

Title: Not all play equipment is created equal: associations between equipment at home and children's physical activity

Audience:

Parents of kids aged 5-12 years, policy makers.

Keywords:

Physical activity, exercise, play equipment, children and parents

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Lay summary

Heading:

The right stuff: the play equipment that gets kids moving

Key findings:

- On average, kids were only doing the recommended physical activity on 4 out of 7 days
- Kids had different combinations of equipment at home – we identified 4 distinct groups
- Higher physical activity wasn't about having the most play equipment, it was about having the right combination of equipment ("the right stuff")
- The kids who were more physically active had more fixed equipment (like swings, slides, climbing equipment) and less electronic equipment (such as computers or mobiles)

What this research is about:

In Australia, less than 20% of kids aged 5-17 years meet the physical activity guidelines (i.e., 1 hour of moderate to vigorous physical activity per day). Worldwide, children are doing less physical activity than they should and they are less fit now than their parents were at the same age, so we've been looking for novel intervention targets. Children do most of their physical activity in their free time, so making sure that the play equipment they have at home encourages them to be physically active could make a difference.

Play equipment creates opportunities for play, supports fine and gross motor development, and develops social skills like turn-taking.

Helping kids to be physically active helps their health in the short-term, by increasing coordination, muscle strength, cardiovascular fitness and motor skills, and also helping them to be body confident. In the longer term it can help protect them against diseases like obesity and type 2 diabetes.

So far evidence on the association with physical activity has been mixed, but that might be because of the way it's been studied.

What we did:

We asked mothers (N=2049) to tell us about the play equipment available at home, and how many days in the last week their kids (N=4092) did moderate to vigorous physical activity for an hour.

Previous studies have taken two approaches to play equipment. The first is summing the number of different types of equipment, but this assumes every type of equipment has the same relationship with physical activity – that all equipment is created equal.

The second approach is to look at individual types of equipment, but this doesn't reflect kids' lived experience – most children have more than one type of equipment at home.

In the Mothers and their Children's Health (MatCH) study, we looked at combinations of equipment, breaking it into:

- electronic equipment (e.g., TV, computer, mobile phone),
- active equipment that's fixed (e.g., swing, slide, climbing equipment or trees, trampoline, basketball or netball hoop)
- active equipment that's portable (e.g., bats or racquets, skateboard, skipping rope).

We didn't include bikes, balls and books, as almost 100% of kids had these, so these combinations are what equipment kids have in addition to those items.

What we found:

On average kids had access to 7 types of active equipment and 2 types of electronic equipment.

We identified four groups of kids with distinct combinations of equipment:

- "Plenties" had the most active equipment (8 types), and a medium amount of electronic equipment (2 types).
- "Sliders" had 6 types of active equipment (mostly fixed), and 1 type of electronic equipment
- "Batters" had 5 types of active equipment (mostly portable) and 2 types of electronic equipment
- "Techies" had 7 types of active equipment (mostly portable) and 4 types of electronic equipment

The Plenties had the most equipment and they were the most physically active (they met the guidelines on 4.2 days per week on average).

The Sliders had less equipment, but their physical activity was about the same as the Plenties. This means kids can be just as active with less equipment, as long as it includes fixed equipment like slides, swings and climbing equipment.

The Batters had the least amount of equipment and it was mostly portable. They did the least amount of physical activity.

The most interesting group was the Techies. They had almost the same amount of equipment as the Plenties but their physical activity was the same as the Batters (i.e. the lowest in the study). This seems to be because their play equipment was mostly portable, and they also had double the amount of electronic equipment.

The differences between these groups show it's about having the right play equipment, and limiting access to electronics.

Different families buy different equipment, influenced by education, income and yard size:

- Plenties: normal BMI, higher maternal PA, more kids in the family, both boys and girls
- Sliders: normal BMI, lower maternal PA, cities
- Batters: smaller families, cities, smaller yards
- Techies: obese, lower mat ed, higher fin hardship, smaller families, regional.

Take away message:

In the lead up to Christmas, parents might find it reassuring to know that it's not about having the most equipment, it's about having the right equipment: in addition to bikes and balls, fixed equipment might get kids moving more than portable equipment. It's also important to limit access to electronics.

For policy makers: in neighbourhoods with smaller yards, it's important to provide spaces for kids and families that encourage physical activity and include fixed equipment.

Limitations:

It wasn't longitudinal so we don't know if active kids get different equipment, or if different equipment makes kids more active (i.e. does the activity cause the play equipment, or does the play equipment cause the activity?). Data were reported by mothers, not measured by accelerometer.