

Assessment of inpatient postpartum sleep and activity following vaginal and cesarean delivery using actigraphy

Alla Yarmosh¹, MD MCR, James O'Carroll¹, MBBS, FRCA, Kazuo Ando¹, MD, PhD, Perman Pandal¹, MBBS, Mary Im², MD, MPH, Danielle Panelli³, MD, and Pervez Sultan¹, MBChB, FRCA, MD

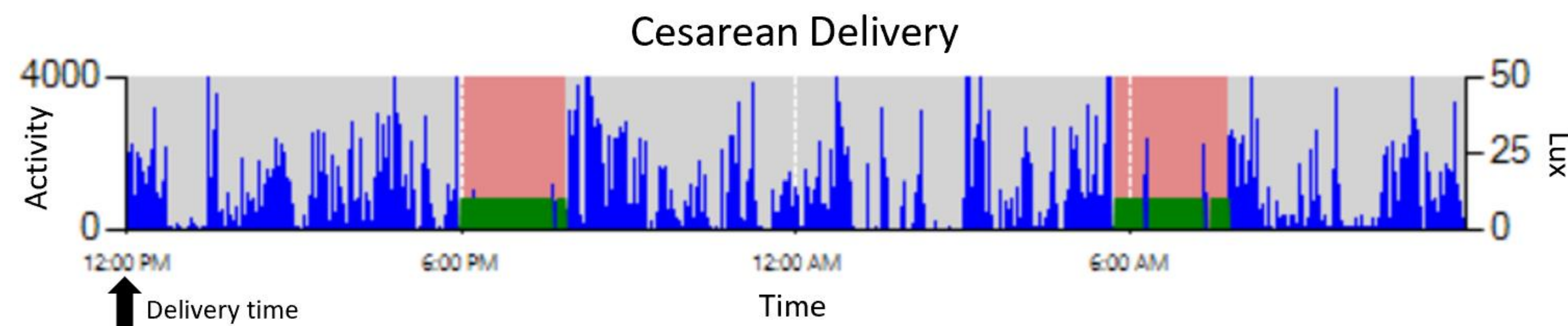
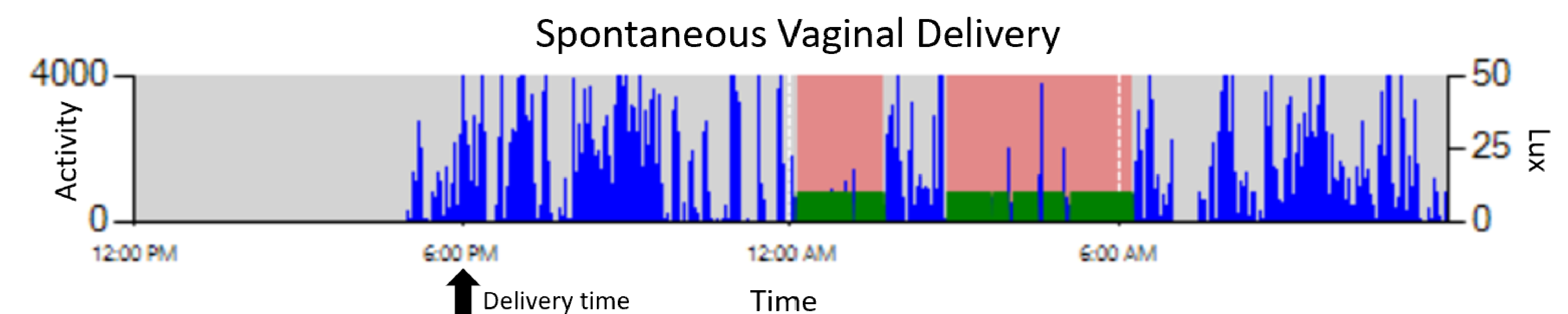
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Introduction

- Poor sleep has a negative impact on maternal wellbeing
- Few studies have objectively assessed inpatient sleep following childbirth
- Smartwatch actigraphy (wrist-based accelerometry) is a validated way to measure sleep/wake cycles
- Primary aim: assess inpatient postpartum sleep after either spontaneous vaginal (SVD) or scheduled cesarean delivery (CD) using actigraphy.
- Secondary outcome: physical activity

