

MUSCULAR FITNESS

It's time for a jump start!



**ACTIVE HEALTHY KIDS
AUSTRALIA**



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EXECUTIVE SUMMARY

Australian children and young people do not move enough each day. We know this from convincing evidence that shows only a small portion of kids get enough daily 'huff and puff' activity. We do not prioritise movement like we should — movement needs to be a part of our everyday experience and something that is the default, not the exception. Active kids are fitter, have stronger muscles and bones, concentrate better in class and are more confident, and these are just some of the many benefits physical activity provides. There is no denying that something must be done soon to increase kids' physical activity levels. But we all live in a world where individuals are spending more and more time sitting, especially in front of screens. How do we make the cultural shift that's needed to get us all to stand up and start moving?

Active Healthy Kids Australia (AHKA) is a collaboration of 13 physical activity researchers from nine universities with the primary goal to advocate for ways to increase physical activity and decrease sedentary behaviour among Australian children and young people. The vehicle we use to help drive this change is the AHKA Report Card on Physical Activity for Children and Young People. The Report Card synthesises the best available Australian evidence in order to assign grades to physical activity indicators, providing a national snapshot of current trends and levels of physical activity among young Australians.

As with previous Report Cards (released in 2014 and 2016), current data indicate no change in children's overall physical activity levels, with Australia again receiving a poor grade of D-. Australia is also lagging at the back of the pack on an international level: Using data from the Active Healthy Kids Global Alliance's 'Global Matrix 3.0', Australia, tied at 32nd place out of 49 countries for our Overall Physical Activity grade. The main story from this year's Report Card is similar to that of previous years, there has not been a lot of movement for most of the grades. We again see poor grades (D- to D+) for physical activity behaviours (Active Transport and Screen Time), strategies and investments, and traits (Physical Fitness and Movement Skills). It is encouraging however that Australia scored better grades for settings and sources of influence (Family and Peers, School, Community and Built Environment; C+ to A-) and other physical activity behaviours (Participation in Organised Sport and Participation in Physical Activity in School; B- to B).

The theme of this year's Report Card highlights the seemingly forgotten component of our national physical activity guidelines — that children should engage in muscle and bone strengthening activities on at least three days per week. Recently highlighted declines in the jumping ability of Australian children and young people indicate that 'it's time for a jump start' for muscular fitness. We need immediate action in order to get our kids moving more everyday — they need to engage in activities that will get them 'huffing and puffing' as well as strengthening and developing their muscles and bones to ensure they are healthy heading into adulthood.

AHKA acknowledges that there is no single person, organisation, sector or group that can shift the progressively sedentary culture of our nation. We strongly advocate for a coordinated national response through the collaboration of all Australians: government, non-government organisations, communities, sporting organisations and groups, schools, teachers, parents, coaches, friends, families, and most importantly, children. Physical activity needs to be prioritised every day, and it should not be viewed as something we feel like we must do, rather it should be viewed as something we all want and choose to do for fun, enjoyment, and better health across the lifespan.



MUSCULAR FITNESS: It's time for a jump start!

When asked 'how much physical activity should kids get every day for good health?', most will typically say anywhere from 30 minutes to 2 hours of activity (some might even say activity that makes them huff and puff) each day. Very rarely does anyone mention that children and young people should also engage in muscle and bone strengthening activities a few times each week.¹⁰ Why?

Participating in muscle and bone strengthening activities is often associated with going to a gym and lifting weights. But in fact, muscle and bone strengthening activities for children and young people include: activities and games such as tug-of-war or hopscotch; body weight exercises such as squats and push-ups; rope, tree or rock climbing; running or sports such as gymnastics, basketball, volleyball and tennis; swinging or hanging from playground equipment; and playing rough and tumble with friends or family.

So what can happen if kids don't engage in enough of this type of activity? The simple answer is that their physical development may be compromised leading to a decline in physical performance over time. Unfortunately, this is what we're seeing in Australia: Objectively measured (national and state-level) data show that today's kids cannot jump as far as the kids from 30 years ago (and don't even come close) when performing the standing long (broad) jump^{11,12} — meaning muscular fitness has declined¹³ and 'it's time for a jump start'.

