room, they are common conditions the public hears about and the ones we assist in diagnosing.

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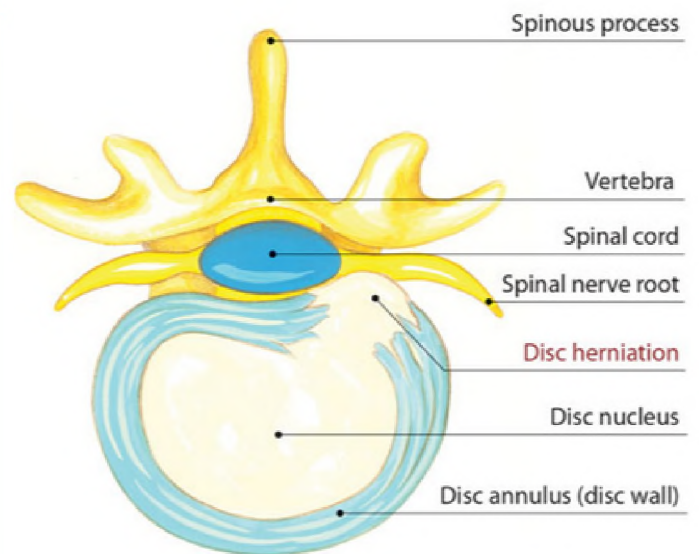
SOFT TISSUE PATHOLOGY

Soft tissue pathology is defined as a disease or injury to any soft tissue, including muscles, ligaments, connective tissue, tendons, fascia, and adipose tissue, basically anything not bone. In the training room, strains are the most common low back injury we diagnose within this category. Disc herniations will be classified within this category as a discs' dense collagenous form is still a soft structure. Contusions to the low back are also injuries that affect the soft tissue.

Strains: Strains of the low back occur in the extensor and rotator musculature and can be acute or chronic in nature (5). They can feel debilitating, causing a patient to experience aches and pains centralized over the affected muscle when a movement or stretch is performed. Within our patient population here at UMD, strains are typically reported following lift days in the gym.

Sprains: Sprains of the low back affect the vertebral ligaments or ligaments at the facet joints, but can really only be diagnosed after the exclusion of all other injuries has occurred (5). With ligaments being such fine and small structures, it can be hard to determine if an injury is a back sprain initially, therefore orthopedic and range of motion testing to bones and muscles must be thoroughly performed. In some cases, referral for imaging may need to be completed as well.

Disc Herniations: Disc herniations or extrusion of the nucleus pulposus, is a condition in which the nucleus pulposus (center of an intervertebral disc) leaks out from the annulus fibrosus (outer ring of the intervertebral disc) causing back pain and radiating sensations of burning or stinging if the protruded nucleus pulposus compresses on a nerve or the spinal cord (2, 5). Disc herniations often begin as a result of aging. As we age, our intervertebral discs begin to dehydrate leading to the herniation of the nucleus pulposus (2, 5). Disc herniations can also occur due to repetitive loading forces or trauma over time (5). In an athletic population, disc herniations can plague gymnasts and crew athletes who find themselves in moments of repetitive hyperextended positions.



Herniated Disc

Contusions: Contusions, or bruising can affect both soft tissue and bones and occur as a result of a direct impact or blow to the back. The soft tissue and bone will often develop signs of ecchymosis (discoloration or darkening of skin due to bleeding), pain, inflammation, and point tenderness over the area. In the training room we often see contusion injuries afflicting our high impact club participants on the rugby and ice hockey teams. It is also important to remember that after a direct blow to the low back, the kidneys, ribs, and other internal organs should be assessed (5) to rule out a more serious injury.

BONY PATHOLOGY

Bony pathology is defined as a disease or injury that affects the bones in our bodies. Injuries that come to mind when thinking about low back bony pathology are fractures, spondylopathies, and contusions of the bones, especially at the coccyx in active high impact populations. Injuries to bones typically arise and require more force leading to injury than that of soft tissue, however that does not make these pathologies any worse or life altering. Luckily with time and the proper instruction, recovery is possible (5).

