

ACTIGRAPHY-BASED SLEEP PARAMETERS AND REST-ACTIVITY CIRCADIAN RHYTHM IN A YOUNG SCOLIOTIC PATIENT TREATED WITH RIGID BRACING: A CASE STUDY

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1 Background

- Brace is a demanding treatment that can lead to both physical discomfort and psychological issues;
- Compliance is essential for brace effectiveness;
- A crucial factor for physiological well-being is a correct expression of circadian rhythmicity, together with a good sleep behavior.

♦ **The patient analyzed showed a preserved rest-activity circadian rhythm and good sleep quantity and quality**

♦ **Sforzesco brace is well tolerated during night time and this could lead to better compliance**

♦ **Further studies with bigger sample size are needed to confirm this finding**

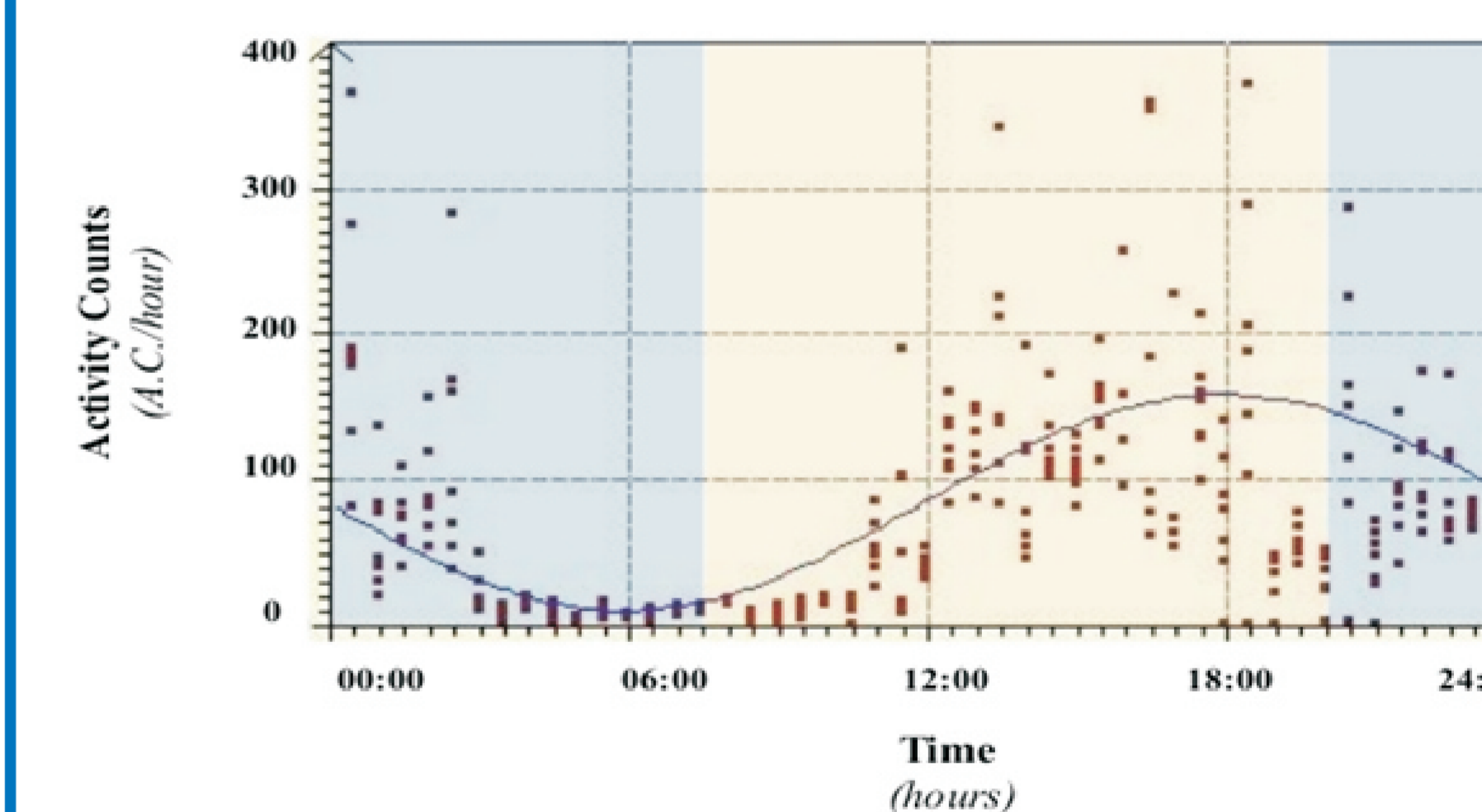
	Sleep Start (hh:mm)	Sleep Latency (minutes)	Sleep Efficiency (%)	Total Sleep Time (minutes) (%)
Mean ± SD	01:36 ± 01:02	25.9 ± 35.9	83.3 ± 7.2	450.7 ± 20.1 (88.9 ± 4.3)

The subject reached good sleep quantity and quality.