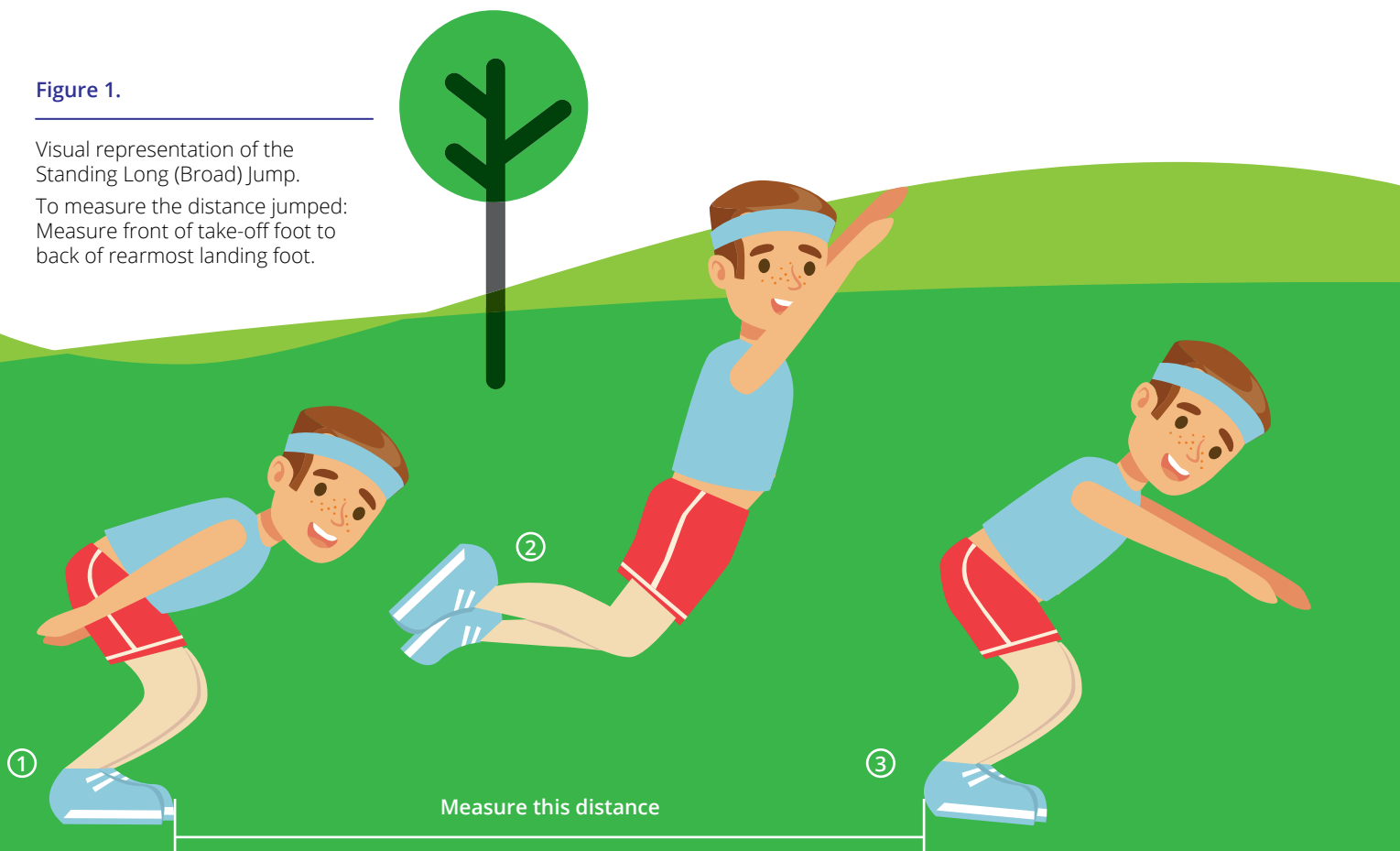
What is muscular fitness and how do we measure it?

Muscular fitness refers to the strength, power and endurance of the muscles — the ability of the muscles to generate force maximally (strength), quickly (power), and without fatigue (endurance).¹⁴ Muscular fitness can be measured in different ways and the choice of test will depend on your area of focus — power, strength or endurance, the type of muscle contraction (e.g., static or dynamic) and the context (e.g., field- or lab-based).¹⁵ In Australia, the muscular fitness of children and young people^{16,17} has often been measured by the standing long (broad) jump, which is one of the world's most widely used functional tests of muscular power (see Figure 1).

