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Sports Injuries

Herniated disc

When Jose Canseco underwent surgery earlier this season for a herniated disc in his back, he was leading the league in home runs and enjoying one of his best campaigns ever. Canseco is just one of many athletes in a number of sports who have been afflicted with disc problems -- most notably Randy Johnson, who has seemingly made a complete recovery from back surgery in 1996.

What is a herniated disc and how does it differ from a healthy disc in the back? For answers to these and other questions, join Dr. Robert Watkins, a member of the [Association of Professional Team Physicians \(PTP\)](#) and a spinal consultant for many Los Angeles-based teams, as he discusses the causes of herniated discs and what can be done to prevent and treat this painful condition.

What is the structure of a disc?

Dr. Watkins: The disc is a round, multi-layered ligament that connects two vertebral bodies together. The fibers of each of the layers are crossed like a basket weave and are at different angles to provide strength and support. Additionally, it has a type of hydraulic center that serves as a shock absorber.

What is a disc's function?

Dr. Watkins: The main function is that this is a ligament, just like the ACL (anterior cruciate ligament) in the knee or the rotator cuff in the shoulder, and it's a key part of one of the joints in your back. Each level in the back is a different joint; L4-5 in your back is a joint just like your knee or your shoulder. So herniated discs are joint injuries.

What causes a herniated disc?

Dr. Watkins: The most common cause is a twisting type of injury. It can be caused by a fall or lifting something heavy, you can have compression injuries that cause it, but predominantly it's twisting type of injuries.

How does a disc become herniated?

Dr. Watkins: You tear the annulus -- the basket-type, supporting structure of the disc -- the disc, by twisting. This weakens the structure and makes it work abnormally. A herniation is when you have what is like a "blowout" of the annulus.

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Jose Canseco was having one of his best seasons before back surgery.

The inner layers of the annulus will break off and come out through the tear. A piece of the annulus of the disc itself ends up in the spinal canal.

What are the symptoms?

Dr. Watkins: Most herniated discs start with this tear in the annulus of the disc, so a patient will experience severe back pain and spasm. Then as the tear increases in size or as the piece on the inside of the disc extrudes out of the disc into the spinal canal, the back pain will decrease. The person then can start experiencing leg pain, weakness, numbness and sciatica depending upon which nerve the fragment is pressing upon.

What are the treatments?

Dr. Watkins: The initial non-operative treatment that we use for herniated discs is to first reduce the inflammation. We do that with non-steroidal anti-inflammatory medication, short-term doses of anti-inflammatory steroids or through epidural injections where an anti-inflammatory steroid is injected into the spinal canal or around the irritated nerve.

The second step in non-operative treatment plan is to begin a very specifically designed back-rehabilitation program called a trunk stabilization. As you go through this program, the disc can heal, the disc fragment can be pushed away from the nerve, the body can produce a membrane that covers the fragment, the nerve can change shape and people can get well from a disc herniation non-operatively some of the time.

The way you assess a non-operative vs. a surgical treatment plan is by using the size of the fragment and other clinical findings, but sometimes the pain is just too intense. If this is the case, we operate very early on disc herniations all the time because of the combination of pain and weakness. It's usually a minimally invasive microscopic or endoscopic procedure that protects the normal tissue as much as possible and makes it more meaningful for rehabilitation purposes as well. Then once surgery is complete, we start the patient on the same trunk strengthening program as soon as seven to 10 days after the operation.

Can herniated discs be prevented?

Dr. Watkins: Every strength and conditioning coach who works with athletes has some sort of trunk or core strengthening type of program that varies according to the sport. We've done research with baseball pitchers and hitters and PGA golfers, many different types of athletes, that shows that the role of coordinated trunk strength is a vital part of athletic performance and prevention of back injuries.

I think it's very important that the techniques of training and playing a sport be designed around protecting your spine. With this in mind, you have to incorporate the coaches and trainers so that everyone is working towards the same goal.

What is the prognosis for these injuries?

ASSOCIATION OF PROFESSIONAL TEAM PHYSICIANS

ASK THE PRO DOC

Q: *I'm 21 years old. I broke my right ankle in middle school and have sprained it countless times since then. I'm active in recreational sports in college. Rubber bands do not seem to strengthen the ankle enough. Can you suggest other exercises that will help me? Will I always have this recurring problem?*

-- Ismail Curtis, Ann Arbor, Mich.

A: From Dr. Preston Wolin, team physician, Chicago Fire:

"If the ligaments are stretched as a result of multiple sprains, the problem may well recur. Alternatives includes braces that can be bought at surgical supply stores or sport stores. An orthopedic sports medicine evaluation would determine the other alternative, surgery. If eventually needed, surgery has an excellent success rate. One new procedure is entirely arthroscopic."

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Dr. Watkins: We've sent an athlete back to just about every position in every sport after a microscopic discectomy, which is the common operative procedure for a herniated disc. So I think the prognosis is excellent. The key is the rehabilitation program. If we do a microscopic discectomy on an athlete, the basic plan is that at an appropriate time after surgery, the patient starts the stabilization program. This is a five-step, progressively more difficult rehabilitation process. So for a professional athlete to return to action, he has to effectively and with excellent technique progress through the Level 5 exercises. If he can't, he can't come back to action just yet.

After completing the Level 5 exercises, patients do a series of sports-specific exercises. These are designed to take the rehabilitation program onto the field. For example, we've hooked a resistant cord to the trunk of a tennis player and had him serve and volley against the resistance. This can wake his back muscles up, muscles he uses to protect him when he's performing his sport, while also initiating the aerobic conditioning that the athlete needs and may have lost during rehabilitation.

Dr. Robert G. Watkins, a member of the [Association of Professional Team Physicians \(PTP\)](#), heads the Center for Orthopaedic Spinal Surgery in Los Angeles, Calif. Dr. Watkins received his medical degree from the University of Tennessee Medical School in Memphis and did his internship and residency at the University of Southern California School of Medicine in Los Angeles. Dr. Watkins also is currently a Professor of Clinical Orthopedic Surgery at USC.

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