
From: Paul Klarenaar (Northern Sydney LHD)
Sent: Saturday, 28 May 2022 7:00 PM
To: Liz Clark
Subject: Items requested on-notice RE: Inquiry into the planning and delivery of school infrastructure in New South Wales – Witness invitation
Attachments: SchoolPlaySpaceOnePagerFinal17Feb21.pdf; SchoolPlaySpaceAlternativeStrategies2022.pdf; ArtificialVsNaturalGrassResearchSummaryFatemahAminpour2022.pdf

Hi Liz

Following up on my witness session on Wednesday (portfolio committee #3), please find attached the relevant documents:

1. One page summary of free play space research referred-to in our submission and committee discussions
2. One page summary providing examples of alternative strategies used by NSW schools to provide active play opportunities within limited play space, &
3. Summary provided by University of NSW researcher Fatemeh Aminpour regarding their investigation into artificial v natural grass (Source: Aminpour, F., & Bishop, K. (2021). Children's preferences on the move: Establishing the characteristics of unofficial paths and their benefits for children's physical play in Australian primary school grounds. *Journal of Environmental Psychology*, 75, 101599).

Kind regards
Paul Klarenaar
Advocacy Lead, Australian Health Promotion Association

School Play Space... how much is enough?

Background

Only a minority of Australian children meet recommended physical activity levels. With increasing student numbers, our schools need to ensure they maintain sufficient playground space to support physical activity and wellbeing.

The study

The relationship between primary school playground size and children's physical activity levels was examined. Free play space was mapped within forty-three randomly selected NSW primary schools. The play space data was cross matched with physical activity data from the 2015 Schools Physical Activity and Nutrition Survey.

Results



Increased free play space (up to 25m² per student) led to increased physical activity where loose play equipment (such as balls and skipping ropes) was available.



The probability of students meeting physical activity recommendations increased sharply between 15m² and 25m² per student.

Recommendations

1



Set a benchmark of 25m² free play space per student when planning and designing schools.

2



Ensure loose play equipment is available.

3



Undertake further research on real world variables such as school design, surrounding open space and population density.

Reference:

1. Ecological study of playground space and physical activity among primary school children, 2020
Anne Grunseit, Blythe O'Hara, Bradley Drayton, Vincent Learnihan, Louise L Hardy, Eve Clark, Paul Klarenaar, Lina Engelen <https://bmiopen.bmi.com/content/10/6/e034586>

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School Play Space: alternative strategies

Examples of strategies used by NSW schools to provide active play opportunities within limited play space:

Strategies

Physical environment:

- Design playgrounds that are easy to supervise with clear sight lines
- Revitalise and activate underutilised areas
- Add or update line markings e.g. handball, hopscotch, number games, wall target games
- Provide access to all useable open spaces e.g. hall, oval, courts, school garden
- Provide all-weather play areas e.g. using shade cloth, tree canopy, heat resistant ground cover, wet weather covered areas
- Utilise alternate spaces for active play e.g. parks, beaches, sports grounds
- Consider 'pop-up' play e.g. tennis or volleyball nets, nature play pods, loose play parts

Policies and practices:

- Provide access to loose play equipment or enable students to bring their own
- Designate specific play spaces for loose play or fixed play, age or ability play
- Ensure active supervision of all play areas
- Develop a roster for access to all-weather play areas during adverse weather events
- Stagger breaks e.g. K-2 and 3-6

Student skills and confidence development:

- Enable student-led activities e.g. peer mentors, buddies, sports captains
- Provide teacher-led activities e.g. activity stations, teach students how to use the line markings

Collaboration:

- Approach Local Council regarding improvements to shared public spaces e.g. toilets, water, shade and appropriate play equipment
- Consult the school community for further ideas on alternative strategies to promote active play e.g. variety of equipment for all ages and abilities

Resources

Play space support resources can be accessed on nshp.com.au/PlaySpace.

Contact Northern Sydney [School Years Team](#) for further support, advocacy or to conduct a play space audit.

Reference:

1. Grunseit AC, O'Hara J, Drayton B, Learnihan V, Clark E, Klarenaar P, Engelen L. Ecological study of playground space and physical activity among primary school children BMJ 2020; Vol XX Issue 6, p.2. <https://bmjopen.bmj.com/content/10/6/e034586>

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Further information to the Parliamentary Inquiry into SINSW

Artificial versus natural grass:

Current research suggests that natural grass should be used where possible and further research conducted on developing artificial surfaces that do not impact the environment.

- There are environmental risks, both from pollution and ambient heat, caused by synthetic grass. Heatwaves kill more Australians every year than every other natural disaster combined. Reducing urban heat islands and greening spaces with natural plants will reduce heat.
- Greater moderate to vigorous physical activity at school occurs on grass. ([See F. Aminpour](#) and [H. Anderson et al.](#))
- A Ministerial Investigation is being conducted into the environmental impacts of artificial surfaces. The NSW Chief Scientist and Engineer Professor Hugh Durrant-Whyte will investigate the impact of synthetic surfaces and alternatives to support the development of the guidelines, planning and public spaces based on this synthetic turf investigation that DPE have been leading <https://www.planning.nsw.gov.au/Policy-and-Legislation/Open-space-and-parklands/Synthetic-Turf-Study>.

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[My research](#) includes some evidence that indicates children's preference for natural grass: artificial turf felt 'as hard as concrete' from children's perspectives and did not cushion falls if they fell on it, causing abrasions. Further, children believed that artificial turf was 'slippery' and that it got 'too hot' in the sun, which caused friction on their skin and a 'burning' sensation when they slid across it. Natural grass was children's favourite surface material for running on or performing gymnastics since "the real grass doesn't really soak in too much sun", "it doesn't really get very hot" and "doesn't hurt if you fall".

Source: Aminpour, F., & Bishop, K. (2021). Children's preferences on the move: Establishing the characteristics of unofficial paths and their benefits for children's physical play in Australian primary school grounds. *Journal of Environmental Psychology*, 75, 101599.

Some quantitative data from [Pfautsch et al.'s \(2020\)](#) study resonates with the findings from my research:

- Sunlit artificial grass reached a mean temperature of 52°C during the normal summer day despite the air temperature being below 30°C.
- Artificial grass displayed the highest mean surface temperatures during days with normal, hot and extreme air temperatures.
- The lowest temperature measured for a ground material was the irrigated green lawn. During the day of extreme heat, this surface type reached a mean temperature of 38°C, being 20°C cooler than artificial grass or bare soil.

Source: Pfautsch, S., Rouillard, S., Wujeska-Klause, A., Bae, A., Vu, L., Manea, A., ... & Leishman, M. R. (2020). *School Microclimates*.

Some other sources on the health and safety concerns associated with the adults' and young people's use of artificial turf (including carpet burns in case of friction between the skin and the surface of the turf and bruises in case of falling):

- Dragoo, J. L., Braun, H. J., & Harris, A. H. (2013). The effect of playing surface on the incidence of ACL injuries in National Collegiate Athletic Association American Football. *The Knee*, 20(3), 191-195.
- Fuller, C. W., Dick, R. W., Corlette, J., & Schmalz, R. (2007). Comparison of the incidence, nature and cause of injuries sustained on grass and new generation artificial turf by male and female football players. Part 1: match injuries. *British journal of sports medicine*, 41(suppl 1), i20-i26.
- Williams, S., Hume, P. A., & Kara, S. (2011). A review of football injuries on third and fourth generation artificial turfs compared with natural turf. *Sports medicine*, 41(11), 903-923.

For further information on NSLHD play space strategy contact:

Eve Clark

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