

Oral presentation

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Sagittal spinal profile changes in scoliotic children during the brace treatment

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Background

Correction of the sagittal spinal profile is important in scoliosis brace treatment. There are few papers that evaluate the sagittal spine evolution during the brace treatment. We suggest that the brace treatment reduces thoracic kyphosis and lumbar lordosis to normal values.

Objective

To study the sagittal spinal profile evolution in scoliotic patients during brace treatment.

Materials and methods

Forty four scoliosis patients (10 boys, 34 girls) who were treated with a Cheneau brace were enrolled. The age range was 9-16 years old. The Cobb angle of the major curve ranged from 22° to 56°. Sagittal spine profile was evaluated with a diagnostic tool called the "Spinal Mouse" before and during the brace treatment.

Outcome

We found a nearly perfect correlation between radiographic sagittal spine profile and sagittal spinal profile measured with the "Spinal Mouse" (correlation coefficient was 0.97). After three months of brace treatment we showed that thoracic kyphosis and lumbar lordosis was decreasing in both groups. This investigation showed an increased sagittal range of motion in the thoracic spine and a restricted range of motion in the lumbar spine (Table 1).

Conclusion

In our investigation we observed the flattening of the sagittal spine profile during brace treatment. Posterior expansion room forming at the thoracic spine and pressure zones forming at the lumbar spine is not enough for good control of the sagittal spine profile in the Cheneau brace.

Table 1: Evolution of the sagittal profile in scoliosis patients during brace treatment

	Kyphosis				Lordosis			
	Standing	Bending forward	Bending back amplitude	Standing	Bending forward	Bending back amplitude	Standing	
Before treatment	19.04	52.6	19.09	32.97	22.14	28.91	35.48	6.57
After 3-4 months	14.13	20.1	15.37	34.73	18.5	24.98	30.12	5.14