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NEWS

RSNA Press Release

MRI Shows Back Trouble May Begin Before Puberty

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At A Glance

- Degenerative disc disease — a precursor to lower back pain — was found in nearly one in 10 children examined in Scotland.
- The spinal abnormalities in the 10-year-olds were found to be genetic and unrelated to disease, obesity or poor nutrition.
- In 2002, 3 million workdays were lost in the United Kingdom due to back pain. Americans spend at least $50 billion a year on lower back pain.

CHICAGO — Disc degeneration, typically associated with adulthood, may actually have its beginnings at a young age.

Magnetic resonance (MR) imaging studies of the spines of 154 children in northeastern Scotland found that 14 children (9 percent) had abnormalities in at least one of their intervertebral discs — the backbone's "shock absorber." MR imaging was performed on the 10-year-olds as part of a larger study exploring causes of spinal stenosis, or narrowing of the spinal canal.

"We found degenerative changes in the spine much earlier than we ever would have suspected," said lead author Francis W. Smith, M.D., consultant radiologist and sports medicine physician at Woodend Hospital in Aberdeen, Scotland. "This study revises our thoughts on when we should begin preventive back care. Proactive steps should begin early in life, even before puberty."

Dr. Smith presented the findings today at the 89th Scientific Assembly and Annual Meeting of the Radiological Society of North America (RSNA).

Intervertebral discs are round, spongy pads of cartilage that sit between the vertebrae, cushioning the backbone as the body moves. With normal aging, the elastic core of the disc solidifies, contributing to a gradual loss of flexibility in the back. Fissures and cracks within the discs may also occur, allowing the gel-filled interior to bulge and extend into the spinal canal, occasionally irritating the nerve root.

The 14 degenerated discs found by Dr. Smith and colleagues showed signs of early bulging or tearing. All were located in the lower, or lumbar, region of the spine. None of the children in the study — 79 girls, 75 boys — had ever suffered from lower back or leg pain. Disc degeneration may alter the mechanical architecture of the back, predisposing to muscle and ligament sprains and strains, as well as arthritis of the spinal joints. This points out that disc

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degeneration is not necessarily associated with back pain, and may begin in early childhood.

"There is no history of poor nutrition, obesity or other known disease in these children," Dr. Smith said. "We suspect there may be genetic causes, although unrecognized trauma in sports or at play could also be a cause."

Lower back problems affect millions of adults. In the United Kingdom, 3 million workdays were lost in 2002 due to lower back pain, according to the National Health Service. In the United States, back pain is the second most common cause of lost work, following the common cold, according to the American Academy of Physical Medicine and Rehabilitation. Americans spend at least $50 billion each year on lower back pain, according to the National Institute of Neurological Disorders and Stroke.

Proper back care, according to Dr. Smith, should include learning about correct posture and how to stretch the back, as well as being physically active. Dr. Smith and his fellow researchers plan to conduct a follow-up study on these same children in 10 years to help determine whether early disc abnormalities worsen or stay the same as an individual ages.

Co-authors of the study are Janet E. Jeffrey, M.Sc., and Richard W. Porter, M.D.

RSNA is an association of more than 35,000 radiologists, radiation oncologists and related scientists committed to promoting excellence in radiology through education and by fostering research, with the ultimate goal of improving patient care. The Society is based in Oak Brook, Ill.

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Degenerative Disc Disease: How Early Does It occur? An MRI Study of 154 Ten Year Old Children

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