Vertebral Fractures: The lumbar spine is an incredibly strong structure with decreased range of motion due to its function in supporting the weight of our upper bodies, therefore it could be easy to think that fractures in the low back aren't common. Stress reactions leading to a stress fracture however are the most common bony injury in athletes (5). If a vertebral fracture is diagnosed it is almost always due to a traumatic incident or happens over time with repetitive trauma and age (osteoporosis) (3). As I mentioned previously in the first article of "The Low Back Low Down-The Evaluation," vertebral fractures can almost always be ruled in as a possible injury if there is pain directly over a spinous process, which can indicate a compression or burst fracture (5).



Coccyx Injuries: The coccyx typically suffers from contusion type injuries that occur as a result of a fall or trauma (kick) to our low back/bottom. Coccyx injuries are cared for very conservatively with imaging, rest, and padding over the area to relieve pain and pressure.

Spondylopathies: Spondylopathies is a catch all term to describe a disorder of a vertebrae posteriorly(5). Spondylopathies can be classified in 6 different ways, all defining a specific condition of a vertebrae. These classifications are spondylaigia, spondylitis, spondylizema, spondylolisthesis, spondylolysis, and spondylosis. These injuries cannot be diagnosed without imaging, but affect patients of all ages and activity level or sport. Often repetitive forced hyperextension or rotation through the low back will lead to an inflamed, arthritic, fractured, or displaced L4-L5 and L5-S1 vertebrae. In our training room, patients who participate in hockey, gymnastics, cheer, wrestling, and golf may be who we would expect to see with this condition. However, while working previously in my career with a men's basketball team, one of my former players did sustain a season ending spondylopathy, demonstrating that this condition can indeed affect anyone. It was difficult for the player to move or rotate his body while playing as a forward, it was a strange sight! As the season went on, it was almost as if the player would become frozen in place during random points in the game. With his pain and stiffness becoming so bothersome, an xray was taken finally revealing the spondylopathy.

CONGENITAL ABNORMALITIES

Congenital abnormalities describe structural and functional disorders of a body part that arise during development in the uterus. When born, an individual may or may not have a visible structural deformity. In the low back, congenital abnormalities can be diagnosed with imaging, however visible signs and symptoms can also be tell tale signs of a congenital issue. In the condition of spina bifida occulta, there is an incomplete fusion of the vertebral arch, or gap in the spine (4, 5). This type of spina bifida is considered a mild form and often goes undiagnosed in individuals as disabilities and neurological symptoms do not seem to outwardly affect people. One prominently learned sign of spina bifida occulta is Faun's beard or a tuft of hair located on an individual's low back (5). This sign is one Thomas and I have noted in a few of our patients, but has never defined the injury they happened to have come into our clinic for.

Examples of other congenital abnormalities are stenosis, or a narrowing of the vertebral or intervertebral foramen which leads to radiating pain and neurological symptoms and Bertolotti Syndrome which describes a fusion of the L5 transverse process to the sacrum (3,5). Scoliosis when structural in nature, is another example of a congenital abnormality in which a lateral curvature of the spine is present due to an anomaly of the vertebrae (5).

