

Device-based Monitoring of Physical Activity, Sedentary Behavior, and Sleep in Adult Survivors of Childhood Cancer: A National Czech Initiative with International Perspectives

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This initiative builds on a series of published accelerometry-based studies in paediatric and adult childhood cancer survivor populations.

Why survivorship monitoring matters

Survival after childhood cancer now exceeds 90% for many diagnoses. As more patients reach adulthood, long-term follow-up increasingly focuses on late effects such as cardiometabolic risk, fatigue, neurocognitive decline, and impaired sleep. Physical activity, sedentary behavior, and sleep are modifiable behaviors with direct relevance for long-term health and quality of life.

What is still missing

Objective monitoring in adult survivors remains scarce. Much of the available evidence still relies on self-report, which can underestimate sedentary time and misclassify activity intensity and sleep characteristics. Survivorship care needs standardized, device-based data that are comparable across diagnoses and centers.

Key targets



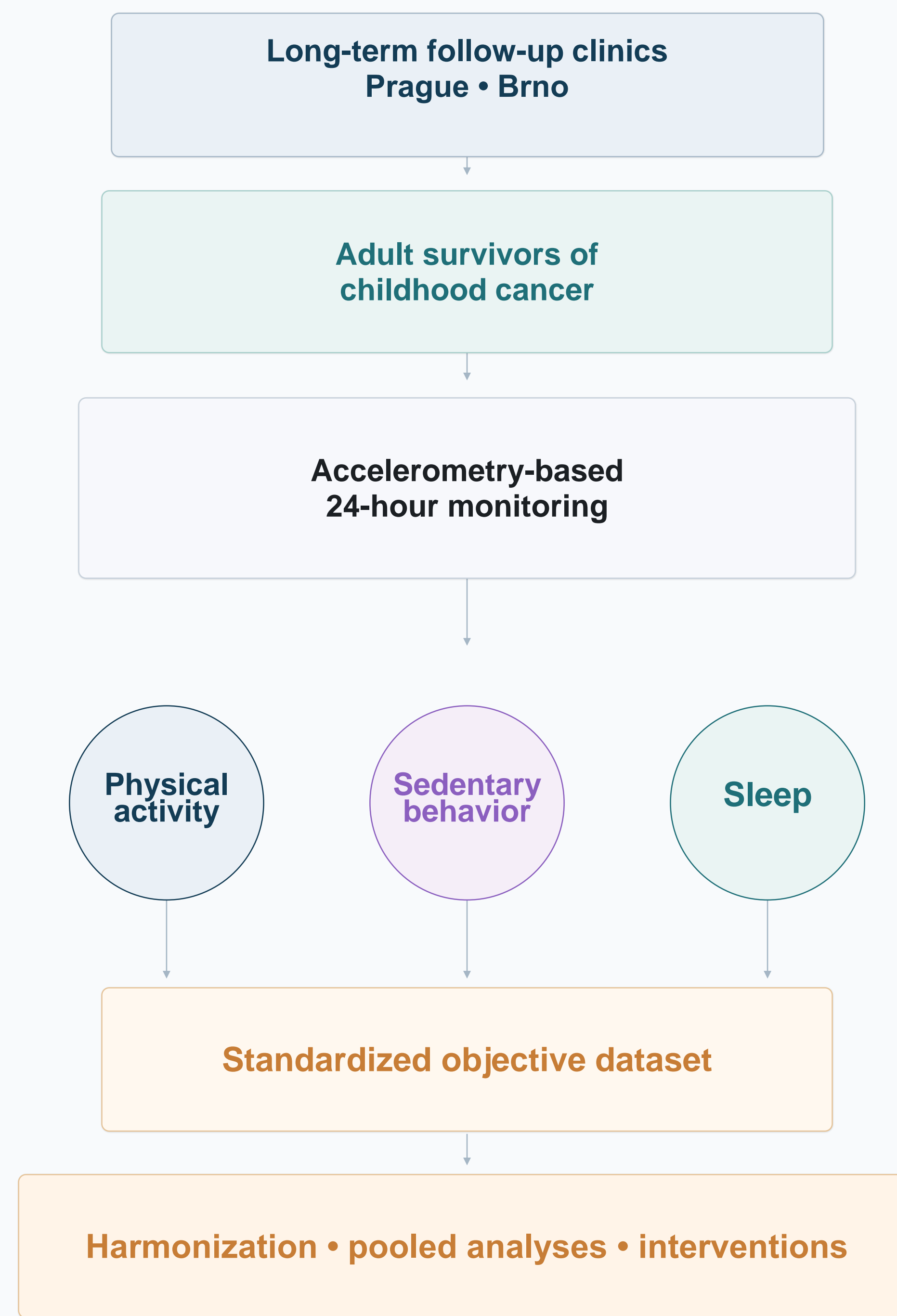
These behaviors represent modifiable targets for improving long-term survivorship outcomes.

Why device-based monitoring?

