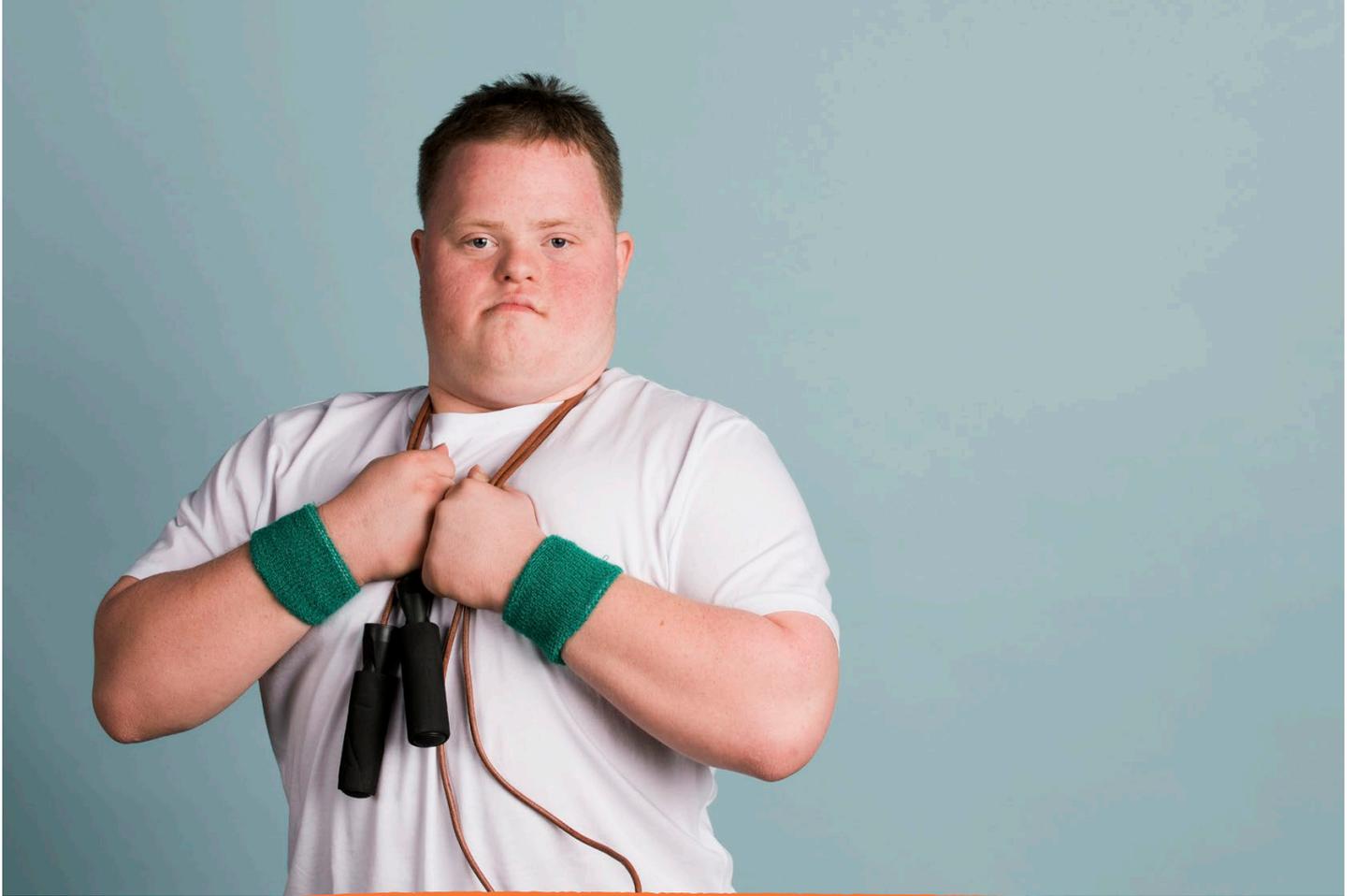




ATLANTO-AXIAL INSTABILITY

Health

A guide to Atlanto-axial
Instability in people with
Down syndrome.



ATLANTO-AXIAL INSTABILITY

What is Atlanto-axial Instability (AAI)?

In people with Down syndrome the ligaments that normally hold the joints stable can be loose. This can lead to a wider range of movement at some joints including one of the joints in the neck - the atlanto-axial joint. This joint is the highest joint in the spinal column and it lies just at the base of the skull. There is normal movement at this joint whenever you nod or shake your head. AAI is defined as an anterior posterior movement between these two cervical vertebrae of more than 5mm. When this occurs there is a risk of spinal cord damage with the shift of one vertebra upon another.

Prevalence

AAI is more common in Down syndrome than in the general population (affecting up to 20%

of people with Down syndrome) but even if detected, its presence does not necessarily mean the person affected will develop a spinal cord injury. The presence of AAI which is accompanied by symptoms (such as the ones listed in the next column) is estimated to occur in only 1 % of cases. Despite this small number, medical personnel have at times taken a cautious approach with the advice given to parents of children with Down syndrome, including the avoidance of certain sporting activities.

Impact

While it would seem prudent to restrict some sporting activities (for example avoiding somersaults and high impact contact sports such as rugby), generally speaking people with Down syndrome, and those who play sport with them, usually play in supervised circumstances and are therefore unlikely to be involved in any activity that necessitates significant high impact or contact. In fact it could be considered that a person with Down syndrome and AAI who has a fall for another (non-sport related) reason might be regarded as being at greater risk than those involved in a supervised sporting activity.

Symptoms include:

- Alteration in the way a person walks so that he/she appears less stable on his/ her feet.
- Deterioration in a person's ability to manipulate things with his/her hands.
- Incontinence developing in a person who has previously had no problems, though this would normally be associated with other symptoms.
- Some people with Down syndrome can have a sudden onset of limb weakness with neck injuries. However, this is very rare.

Checking for AAI in the general Down syndrome community

Because the measurement of Atlanta-axial subluxation (partial dislocation of the joint) can be inconsistent and vary with repeated x-rays on the same day, recommendations in the UK, at least in 1990, suggested that routine x-ray screening was not necessary and that x-rays be reserved for symptomatic cases. However, parents should be aware of symptoms appearing and that the onset of these symptoms can be gradual.

AAI and Sport

The risk of cord damage is probably greatest with hyperextension or hyperflexion of the joint, and thus high contact sports do carry an increased risk. It would seem reasonable that people with Down syndrome who wish to take part in a high contact sport, should have cervical spine x-rays to see if there is AAI . If detected, it would be reasonable that they have an annual examination probably by their general practitioner to ensure they don't have any signs of spinal cord injury. People with Down syndrome who have AAI should never undergo manipulation of their cervical spine by a chiropractor or a physiotherapist.

Finally, when considering high contact sporting activity for people with Down syndrome it could be argued that a sports programme is more important to people with physical and intellectual disabilities than able bodied people as these programmes assist in attaining progressive levels of achievement, social success, and rewards.

Please consult your GP or paediatrician to check for AAI before your child undertakes any high impact contact sport.

This article has been checked by a health professional.

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NZDSA resources

Want to know more?

The NZ Down Syndrome website can provide more information and link you to many more articles and organisations.

www.nzdsa.org.nz



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