

Daily duration of asymmetric windswept posture in children with cerebral palsy

Haruhiko Sato ^a, Toshiyuki Iwasaki ^b, Dai Iwase ^c

^a Department of Rehabilitation, Kitasato University School of Allied Health Sciences, Japan, ^b Department of Pediatrics, Kitasato University School of Medicine, Japan, ^c Department of Orthopedics, Kitasato University School of Medicine, Sagamihara, Japan
 Email: haru@kitasato-u.ac.jp

INTRODUCTION

- One suspected reason for development of asymmetric deformity in children with cerebral palsy (CP) is habitual occurrence of prolonged windswept posture during sleep.
- Wearable sensors were used to determine durations of windswept posture during the daily lives of children both with CP and with typical development (TD).

METHODS

1. Participants: Mild CP (GMFCS I-III) = 9, severe CP (GMFCS IV-V)=17, TD = 12
2. Procedure: After accelerometer loggers were attached to participants, they went through a usual day and night.
3. Statistical analysis: One-way ANOVA.

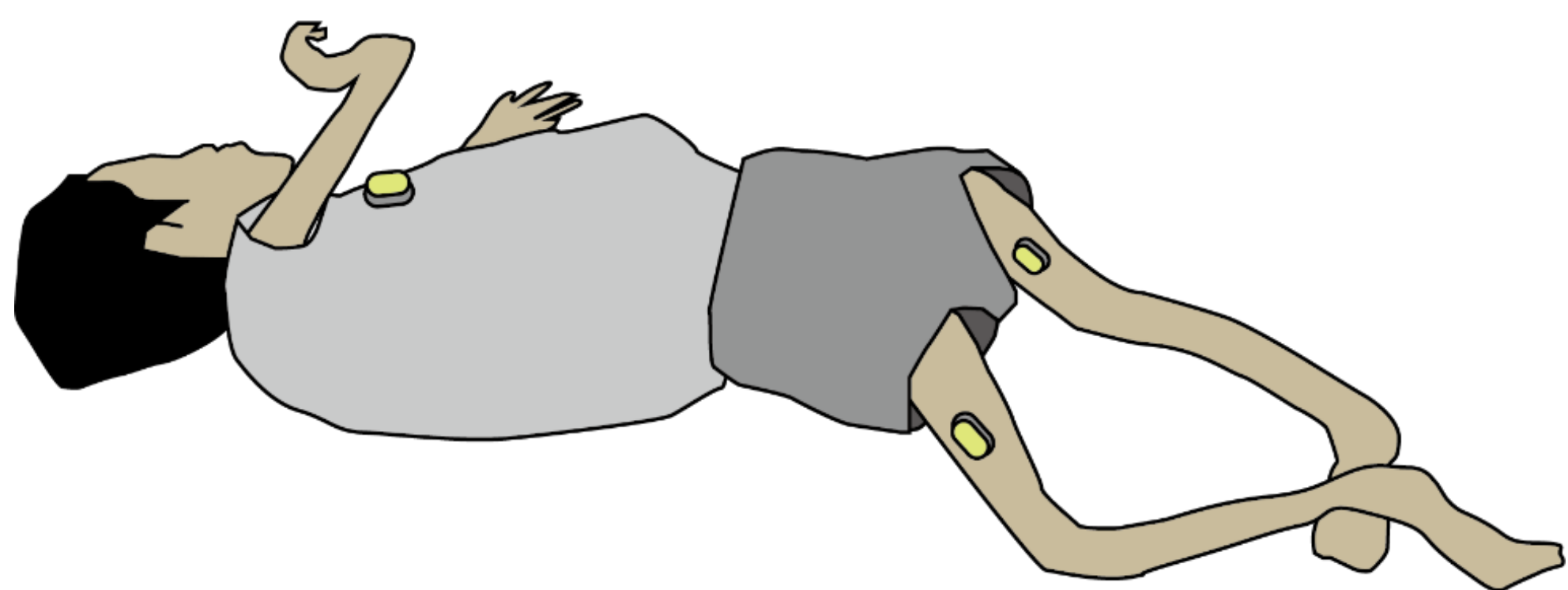


Figure 1. Accelerometer logger placement

RESULTS

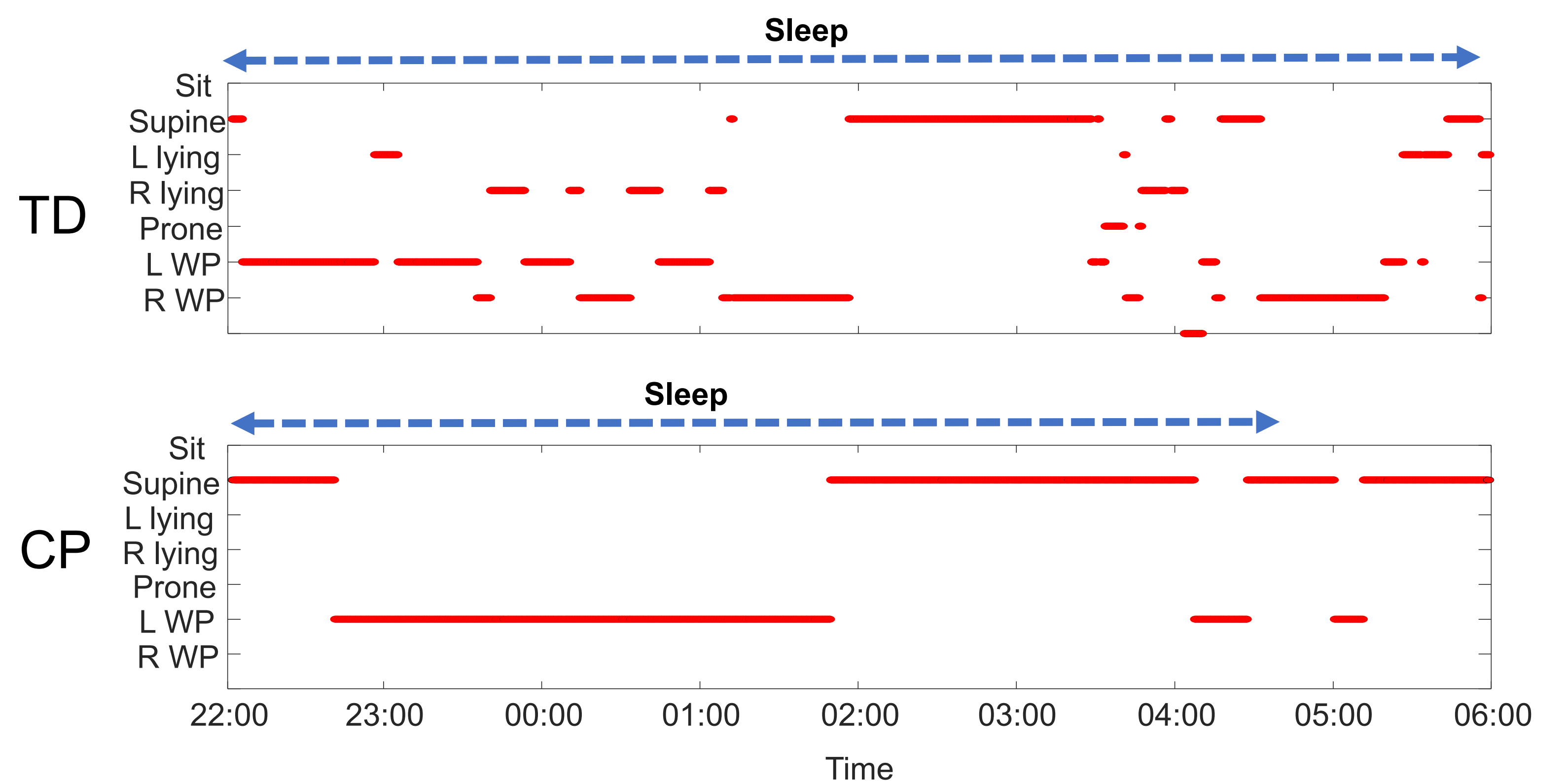


Figure 2. Examples of body postures assumed during night-time sleep in a child with typical development (TD: 7 years old) and a child with severe cerebral palsy (CP: 8 years old) (unpublished data). Note the prolonged period of time spent in windswept hips position (WP) for the child with CP.

Table 1. Longest time spent in one position, total combined times in each recumbent posture, and excessive time in longer held windswept hips position (minutes during night-time sleep)

	Mild CP		Severe CP		TD		F-value	P-value
	Mean	SD	Mean	SD	Mean	SD		
Longest time spent in same position	92	40	248	143	60	24	14.85	<0.001
Supine	59	63	242	189	105	47	6.71	0.003
Prone	112	113	1	3	112	71	12.80	<0.001
Sidelying	179	101	80	113	118	35	3.37	0.046
Windswept hips (WP)	94	64	157	163	189	59	1.68	0.201
WP R-L time difference	53	48	125	124	43	31	3.67	0.036

The **cumulative time** in windswept posture was as long in children with TD as it was in children with severe CP, but that position was never **continuously maintained** for a full hour in the children with TD.



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