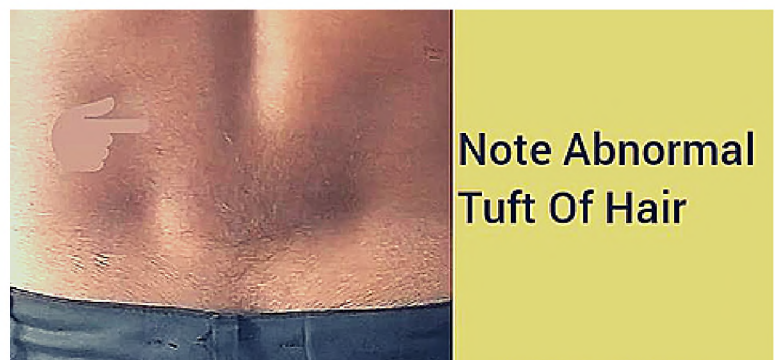
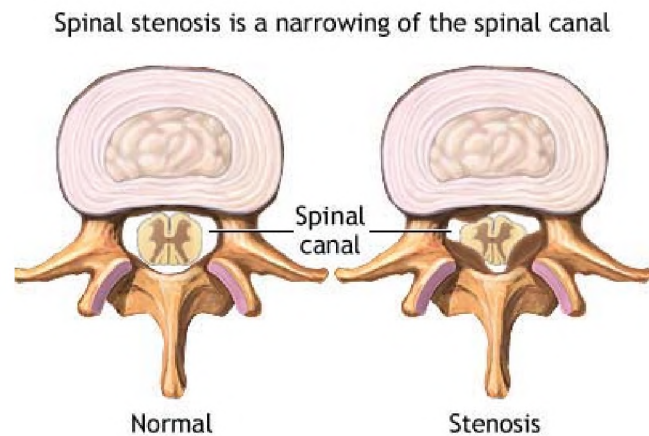
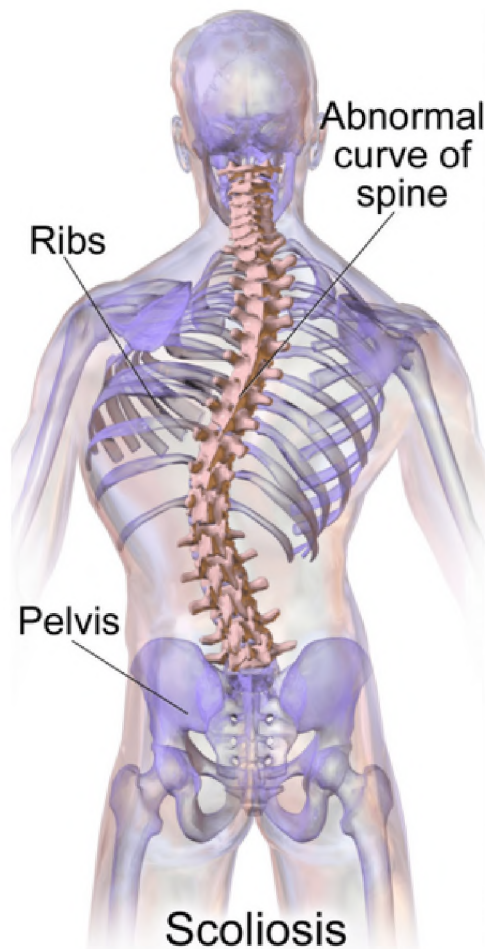


Image: Faun's beard pictured above.

JOINT DYSFUNCTION & CONCLUSION

Dysfunction at a joint can be painful and elicit both bilateral and unilateral pain and neurologic symptoms to the affected area. One of the most common forms of joint dysfunction occurs at the sacroiliac (SI) joint. SI joint dysfunction can cause an individual to note radiating buttock, groin, or thigh symptoms (5). Positional faults, or non-neutral posture at a joint space, in this case at the ilium and sacrum leads to these symptoms. Tight hip flexors and hamstrings can also lead to dysfunction as a result of rotational displacement at the SI joint (5).

As you can see, there are many classifications of injury and pathology when learning about the low back. From intrauterine development to the active days of our youth and all the way through to our older and natural deteriorating days, our low backs are susceptible to various injuries and conditions. Yes, at times the pain may feel excruciating or stop us in our tracks, but the best news of all is that every condition addressed in this article can be rehabilitated or managed to relieve what we are experiencing. Treatment options are bountiful and are what Thomas and I look forward to sharing with our readers in the next few articles of our “The Low Back Low Down” series. We’ve taken you through the low back and its problematic nature, anatomy, and the evaluation process and now can’t wait to give some insight on treatment/solutions.



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Alysia became RecWell's head athletic trainer with the program's inception in the Fall of 2018. To contact her with your injury questions or get in touch with any of the [other athletic training staff please visit RecWell Athletic Training](#)



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