Methods

- Following IRB approval, eligible patients were recruited
- Actigraph GT9X Link smartwatch were worn on their non-dominant wrist
- We collected baseline demographic, obstetric, anesthetic and neonatal data
- Intrapartum CD patients or incomplete actigraphy data were excluded
- Analyses performed using Cole-Kripke and Tutor-Locke algorithms to derive sleep/wake pattern intervals and sleep period epochs
- Differences between SVD and CD were analyzed using Mann-Whitney U, with nonparametric data presented as median [IQR]



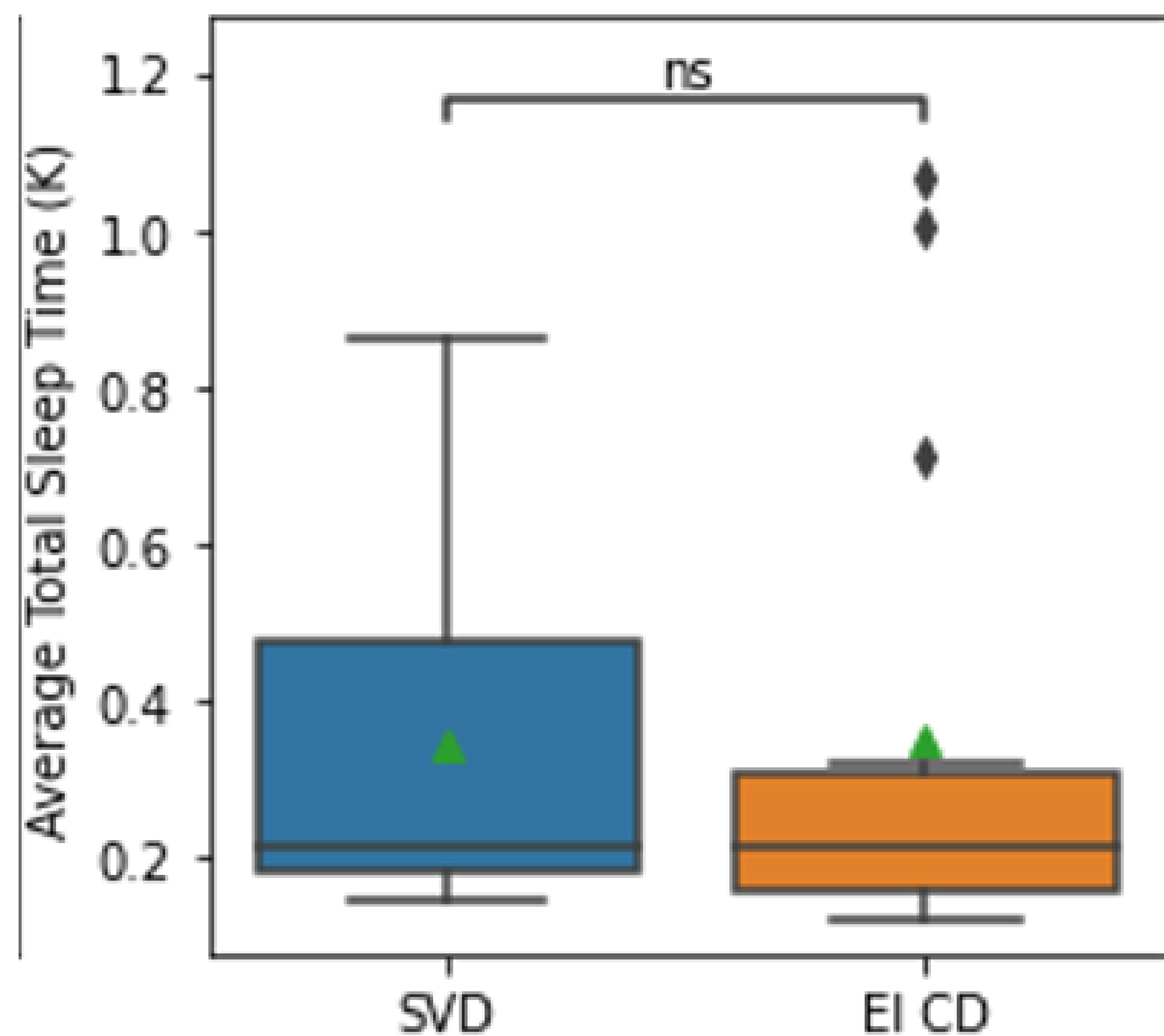
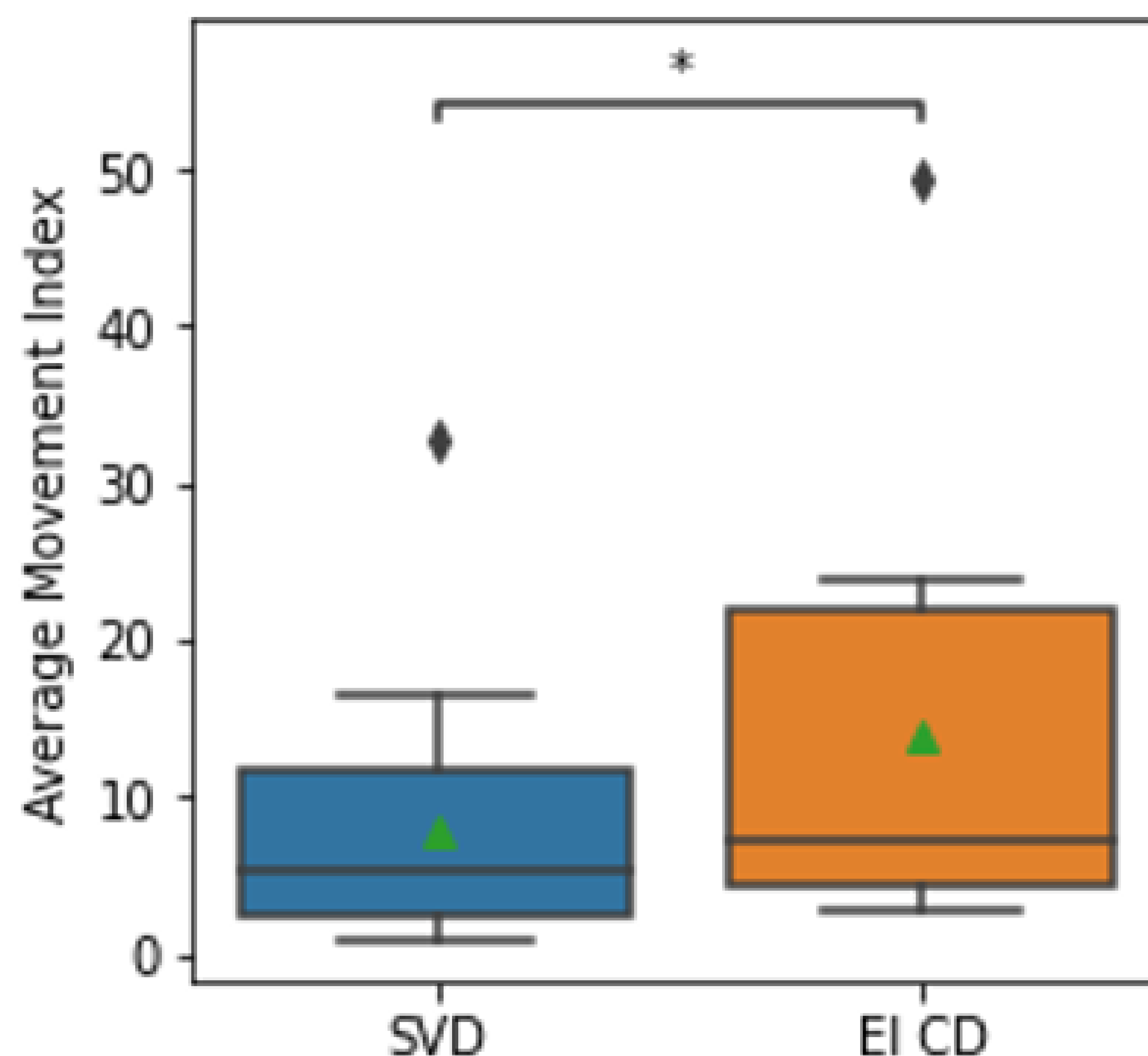
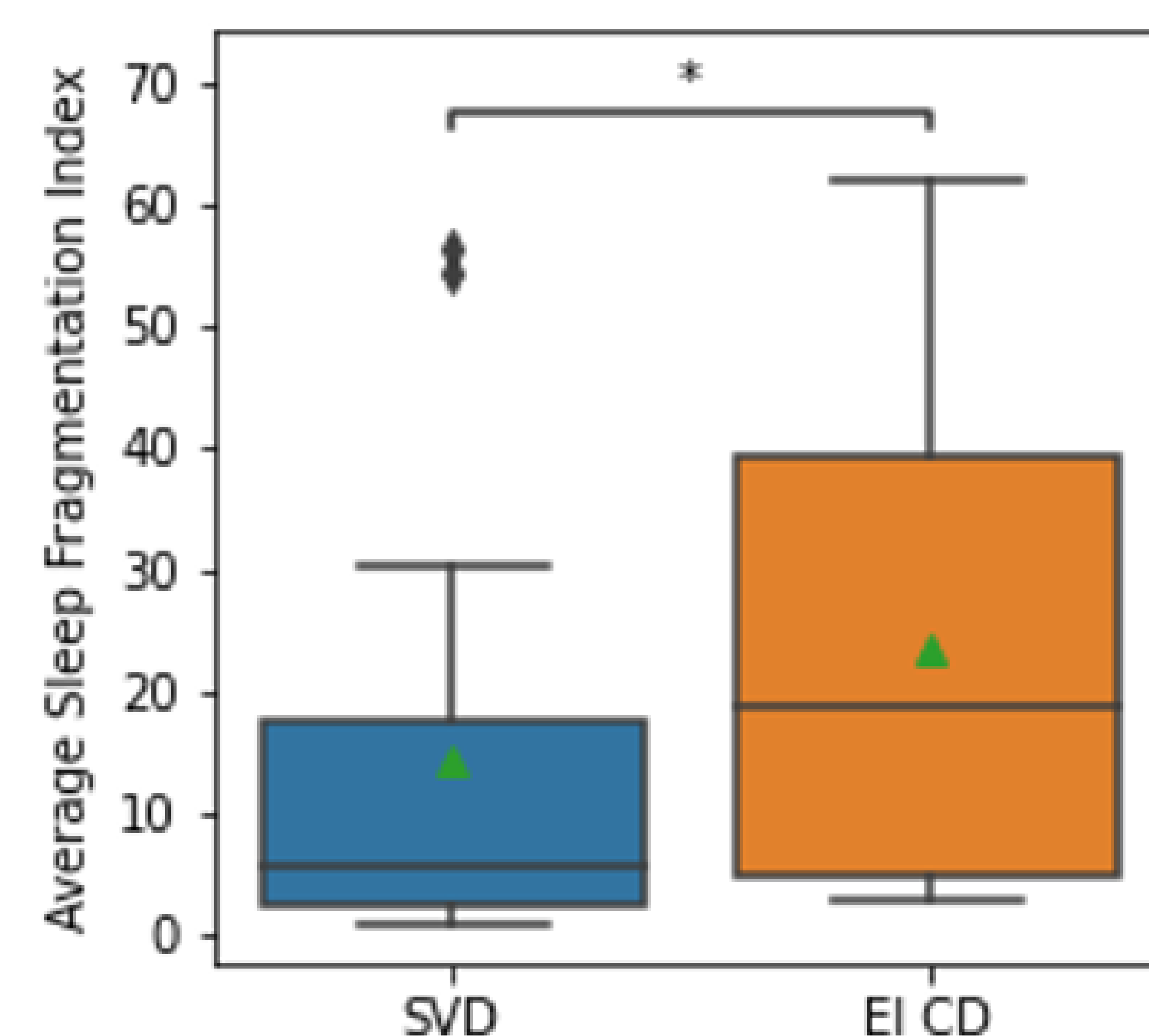
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Results