- Objective 24-hour assessment of movement behavior and sleep
- Standardized methodology suitable for cross-study comparison
- Clinical integration with survivorship follow-up pathways
- A stronger foundation for pooled analyses and future interventions

What we have built in the Czech Republic

In the Czech Republic, we are building a coordinated platform that links long-term follow-up clinics, universities, and patient organizations. Adult survivors treated in childhood are recruited through specialized follow-up clinics in Prague and Brno and assessed using accelerometry-based 24-hour monitoring.



Current scope

Active

Hodgkin lymphoma

Acute lymphoblastic leukemia

Expanding to

CNS tumors

Sarcomas

A growing cohort with shared methodology across diagnostic groups.

Why this platform is unique

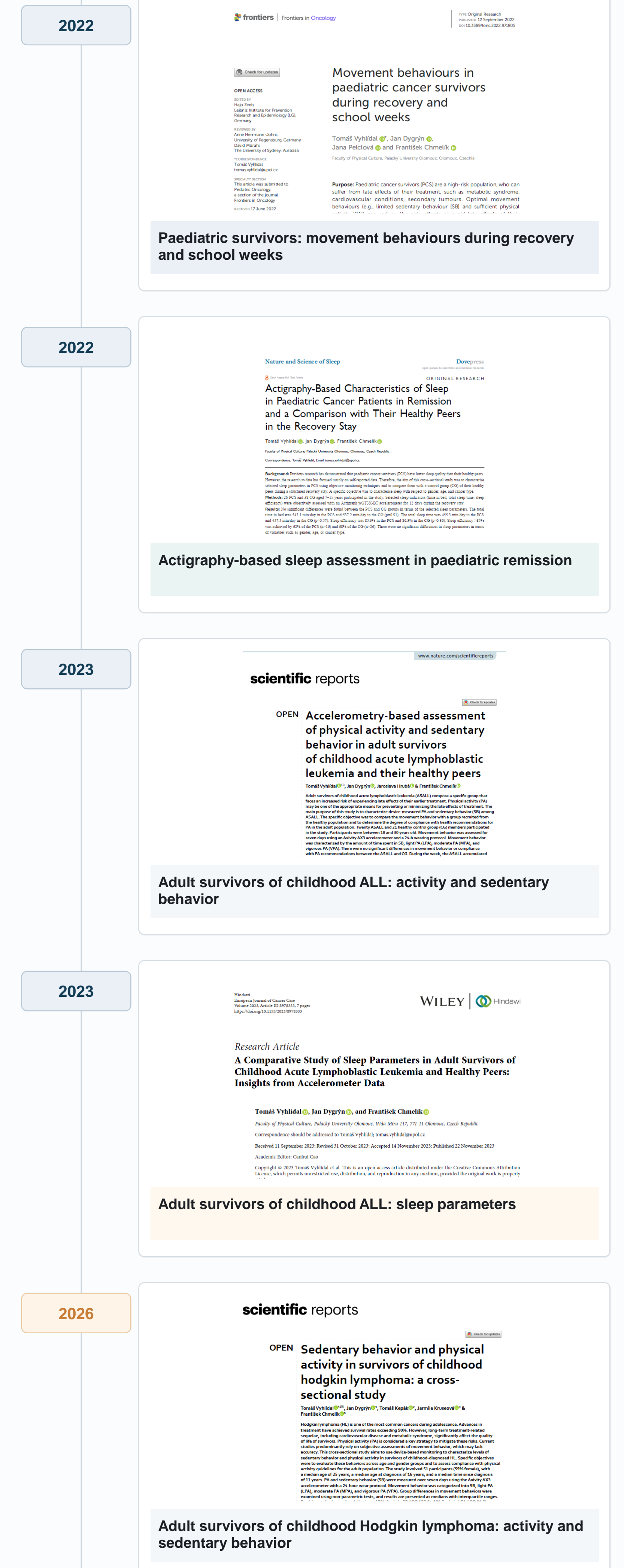
- National-level coordination
- Multiple childhood cancer diagnoses
- Objective assessment of both movement behavior and sleep
- Direct integration with long-term follow-up care

Why this matters internationally

This infrastructure creates a realistic opportunity for cross-country collaboration. Harmonized methods and pooled datasets can support larger analyses, improve identification of risk profiles, and accelerate the development of evidence-based recommendations for survivors transitioning into adulthood. The aim is not only to collect national data, but to create a platform that is ready for collaboration in childhood cancer survivorship research.

Research foundation of the current initiative

Five selected outputs show the progression from paediatric recovery studies to adult survivor cohorts and provide the methodological foundation for the current national initiative.



Together, these studies demonstrate sustained expertise in accelerometry-based assessment across paediatric and adult survivor populations and create a credible research base for the current Czech initiative.

Conclusion

National coordination in the Czech Republic shows that systematic device-based monitoring of physical activity, sedentary behavior, and sleep in adult survivors of childhood cancer is both feasible and valuable.

Call for collaboration

We welcome international partners interested in harmonized protocols, pooled analyses, and collaborative intervention development aimed at improving survivorship care and long-term health outcomes.

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