The standing long (broad) jump is a fundamental movement skill that is considered essential for participation in a variety of sports involving high-velocity movements, including athletics (e.g., sprinting, hurdling and jumping), combat sports (e.g., karate, taekwondo, and mixed martial arts), and many team sports (e.g., Australian football, basketball, netball and soccer). It can be conducted in a timely and efficient manner; it imposes acceptable preparation burden on both participants and testers; it is free of interpretation misuse; it can be administered with acceptable privacy, minimal equipment and space; and performance is independent of test familiarity and prior practice.^{18,19} Although participation in muscle strengthening activity is included in our national Physical Activity Guidelines, no national muscular fitness data on Australian children and young people, of all ages, have been captured since 1985.

Figure 1.

Visual representation of the Standing Long (Broad) Jump. To measure the distance jumped: Measure front of take-off foot to back of rearmost landing foot.



Why is muscular fitness important?

Muscular fitness is an important indicator of current and future health, although many of its benefits are not widely known. Muscular fitness is meaningfully associated with improved bone health, self-esteem and perceived sport competence; lower levels of fatness, cardiovascular disease and metabolic risk;²⁰⁻²³ and lower risk of premature death.²⁴

So why have we seen a decline in children's muscular fitness over the past generation when we know it is so important for good health and wellbeing? It's likely that:

1. Kids just don't move enough (in any context) on a daily basis,²⁵ and they probably aren't getting enough of the movement that best improves muscular fitness (for example jumping, resistance exercises, climbing trees and on playgrounds);
2. When we consider the Australian Physical Activity Guidelines, most of the attention is focused on increasing the amount of time kids spend engaged in 'huff and puff' aerobic activities, such as running, swimming and cycling, with little attention given to time spent engaged in muscle and bone strengthening activities;¹³
3. Misconceptions surrounding muscle and bone strengthening activities have created barriers to engagement. For example, some people think that expensive equipment and/or a gym membership is required to improve muscular fitness, and/or that strength training activities are associated with increased risk of injury, especially in children and young people.²⁶ This is not the case;^{27, 28} and
4. There is no consistent Australian national-level monitoring or surveillance system that includes measures of muscular fitness.

What do we need to do NOW?

We need to encourage, support and facilitate opportunities for children and young people to engage in more physical activity every day, both 'huff and puff' aerobic activities and muscle and bone strengthening activities. Limited state-based data indicate that muscular fitness is poor and declining, highlighting a critical need for national surveillance and monitoring of the muscular fitness of children and young people to be undertaken and supported by the Australian Government.

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INDICATORS

The 2018 AHKA Report Card assigned grades to a total of 12 indicators (10 core indicators endorsed by the AHKGA and two additional indicators [identified by the * in Figure 2]). Indicators were clustered under the categories: Strategies and Investments, Settings and Sources of Influence, Overall Physical Activity Levels, and Traits (Physical Fitness, Movement Skills*) (see Figure 2).

A = succeeding with a majority of children and young people (81–100%)	B = succeeding with well over half of children and young people (61–80%)
C = succeeding with about half of children and young people (41–60%)	D = succeeding with some but less than half of children and young people (21–40%); and
F = succeeding with very few children and young people (0–20%)	INC = the available data does not reflect what the indicator represents or a consensus on how to operationalise the indicator could not be reached

☆☆☆ = substantial concerns and not considered representative or robust
☆☆☆ = some concerns regarding representativeness and robustness
☆☆☆ = minimal concerns regarding representativeness and robustness

