

## Atlantoaxial Instability in Down Syndrome

At least 10% of individuals with Down syndrome have atlantoaxial instability, as measured by an atlantodens interval of  $>5.0$  mm. Because of the risk of spinal cord damage, Special Olympics, Inc., and the American Academy of Pediatrics have recommended evaluation, including cervical roentgenography, for all individuals with Down syndrome who wish to take part in sports.

Davidson recently reviewed the evidence that individuals with Down syndrome are at increased risk for unexpected spinal cord injury when taking part in sports. He found that in almost all published cases of spinal cord injury in Down syndrome patients there had been signs or symptoms of cervical subluxation for weeks or months prior to the injury. He points out in his review that the incidence and real

risk of cervical subluxation, the results of longitudinal studies in cases of Down syndrome with atlantodens intervals  $>5.0$  mm, and the exact measurements that should lead to concern at a particular age have not been defined. Thus, exclusion from sports may be inappropriate unless the individual has had a roentgenographic series or studies of cervical spine flexion and extension. He does agree that sports that lead to

hyperextension or radical flexion of, or direct pressure on, the neck or spine (eg, tumbling or trampolining) may place the patient in jeopardy. It is possible that car accidents, rheumatoid disease, and general anesthesia also may increase the risk of spinal cord injury in individuals with Down syndrome. Interestingly, the number of injuries leading to symptoms of subluxation appears to be increasing in girls and women with

Down syndrome.

Davidson RG. *Pediatrics* 1988; 81:857-865.

Pueschel SM. *Pediatrics* 1988; 81:879-880.

Atlantoaxial instability in Down syndrome. Editorial. *Lancet* 1989; 1:24.

**Editor's comment**—*What should we recommend to the families of*

*individuals with Down syndrome concerning sports participation? Clearly, better information is needed to define the risks and make appropriate recommendations for studies and follow-up. The crucial issue is, Are we going to do unnecessary testing and unnecessarily restrict activities in the name of safety?*

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