



## Prevention in children and adolescents AEPap/PAPPS

### Adolescent Idiopathic Scoliosis screening

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## RECOMMENDATIONS

### Introduction

Adolescent Idiopathic Scoliosis (AIS) is a controverted issue and has great variability in the clinical practice in Spain as well as in other countries, with lack of consensus among the different prestigious institutions that have made declarations.

AIS is the tridimensional deviation of the spine that includes vertebral rotation and presents without an apparent cause between 10 years old and skeletal maturation.

A curve is considered clinically significant if it is more than 10° (Cobb angle in a radiogram). The prevalence of bigger curves is about 15%.

The most used screening test in primary care is Adams test. It assesses the trunk asymmetry from behind, with the child bent over. It is positive if a dorsal or lumbar hump is observed.

Only 10% of curves are considered progressive. The curves of less than 30° at skeletal maturity will not usually progress.

Prevalence is similar in boys and girls in curves of about 10°, but if more than 30° curves are considered, the rate female:male changes to 10:1.

### Review conclusions

- Most of mild curves will not progress to severe.
- AIS in premenarcheal females have the greatest risk of progression.
- Brace treatment in AIS may stop worsening in progressive curves.

- Screening programs detect a lot of mild curves.
- Screening tests have low positive predictive values: they produce a high number of referrals, of unnecessary radiograms and family anxiety.
- Clinical trials on AIS screening are lacking, it is not clear if screening improves final results of AIS.

### **Quality of the evidence**

- With low quality of evidence, there is insufficient evidence that AIS scoliosis screening reduces morbidity and mortality, psychological problems or pain at the medium-long term.
- With low quality of evidence, the risk of a mild scoliosis becoming severe is not known.
- With high quality of evidence, the screening test (Adams test) is simple, but little precise if used in a screening program. If a scoliometer is added, the precision improves, although still remains low, especially the specificity, with high number of false positives and low positive predictive values.
- With high quality of evidence, treatment with braces in curves  $>20^\circ$  reduces the possibility of getting to  $50^\circ$  (surgery threshold).
- With low quality of evidence, stopping screening programs produces later referrals, less brace treatments and more surgeries.

### **PrevInfad recommendation (GRADE)**

There is current evidence that braces are effective to prevent progression of the most severe forms of scoliosis and that they reduce the need of surgery. Nevertheless, evidence on screening has a very low positive predictive value (PPV) and its universal implementation would produce a high number of referrals and unnecessary tests.

The group PrevInfad consider the risks of universal screening of adolescents' idiopathic scoliosis greater than the benefits and suggests not to do systematic screening.