

## O3

### **INFLUENCE OF SPECIFIC INTERVENTIONS ON BRACING COMPLIANCE IN ADOLESCENTS WITH IDIOPATHIC SCOLIOSIS. A SYSTEMATIC REVIEW OF THE LITERATURE INCLUDING SENSORS' MONITORING**

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#### **Introduction**

Adolescent idiopathic scoliosis is a common disease that, in many cases, can be conservatively treated through bracing. High adherence to brace prescription is fundamental to gaining the maximum benefit from this treatment approach. Wearable sensors are tools that objectively monitor the brace-wearing time, but their use, combined with other interventions, is poorly investigated.

#### **Objective (s)**

The aims of the current review are as follows: i) to summarize the real compliance with bracing reported by studies using sensors; ii) to find out the real brace-wearing rate through objective electronic monitoring; iii) to verify if interventions made to increase adherence to bracing can be effective according to the published literature.

#### **Study Design**

Systematic review.

#### **Methods**

We conducted a systematic review of the literature published on Medline, EMBASE, CINAHL, Scopus, CENTRAL, and Web of Science, following the Preferred Reporting Items for Systematic Reviews and Meta Analyses (PRISMA) guidelines.

#### **Results**

We identified 466 articles and included 22 articles, which had a low to good methodological quality. We found that compliance greatly varied between 21.8 and 93.9% (weighted average: 58.8%), real brace wearing time varied between 5.7 and 21 h per day (weighted average 13.3), and specific interventions seemed to improve both outcomes, with compliance increasing from 58.5 to 66% and brace wearing

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increasing from 11.9 to 15.1 h per day. Two comparative studies showed positive effects of stand-alone counseling and information on the sensors' presence when added to counseling.

### **Conclusion and significance**

Sensors proved to be useful tools for objectively and continuously monitoring adherence to therapy in everyday clinical practice. Specific interventions, like the use of sensors, counseling, education, and exercises, could increase compliance. However, further studies using high-quality designs should be conducted in this field.