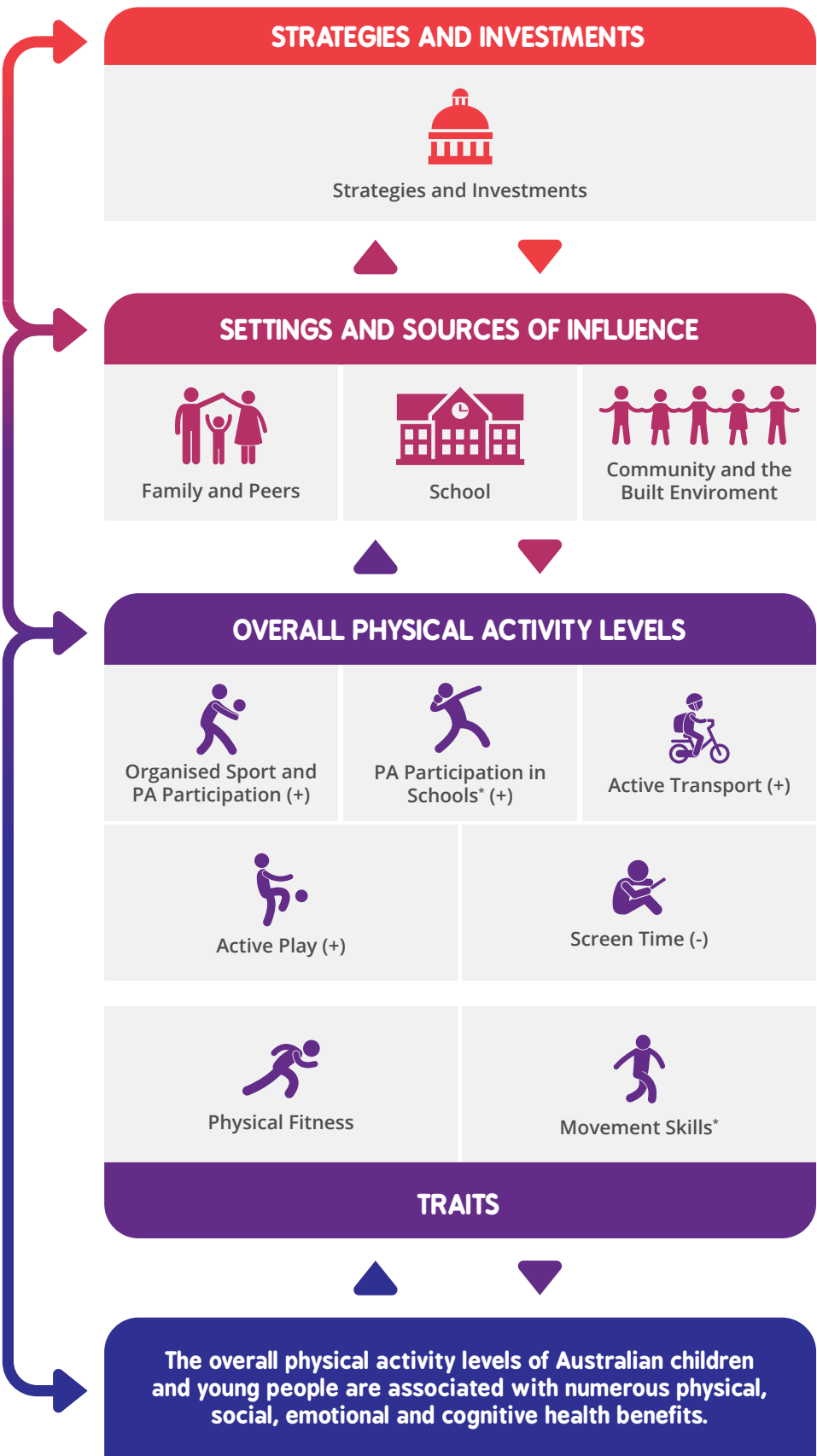


Figure 2.
Visual representation of the AHKA Report Card physical activity indicator categories.
Note, + = increases PA levels; - = decreases PA levels; PA = Physical Activity.
*Indicators included in addition to core indicators endorsed by Active Healthy Kids Global Alliance.

OVERALL PHYSICAL ACTIVITY LEVELS

D-

Confidence Rating



National

- + Self-report data show that 6% of 15–17 year olds²⁹ and 18% of 12–17 year olds³³ accumulate at least 60 minutes of MVPA every day.
- + Self-report data show that on average 22% of 15–17 year olds accumulate at least 60 minutes of daily MVPA.³⁰
- + Self-report data show that 13% of 15–17 year olds engage in muscle and bone strengthening activities on at least three days per week.²⁹

State/Territory

- + Self- and parent-report data show that 23–63% of primary school-aged children accumulate at least 60 minutes of physical activity or MVPA every day during the past week.^{35-37, 41, 44, 47-49}
- + Self-report data show that 11–40% of secondary school-aged young people accumulate at least 60 minutes of physical activity or MVPA every day during the past week.^{38, 41-46, 48, 49}

WHAT THE YAC HAS TO SAY

The best thing that we can do to make kids more physically active is to emphasise that participating in physical activity is about having fun and building essential skills such as teamwork and perseverance, rather than creating a negative association between physical activity and competition, winning and conforming to a standard of fitness in order to succeed — Ella, 17, Tasmania.

