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Central States Orthopedics
Get Seen. Get Heard. Get Better.

SPORTS MEDICINE MONTHLY

Editor: Darren H. Lunow, M.Ed, ATC, LAT, Athletic Trainer

Surgical & Non-Surgical Care. Sports Medicine. Physical Therapy.

Volume 8, Issue 9, November 2016

ON-SITE ORTHOPEDIC CLINICS EACH WEEK

- No Charge
- Open to patients of all ages
- Appointments (918) 346-7800

Collinsville Public Schools
Monday/Wednesday
2:00pm—3:30pm

Coweta Public Schools
Wednesday
2:45pm—3:30pm

Edison Preparatory School
Monday/Thursday
2:45pm—3:30pm

Glenpool Public Schools
Tuesday
2:45pm—3:30pm

Kellyville Public Schools
Wednesday
Noon—12:45pm

Regent Preparatory School
Wednesday
Noon—12:45pm

Rejoice Christian School
Monday/Wednesday
2:00pm—3:30pm

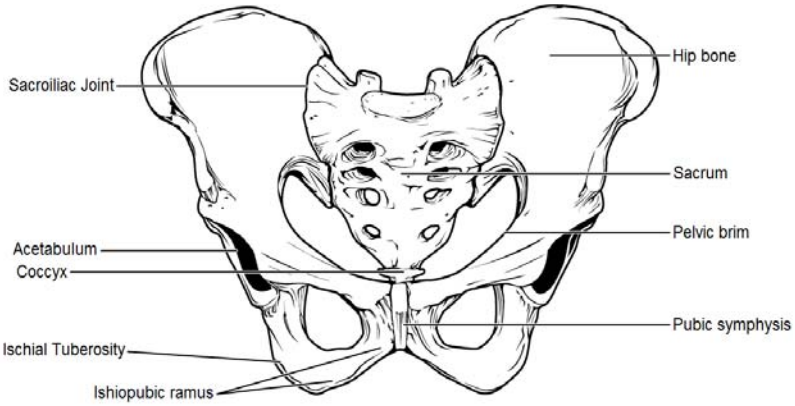
Victory Christian School
Tuesday
2:45pm—3:30pm

Wagoner Public Schools
Wednesday
2:45pm—3:30pm

*Hosted by CSO Athletic Trainers and Physician Assistants.

EXAMINATION OF THE SPINE AND EXTREMITIES: THE PELVIS

Beginning in January of this year, we began a series of newsletters examining the spine and the extremities one joint/region at a time. Beginning with the foot and working our way upward, the "Examination of the Spine and Extremities Series" is designed to provide a brief overview of the anatomy of each respective joint, an underlying review of its motion and dynamics, and likewise provide for an explanation of some of the more common pathologies experienced in that particular joint.

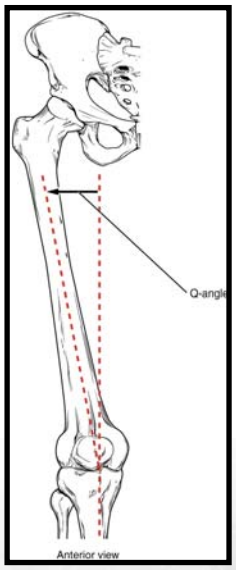


Bones: Three fused bones: Ilium, Ischium, Pubis

Ligaments: Numerous

Muscles: Numerous

Q Angle



Based on individual anatomical differences between each gender, the angle wherewith the hip leaves the pelvis and travels towards the knee can be variable from person to person. Known as the Quadriceps or Q-Angle, this angle is created by the path of the quadriceps muscle group, specifically the rectus femoris, as it originates on the pelvis and terminates in the tibia.

For males, an average Q-Angle resides between 10 and 15 degrees. As the female pelvis structure is wider and broader, this same measurement in females yields a Q-angle of 15– 20 degrees, with some patients even exceeding the 20-degree mark.

Clinically speaking, the steeper the Q-angle, the more shear stress is placed on the knee joint, the patellafemoral joint, and the ligaments and musculature that support these joints. As a result, the greater the Q-angle, the greater the need for sufficient strengthening and flexibility to stabilize and support the hip and knee joints.

