



Plain Language Summary

Bracing for the treatment of idiopathic scoliosis in children and young people (<18 years)

What is idiopathic scoliosis?

Scoliosis is the abnormal twisting and curvature of the human spine. Typical signs of scoliosis include a visibly curved spine, one shoulder higher than the other, one shoulder more prominent than the other, a prominent ribcage and a difference in leg length.

The most common form of scoliosis occurs in children and young people aged 10 to 18 and is known as adolescent idiopathic scoliosis. It accounts for approximately 80% of reported cases. Idiopathic means that the cause of the scoliosis is not known.

What is bracing?

Bracing is used to treat children and young people with idiopathic scoliosis who are still growing. A brace helps slow down the increase in the curve of the spine and so minimise the extent of the spinal curve once the child has finished growing.

Several kinds of brace are available for treating scoliosis. Braces usually cover the body from the upper back down to the buttocks. As every patient's body and scoliosis curve is unique, braces are usually specially made for each individual. As a child or young person grows, the brace will be adjusted or replaced. Treatment with bracing usually lasts 2 to 5 years, and involves wearing the brace for between 12 and 23 hours per day.

Why is this important?

The Scottish National Spine Service cares for children and young people diagnosed with disorders of the spine, including scoliosis. Bracing may be able to slow down progression of the spinal curve and postpone or eliminate the need for major surgeries to realign the spine.

What we did

We looked at the published evidence on how effective and safe bracing is for treating idiopathic scoliosis in children and young people (<18 years). We also looked at the evidence on whether bracing was good value for money and what patients think about bracing as a treatment option.

What we found

All the evidence we found related to children and young people with adolescent idiopathic scoliosis.

Does bracing work?

An analysis of seven studies that included 751 patients compared the use of bracing versus clinical observation only (that is, watching and waiting to see if the spinal curve gets worse). Patients who were treated with a brace had a greater chance of treatment success and a better quality of life compared with patients under observation. Patients who wore a brace reported experiencing adverse effects more often than patients who were under observation.

A review of seven different studies involving 662 patients also compared bracing with clinical observation. Three studies in this review reported a greater chance of treatment success (spinal curves were less severe) in patients who were treated with bracing. Two studies found no difference in quality of life between patients treated with bracing and observation. One study found no difference in the risk of adverse effects between the two treatments.

Studies comparing the effectiveness of night-time bracing versus fulltime bracing were unable to reach any conclusions because of the low quality of the evidence available.

Back pain was the most common adverse effect reported by patients wearing braces for idiopathic scoliosis. The results of studies on back pain were too variable for us to be certain how bracing affects back pain frequency or severity in patients with scoliosis.

There are a number of limitations to the evidence on bracing in patients with adolescent idiopathic scoliosis:

- only a small number of randomised trials (the strongest evidence) have been conducted in this patient group, and
- there is a lot of variation between studies that makes it difficult to combine results from different studies to demonstrate a consistent effect.

Patient factors

One low quality review identified three risk factors potentially linked to the failure of treatment with bracing:

- reduced patient adherence to wearing the brace for the prescribed time
- being younger and less developed when first given a brace, and
- having a larger spinal curve when first fitted for a brace.

Adherence to instructions on wearing a brace determines how well the treatment works. Another low quality review found that adherence to bracing is affected by:

- patient age (younger patients were better at wearing their brace)
- the type and fit of the brace
- the appearance of the brace, and
- whether the patient needed to wear the brace at night or during the day.

Nine studies found moderate or low levels of stress, anxiety and depression in adolescents with idiopathic scoliosis, regardless of their treatment. Patient reported negative changes to their body image in 24 studies. Body image was affected both by having scoliosis and by wearing a brace to treat scoliosis.

Value for money

A single study from the US suggested that bracing for adolescents with idiopathic scoliosis could be good value for money if it reduced the need for expensive surgery. Scottish-specific costs suggest that bracing and surgery for scoliosis results in similar value for money in Scotland.

The approximate annual cost of bracing per patient with idiopathic scoliosis in NHSScotland is £2,814 (range £1,190 to £6,169).

What is our conclusion?

Bracing appears to be more effective than observation in reducing spinal curve progression in patients with adolescent idiopathic scoliosis. The evidence on the impact of bracing on a child or young person's quality of life was more variable. Some studies reported improved quality of life with bracing, while others reported no effect of bracing on quality of life.

Bracing may be good value for money if it reduces the need for expensive surgery.

What next?

Our assessment will be used by the Scottish National Spine Service to inform the use of bracing to treat idiopathic scoliosis in children and young people.

This plain language summary has been produced based on SHTG Assessment
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