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Former professional rugby players have greater cervical spine degeneration

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French researchers used clinical examinations and magnetic resonance imaging (MRI) studies to determine whether retired professional rugby players experience more serious symptoms of cervical spine degeneration than people in the general population. To the best of the authors' knowledge, this is the largest study of its kind covering any professional contact sport, and it confirms greater cervical spine degeneration in former rugby players. The research findings are reported and discussed in the article, "Clinical and radiological cervical spine evaluation in retired professional rugby players," by David Brauge, MD, and colleagues, published today online, ahead of print, in the *Journal of Neurosurgery: Spine*.

The researchers compared cervical spine symptoms and evidence of injury in two groups of men: 101 men who had retired from professional rugby (mean age 40.3 years, range 35 to 47 years) and 85 volunteers who had never participated in competitive rugby or any other sport on the professional level (control group; mean age 41.6 years, range 35 to 49 years). Participants in the two groups were matched according to age, sex, type of employment, smoking habits, and current sports training. The researchers evaluated spine symptoms in all of the participants and spine MRI findings in a sample of 50 men, 25 from the retired rugby player group and 25 from the control group.

Complaints of chronic neck pain and reduced neck mobility were reported significantly more often in the former rugby player group (50.5%) than in the control group (31.8%). When these symptoms were

evaluated using a neck pain visual analog scale and the Neck Disability Index, however, there was no statistically significant difference in the level of pain reported by the former rugby players and the level of pain reported by the volunteers.

MRI studies focused on anatomical signs of degeneration in the cervical spine as well as on the status of paraspinal muscles. The researchers report that compared to volunteers in the control group, retired rugby players had significantly narrower vertebral canals (which house the spinal cord) and greater foraminal stenosis (narrowing of the foramen through which spinal nerve roots exit the vertebral canal). When the researchers examined study participants' musculature in the vicinity of the spine, they found that retired rugby players had significantly greater muscle mass (and less fat) than the volunteers. The researchers hypothesize that the stronger paraspinal muscles found in former rugby players may aid in controlling the level of spinal pain in this group.

Retired rugby players had undergone significantly more surgeries for degenerative spine conditions (10 cases [9.9%]) than volunteers (no cases). In all 10 surgical cases, the operation was performed for disc herniation and radiculopathy, and in nine cases, surgery was performed during the rugby players' professional careers. The researchers note that most of the former players returned to play after surgery, "indicating that spine surgery does not completely prohibit contact sports in professional athletes."

In summary, when asked about the findings of the study, Dr. Brauge said, "A few years after the end of their careers, professional rugby players seem to have more degenerative symptoms and lesions on the cervical spine. These symptoms are exceptionally disabling (3 of 101 cases in this study). Our definitive conclusion should be reasonably prudent; we still can't assert that the lesions worsen with time or that the disease stabilizes with the end of the rugby activity."

More information: Brauge D, Delpierre C, Adam P, Sol JC, Bernard P, Roux FE. Clinical and radiological cervical spine evaluation in retired professional rugby players. *Journal of Neurosurgery: Spine*, published online, ahead of print, July 21, 2015; DOI: 10.3171/2015.1.SPINE14594
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