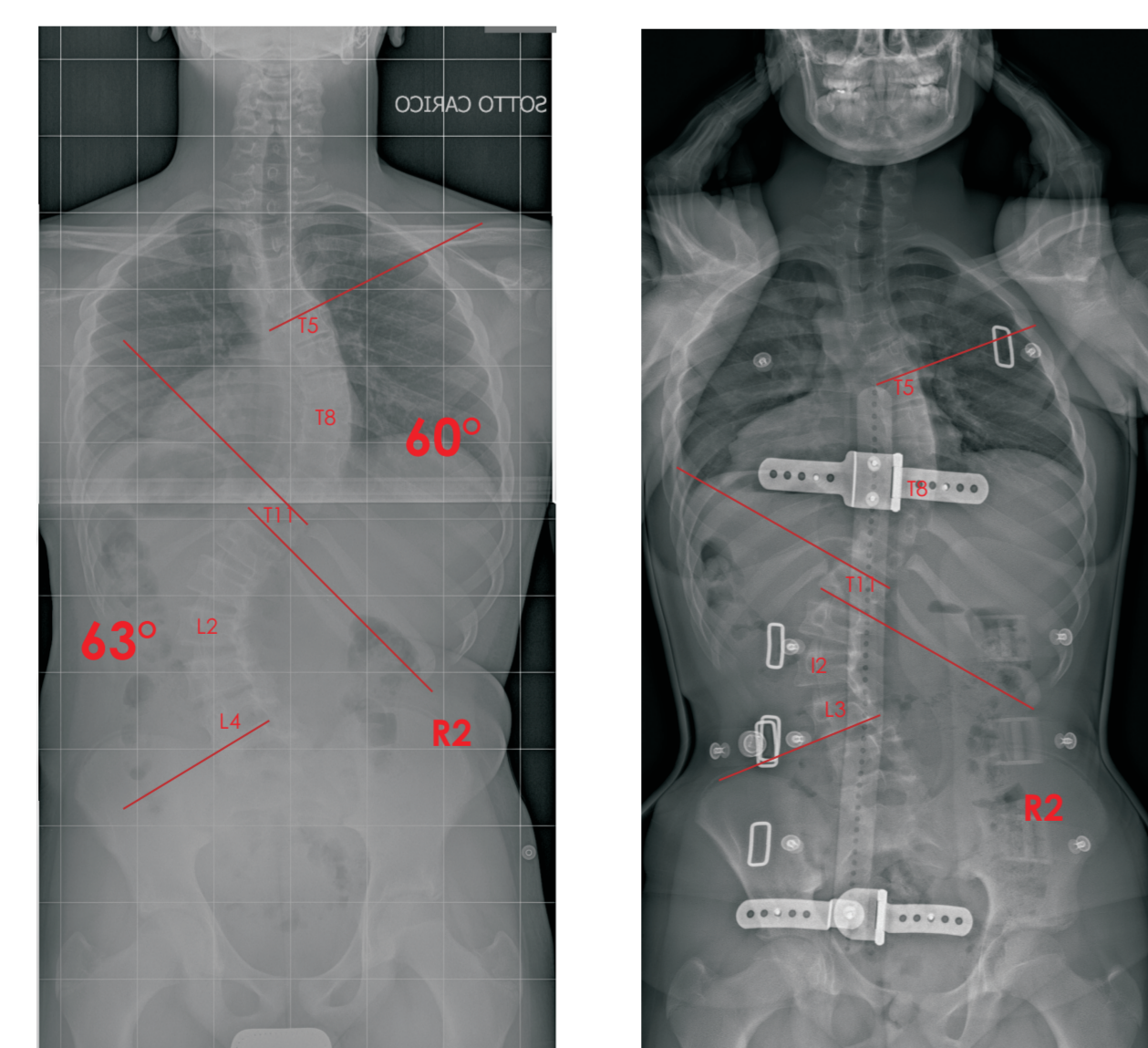
2 Aim of the study

Investigate the existence of Rest-activity circadian rhythms (RARs) and to study actigraphy-based sleep behavior in a 14 years-old male patient affected by severe Adolescent Idiopathic Scoliosis and treated with a rigid brace (Sforzesco) 23 hours per day.

5 Results



A significant Rest-activity circadian rhythm is present (p<0.001)



3 Patient

- 14 years old
- 170 cm
- 70 Kg
- BMI 24.2, TMI 14.25
- TRACE (Rash version): 51.1

4 Actigraphy-based measure

- The actigraph used was **Philips Actiwatch 2**;
- **Sleep quantity** (i.e. Total sleep time) and **quality** (i.e. Sleep Efficiency) were measured for **7 consecutive nights** after switching from a Lyonese brace to a **Sforzesco Brace 23 hours per day**.



References:

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•Weinstein SL, Dolan LA, Wright JG, Dobbs MB. Effects of bracing in adolescents with idiopathic scoliosis. *N Engl J Med*. 2013; 17:368(16): 1512-21.