Tackling childhood obesity using structured play times

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Trish Tucker, a professor in the School of Occupational Therapy, is currently working on a study, Supporting Physical Activity in the Childcare Environment (SPACE), which aims to increase the physical activity levels of preschoolers during childcare hours. The three-year project, funded by the Canadian Institutes of Health Research, is being carried out by Tucker and five research colleagues (four at Western and one at McMaster University). Credit: Adela Talbot // Western News

How important is physical activity in children under 5? It's a question Trish Tucker, a professor in the School of Occupational Therapy, tackles on a daily basis. She's currently involved in a major research project that aims to get young children moving – early and often.

The childhood obesity rate in Canada has increased significantly over the last several years. But it's more than a recent trend. According to the federal government, obesity rates among children and youth have nearly tripled over the last 30 years. The negative impacts – on the individual and on the health-care system – can be significant. Obese children are more likely to become obese adults, and they're at a higher risk of developing Type 2 diabetes, high blood pressure, and other cardiovascular illnesses.

One of the major factors cited is a lack of physical activity. Government of Canada statistics show only 9 per cent of children and youth, aged 5 to 17, get the recommended 60 minutes a day of moderate to intense physical activity. It's clear addressing the issue early is key.

"Kids as young as 2 years old can benefit from regular physical activity," said Tucker. "And we know physical activity levels in the early years, the preschool years, track into childhood and adolescence. So, it's important we establish appropriate physical activity levels early so we're setting children on a good trajectory."

Unfortunately, a strong body of literature reports low levels of physical activity among preschoolers (2.5 to 5 years old) in childcare settings. So, how can we get our young kids moving more, and developing good physical activity habits early in life? That's something Tucker seeks to find out.

Her new study, Supporting Physical Activity in the Childcare Environment (SPACE), aims to increase the physical activity levels of

preschoolers during childcare hours. The three-year project, funded by the Canadian Institutes of Health Research, is being carried out by Tucker and five research colleagues (four at Western and one at McMaster University).

The study is taking place in child-care centres, and for good reason. Approximately 50 per cent of preschoolers are cared for outside the home by a non-family member, and as a previous study conducted by Tucker discovered, kids in centre-based childcare had the lowest physical activity levels, compared to those in home-based childcare or full-day kindergarten.

Twenty-two childcare centres in London, and more than 300 preschool-aged children (whose parents provided consent), were recruited to participate in the SPACE study – a physical activity intervention that consists of three components, carried out simultaneously. Centres received portable play equipment for use indoors and outdoors, as research has shown portable equipment, more so than fixed equipment, supports physical activity. The research team also provided physical activity training to child-care centre staff, including educating staff on appropriate levels of physical activity for preschool-aged children, and how to get kids moving. Finally, the outdoor playtime of the children was modified, which is a unique component of the intervention. Instead of providing two 60-minute play sessions (the requirement in Ontario for full-day childcare centres), the kids participated in four 30-minute unstructured play sessions.

"Kids are more active when they're outside, but we also know they're the most active when they first head outdoors, and then their activity levels taper off," said Tucker. "So, we changed those two 60-minute periods to be four 30-minute play sessions to try and maximize that peak activity level we see during the first 10 minutes or so."

The intervention, which ran for eight weeks, took place last spring. The children wore accelerometers (a high-tech pedometer) for five days before the intervention, and then again for five days at the end of the intervention. This provided an objective measurement of their activity levels during childcare hours.

"We measured their physical activity levels and sedentary time, we measured their quality of life (through a questionnaire with help from the parents), and we measured the staff's physical activity knowledge, as well as their self-efficacy for engaging kids in physical activity," Tucker said. "And we've just wrapped up six and 12-month follow-up assessments to see if the activity levels sustained."

Tucker and her team are analyzing and interpreting the data, and they'll be sharing the results and their conclusions from the SPACE study with child-care staff and directors, parents/guardians, and 'early years' policy makers. The grant-funded project concludes next February.

"Based on our preliminary analysis, we anticipate the results will display an increase in physical activity among the preschool population as a consequence of the intervention," said Tucker.

Through the study, Tucker hopes to provide the knowledge required for those responsible for the guidelines and practices of child-care centres to make decisions in support of healthy active behaviours among preschoolers.

"A long-term goal is to create child-care environments that are supportive, encouraging, and normalizing of physical activity behaviours among young children," she said. "We want to ingrain physical activity in kids from the time they're little, so it's a normal part of their behaviour, to run around and play."

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More information: Patricia Tucker et al. Supporting Physical Activity in the Childcare Environment (SPACE): rationale and study protocol for a cluster randomized controlled trial, *BMC Public Health* (2016). DOI: 10.1186/s12889-016-2775-9

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