

MEDIA RELEASE
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**GETTING AT LEAST NINE HOURS OF SLEEP HALVES OBESITY RISK IN BOYS,
A*STAR STUDY REVEALS**

MRI study reveals new evidence on how consistent sleep habits throughout the week may protect children's health—weekend catch-up sleep alone does not provide same benefits

SINGAPORE — Boys who regularly slept nine hours or more a day throughout the week had a 51% lower risk of obesity and significantly less abdominal fat compared to those with insufficient sleep, according to a new study from the A*STAR Institute for Human Development and Potential (A*STAR IHDP) using data from the Growing Up in Singapore Towards healthy Outcomes (GUSTO) cohort.

Published in the journal *Obesity* in October 2025, this is the first study in Singapore to use magnetic resonance imaging (MRI) to quantify how sleep patterns relate to different types of fat in children. Abdominal fat, particularly fat around internal organs, is more strongly linked to metabolic diseases such as type 2 diabetes and cardiovascular disease than overall body weight.

Consistent sleep throughout week linked to healthier body composition

The study examined 638 children (51% boys, average age 10.2 years) from Singapore's three major ethnic groups (Chinese, Malay, and Indian), combining sleep data from caregiver reports and wearable activity trackers with MRI scans to measure abdominal fat.

Boys who met recommended sleep duration had significantly less fat across all areas measured, including fat under the skin and fat around internal organs. They also had lower levels of an inflammation marker in the blood linked to chronic inflammation and heart disease risk.

A similar, though weaker, association was also observed in girls, suggesting biological or behavioural differences in how sleep affects fat storage.

Weekend catch-up sleep alone not enough

Many school-age children try to compensate for weekday sleep deficits by sleeping longer on weekends. However, the study found that meeting sleep recommendations only on weekends did not reduce obesity risk or abdominal fat. Only children who met recommended sleep duration consistently across both weekdays and weekends showed the protective benefits.

"This finding has important implications for parents, schools, and policymakers," noted Dr Shirong Cai, Principal Scientist at A*STAR IHDP and the study's senior author. "It suggests that consistent sleep habits throughout the week are what matters for protecting children's metabolic health, not just letting children sleep in on weekends."

Study citation: Tang B, Sadananthan SA, Ooi DSQ, Padmapriya N, Tint MT, Tham EKH, Goh DYT, Broekman BFP, Gooley JJ, Teoh OH, Chong YS, Gluckman PD, Yap F, Eriksson JG, Velan SS, Müller-Riemenschneider F, Lee YS, Michael N, Cai S. *Meeting Sleep Duration Recommendations is Associated With Lower Abdominal Adipose Tissue in 10-Year-Old Boys. Obesity* (2025). <https://doi.org/10.1002/oby.70026>

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About GUSTO

Set up in 2009, GUSTO (Growing Up in Singapore Towards healthy Outcomes) is a nationwide birth cohort study involving collaborators from KK Women's and Children's Hospital (KKH), National University Health System (NUHS), National University of Singapore (NUS), and A*STAR Institute for Human Development and Potential (A*STAR IHDP). It is a longitudinal study of Singaporean mothers and their offspring. Since its inception, the study has recruited 1,247 Singaporean pregnant women as volunteers. These volunteers are studied extensively during their pregnancy, and their offspring are closely followed up as they grow up. GUSTO aims to understand how conditions during pregnancy and early childhood may affect the mothers' and children's health, growth and development, as well as metabolic, neurodevelopmental and other conditions – all of which are of major public health and economic importance in Asia and around the globe. The research spans across four themes, where the results from monitoring both mother

and child help in developing public health policies; clinically-valuable, testable interventions; reduce the burden of childhood obesity and non-communicable diseases, e.g. diabetes; and improve neurodevelopmental outcomes in children. The study is supported by the National Research Foundation (NRF) under the Open Fund-Large Collaborative Grant (OF-LCG) administered by the Singapore Ministry of Health's National Medical Research Council (NMRC), and the Agency for Science, Technology and Research (A*STAR). In RIE2025, GUSTO is supported by funding from the NRF's Human Health and Potential (HHP) Domain, under the Human Potential Programme. Find out more at www.gusto.sg.

About the A*STAR Institute for Human Development and Potential

The A*STAR Institute for Human Development and Potential (A*STAR IHDP) is host to a range of research activities that emphasise human potential and opportunities to improve health and well-being across the life course. We enable this through our research, as well as the support and participation of multiple ecosystem partners within and beyond A*STAR.

Through our work, we hope to enable communities and societies to be better versions of themselves, through opportunities to understand and access ladders for improved health and well-being. These include observational studies, pilot interventions, and evidence recommendations to practitioners and policy makers.

Our aim is to be a lead institute contributing to Singapore's vision to build human capital and potential, as part of the Human Health and Potential domain in RIE2025. Our strong foundational capabilities in translational research, renewed focus areas and commitment to supporting Singapore's needs in population health will help advance human potential, health and well-being. Find out more at www.a-star.edu.sg/ihdp.

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