Central States Orthopedics Physicians

R. Clio Robertson, MD
David R. Hicks, MD
James D. Cash, MD
David E. Nonweiler, MD
Randall L. Hendricks, MD
David K. Wong, MD
Bryan J. Hawkins, MD
Thomas G. Craven, MD
Jeffrey R. Morris, DO
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Jeff A. Fox, MD
Blake E. Shockley, MD
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Debbie A. Gladd, DO
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Wendy B. Emerson, MD
Chad E. Crawley, DO

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Pelvis Avulsion Fractures

Overview:
Avulsion fractures occur when ligaments or tendons that anchor onto a bone are stressed and subsequently pull a piece of the bone off. Although this can happen in numerous areas of the body, the adolescent pelvis is exceedingly susceptible to such injury. Primarily because:

1) The adolescent pelvis is still growing and maturing, and therefore has numerous open growth plates; which act as softening areas of the bone.
2) The adolescent athlete produces tremendous force through the quads, hamstrings, and abdominal muscles that attach to the pelvis.

In other words, adolescent athletes are pulling on a weaker skeletal structure with a significant amount of force.

About the Injury:
Generally speaking, these injuries are more of an example of the "straw that broke the camel's back" rather than massive acute injuries. Though both can occur, usually athletes who repeatedly kick, jump, sprint, or twist begin to notice consistent, nagging, and boring/aching pain on one specific area of the pelvis during activity. Over time, conservative treatment only does so much, and eventually the athlete notices one specific play or event where the pain significantly increases.

Treatment:
Conservative treatment of avulsion fractures is basically rest, as long as the piece of bone that was pulled off is less than 2cm away from its original position. At less than 2cm, the body can usually re-attach the displaced bone over a period of months and the patient can return to normal activity. A greater than 2cm separation may require surgery, but most injuries will heal non-operatively. Either way, when appropriately managed, the patient can return to activity with a substantially reduced risk of sustaining a secondary injury.

Lumbopelvic Rhythm

Often thought by many as a stationary object with limited movement, the pelvis is actually the exact opposite. During a typical jog, the pelvis will tilt anterior, posterior, side to side, and rotate. Likewise, as major muscle groups such as the quads, hamstrings, adductors, abdominals, etc… attach onto the pelvis, it is not that hard to see how the pelvis can and will get pulled in a variety of directions.

What has very limited movement, however, is the joint between each pelvic bone and the sacrum. This joint is classified as a fibrous connective joint that not only provides exceptional stability between the two structures but likewise restricts independent movement between the two. As a result, for a simple discussion, you can basically now assume that wherever the pelvis goes, the sacrum and, therefore, the lumbar spine will follow. In other words, they travel in rhythm.

For example…
*When the pelvis tilts posteriorly…
The lumbar spine straightens.
*When the pelvis tilts anteriorly…
The lumbar spine curves more.

As a result, it is now pretty easy to see why tight hamstrings or gluteal muscles can cause lower back pain. Because the hamstrings and glutes anchor and pull downward and posteriorly on the pelvis, they also pull the lumbar spine into a straightened position as well. When the quadriceps and hip flexor muscles are tight, they pull the pelvis forward and anteriorly, which pulls the lumbar spine into a position of greater curvature.

In other words, limitation in lower extremity flexibility and lumbar spine injury are often interrelated. Therefore, proper flexibility and strength for the abdominals and hip musculature are not only vital for the stability of the pelvis, but also the hip and spine as well.

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6585 S. Yale Ave., Ste. 200
Tulsa, Oklahoma 74136
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Bixby Clinic
12800 S. Memorial, Ste. D
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918-394-2767

South Tulsa Clinic
9716 S. Riverside Dr., Ste. 110
Tulsa, Oklahoma 74137
918-528-3300

Owasso Clinic
13616 E. 103rd St. N., Ste. B
Owasso, Oklahoma 74055
918-272-4488

Downtown Clinic
802 S. Jackson, Ste. 405
Tulsa, Oklahoma 74127
918-583-4400

Hillcrest South Medical Plaza
8803 S. 101st E. Ave, Ste. 300
Tulsa, OK 74133
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