Sleep Parameters



Median (Q1 – Q3) 0.213 (0.181 – 0.478) 0.216 (0.158 – 0.308)

Median (Q1 – Q3) 5.36 (2.52 – 11.7) 7.21 (4.33 – 21.8)

Median (Q1-Q3) 5.57 (2.52 – 17.6) 19.0 (4.79 – 39.2)

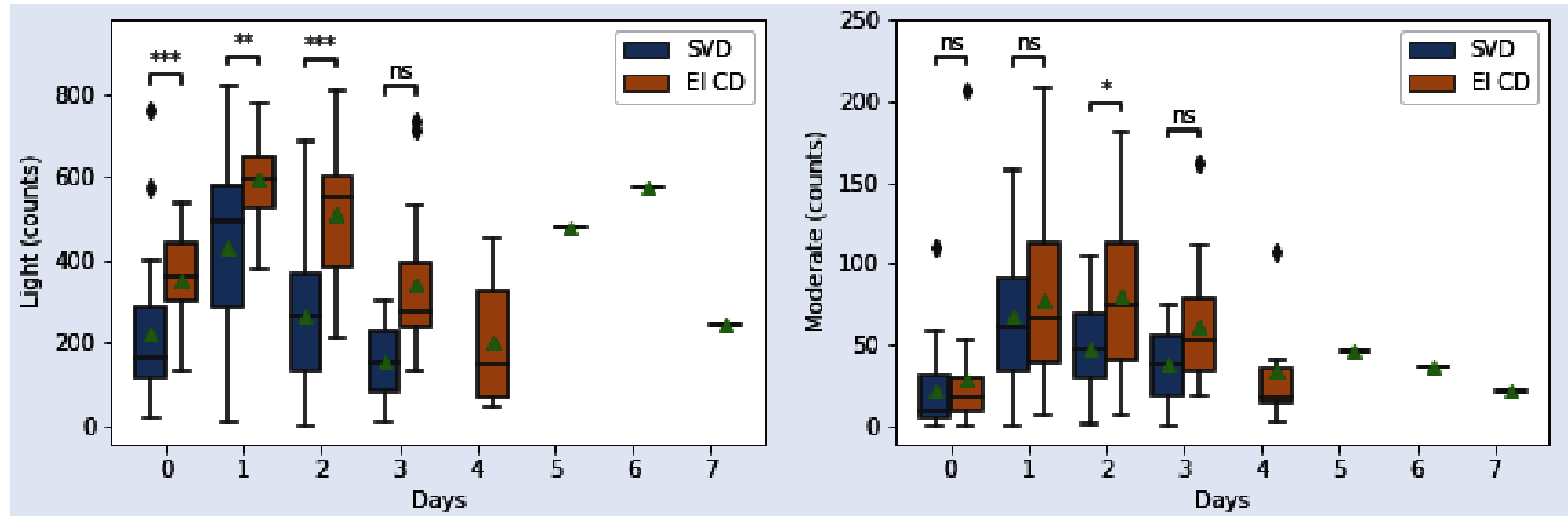
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Results

Level of Physical Activity



Conclusions

- Differences in sleep and activity exists between vaginal and cesarean deliveries
- Future studies can identify areas to optimize sleep (avoid excess interruptions, dedicated time for follow up, counseling on sleep hygiene, baby to nursery, etc.)
- Enhanced recovery focus on importance of early ambulation with set goals on ideal activity

Limitations

- Single center study
- Algorithms require long stretches of sleep
- Compliance with watch wearing
- Not accounting for time spent in newborn nursery

References

Cole RJ, Kripke DF, et al. Automatic sleep/wake identification from wrist activity. *Sleep*. 1992.

Okun ML et al. Poor sleep quality increases symptoms of depression and anxiety in postpartum women. *J Behav Med*. 2018.