ORGANISED SPORT AND PHYSICAL ACTIVITY PARTICIPATION

B-

Confidence Rating



National

- + Parent-report data show that 37% of 0–4 year olds participate in organised sport/physical activity at least once per week.³⁰
- + Parent-report data show that 73% of 5–14 year olds participate in organised sport/physical activity at least once per week outside of school hours and the participation rates peak for children aged 9–11 years (5–8 years: 69%; 9–11 years: 79%; 12–14 years: 75%).³⁰
- + Self-report data show that 81% of 10–11 year olds and 53% of 14–15 year olds participate regularly (at least once per week for three months or a sporting season) in individual and/or team sport outside of school hours.³¹

WHAT THE YAC HAS TO SAY

I believe that kids drop out of sport mostly due to not being comfortable with their bodies, not thinking that they are good enough or comparing themselves to others, not having friends willing to participate with them and believing that they don't have enough time for sport — Helena, 14, Western Australia.

PHYSICAL ACTIVITY PARTICIPATION IN SCHOOLS

B

Confidence Rating



National

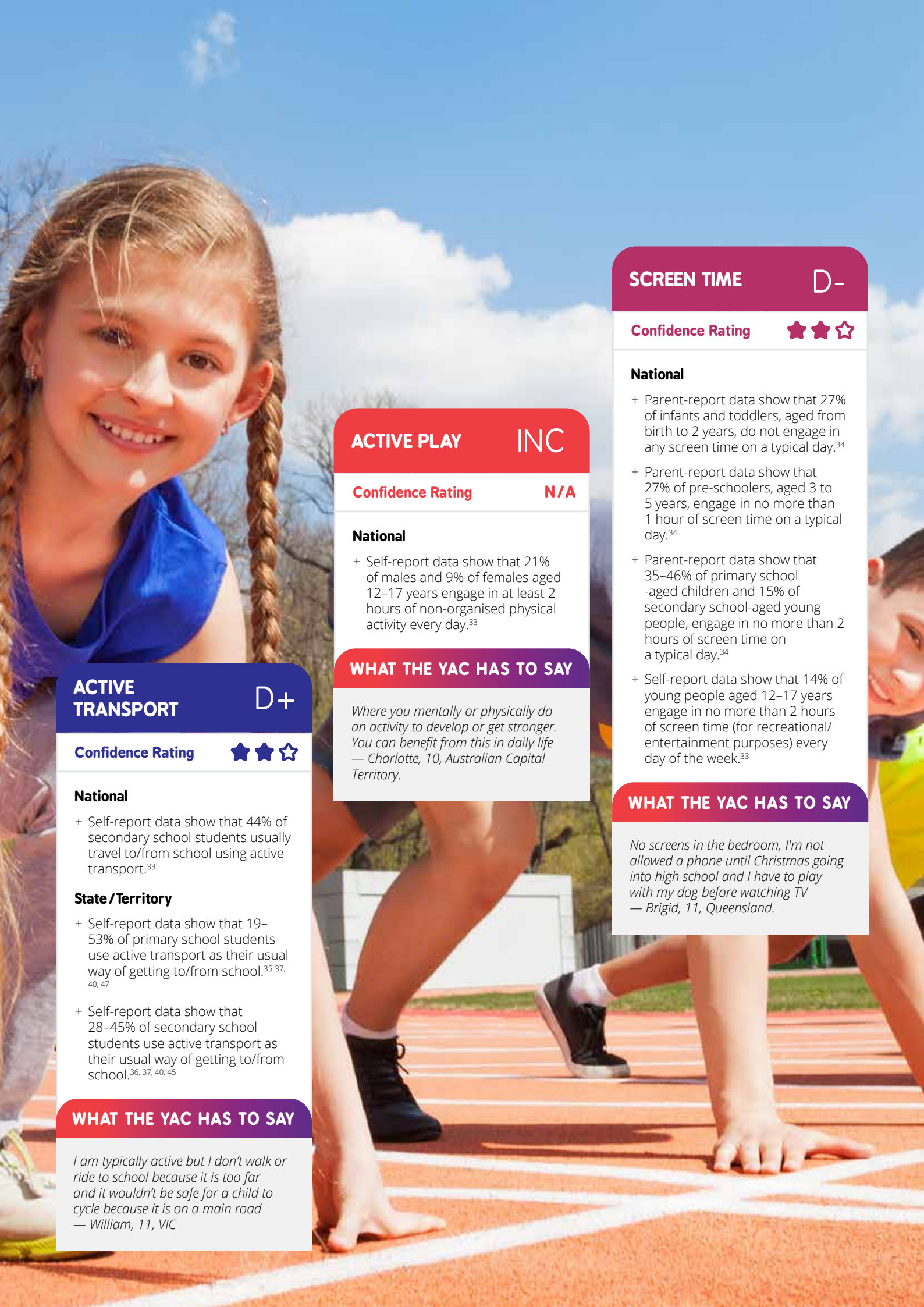
- + Self-report time-use diary data show the chance of a randomly chosen child on a randomly chosen school day getting at least 30 min of MVPA during the school day (school bell to school bell) is 70%.³²

Supplementary

- + Device-measured (via accelerometry) data show 69% of boys and 52% of girls in primary school accumulate at least 30 minutes of MVPA during the school day.⁵⁴
- + Device-measured (via accelerometry) data show 12% of 2–5 year olds accumulate at least 180 minutes of physical activity (of any intensity) and 60% of 3–5 year olds accumulate at least 60 minutes of energetic play (MVPA) during the day (based on a standard 8-hour day) while attending an Early Childhood and Education Care centre.⁵⁶

WHAT THE YAC HAS TO SAY

At recess and lunch I love to play handball, my aim is to stay in the game the whole time! — Lachlan, 8, NSW.



ACTIVE TRANSPORT

D+

Confidence Rating



National

- + Self-report data show that 44% of secondary school students usually travel to/from school using active transport.³³

State/Territory

- + Self-report data show that 19–53% of primary school students use active transport as their usual way of getting to/from school.^{35–37, 40, 47}
- + Self-report data show that 28–45% of secondary school students use active transport as their usual way of getting to/from school.^{36, 37, 40, 45}

WHAT THE YAC HAS TO SAY

I am typically active but I don't walk or ride to school because it is too far and it wouldn't be safe for a child to cycle because it is on a main road
— William, 11, VIC

ACTIVE PLAY

INC

Confidence Rating

N/A

National

- + Self-report data show that 21% of males and 9% of females aged 12–17 years engage in at least 2 hours of non-organised physical activity every day.³³

WHAT THE YAC HAS TO SAY

Where you mentally or physically do an activity to develop or get stronger. You can benefit from this in daily life
— Charlotte, 10, Australian Capital Territory.

SCREEN TIME

D-

Confidence Rating



National

- + Parent-report data show that 27% of infants and toddlers, aged from birth to 2 years, do not engage in any screen time on a typical day.³⁴
- + Parent-report data show that 27% of pre-schoolers, aged 3 to 5 years, engage in no more than 1 hour of screen time on a typical day.³⁴
- + Parent-report data show that 35–46% of primary school-aged children and 15% of secondary school-aged young people, engage in no more than 2 hours of screen time on a typical day.³⁴
- + Self-report data show that 14% of young people aged 12–17 years engage in no more than 2 hours of screen time (for recreational/entertainment purposes) every day of the week.³³

WHAT THE YAC HAS TO SAY

No screens in the bedroom, I'm not allowed a phone until Christmas going into high school and I have to play with my dog before watching TV
— Brigid, 11, Queensland.

FAMILY AND PEERS

C+

Confidence Rating



National

- + Parent-report data show 57% of infants (birth to 2 years), 60% toddlers (3 to 5 years), 58–61% of children (6 to 12 years), and 45% of young people (13 to 17 years) rarely or never engage in screen time in the 30 minutes before bedtime.³⁴
- + Parent-report data show 61% of infants and toddlers (birth to 2 years), 73% of pre-schoolers (3 to 5 years), 74–76% of children (6 to 12 years), and 48% of young people (13 to 17 years) have rules and restrictions applied by their parents with regards to screen time at home.³⁴
- + Parent-report data show 55% of infants and toddlers (birth to 2 years), 65% of pre-schoolers (3 to 5 years), 74% of children (6 to 12 years), and 46% of young people (13 to 17 years) have rules and restrictions applied by their parents with regards to what they can see and do when engaged in screen time at home.³⁴
- + Self-report data show 75% and 54% of 12–17 year olds receive some form of encouragement from their parents and peers respectively to be active on a weekly basis.³³
- + Parent-report data show 25% of mothers and 32% of fathers meet the Physical Activity Guidelines (i.e., at least 30 minutes of MVPA on at least 5 days per week).³¹

WHAT THE YAC HAS TO SAY

The physical activities I like to do with my family are kick the football (AFL), practise shooting netball goals, hitting tennis with mum and dad and running with dad — Ella, 11 Victoria.

SCHOOL

B+

Confidence Rating



National

- + School staff-report data show 75% and 98% of primary and secondary school students, respectively, have access to a PE teacher. However, there is no information as to the qualifications of the PE teacher or whether the PE teacher delivers all of the PE lessons.³¹
- + School staff-report data show 66% of primary school students³¹ and 38–45% of students in grades 8–10³³ receive at least 120 minutes of PE each week.
- + Self-report data show 52% of secondary school-aged young people have access to physical activity and sport equipment during school hours.³³
- + School staff-report data show most secondary schools allow students to access a variety of physical activity and sport facilities and equipment during school hours (gymnasium: 65–70%;³¹ sports field/oval: 87%;³³ playground: 81–98%;^{31, 33} outside hard court/s: 89%³³).
- + School staff-report data show 82% of secondary schools allocate at least 60 minutes for recess and lunch time combined.³³

WHAT THE YAC HAS TO SAY

Ways teachers can include more physical activity throughout the school day is a five minute walk around a close court yard or an oval in the middle of a double lesson, or even a five minute game of silent ball in the classroom so that they can have a brain break — Amy, 13, South Australia.

COMMUNITY AND THE BUILT ENVIRONMENT

A-

Confidence Rating



National

- + Parent-report data, for 10–11 and 14–15 year olds, show 85–86% have good parks near their home; 76–77% do not experience heavy or problem traffic on their street; 96% live in a neighbourhood they perceive to be safe; 88–89% believe it is safe for their child to play outside during the day; 76–77% have good roads and footpaths in their neighbourhood; and 75% have access to close, affordable and regular public transport.³¹
- + Self-report data show 76% of 12–17 year olds have a playground or play space near their home that they can access; and 71% report living in neighbourhood they perceive to be safe.³³
- + Parent-report data show that 31–39% of parents do not worry that their child/ren (aged from birth to 17 years) will be unsafe when playing outside in their neighbourhood.³⁴ However it is unclear as to whether this worry is linked directly to their child's behaviour/decisions, to their perceptions of the neighbourhood environment or an interaction between the two.

WHAT THE YAC HAS TO SAY

More enjoyable or entertaining ways of exercising in my local area would be awesome! Things such as an exercise playground with things suitable for people of all ages, skill level and ability would definitely encourage people to be more active — Renee, 17, New South Wales.

STRATEGIES AND INVESTMENTS

D*

Confidence Rating

N/A

- *The AHKA RWG would like to acknowledge that at the time the grades were assigned for the 2018 Report Card, Sport Australia had not released its Sport 2030 — National Sport Plan (<https://www.ausport.gov.au/nationalsportsplan>).
- + Despite substantial lobbying from non-government and non-profit organisations (e.g., National Heart Foundation of Australia, Cancer Council) as well as institutes and groups from within academia, the Federal Government is yet to establish a funded national physical activity plan that is embedded across sectors.
 - + The move by the Federal Department for Health towards 24-hr Movement Guidelines for the Early Years⁹ (and to be updated for children and young people) is supported by AHKA. However, it is important that governments invest adequate resources to support campaigns and initiatives that promote and educate the population regarding the newly released and to be released guidelines, for early years and children and young people respectively, as well as providing practical examples and resources that will assist families to meet the recommendations.
 - + Each State and Territory, through various government departments and organisations, continue to promote and facilitate various campaigns, programs, initiatives and policies that encourage, support and enable children to meet the recommended physical activity guidelines (see the Showcase pages in the long form Report Card).
 - + Since the last Report Card the Federal Government committed funds to support a second wave of the 'Girls Make Your Move' campaign¹⁷⁰, however the evaluation report¹⁷¹ showed that only a low proportion (23%) of girls, aged 12–19 years who engaged with the campaign actually started doing more physical activity or sport. It is important that mass-media campaigns make stronger links with existing supports and systems to better facilitate a change in behaviour.^{172, 173}

- + The continued investment in Sporting Schools¹⁷⁴ by the Federal government is commendable and we acknowledge the independent evaluation that Sport Australia (formerly the Australian Sports Commission) commissioned in 2016, however the full report is yet to be released to the public. The snapshots that have been made available provide good detail with regard to how coaches and schools view the program as a way of strengthening the value of sport in schools along with practical ways of increasing the positive impact of the program.¹⁷⁵
- + Most Education departments at the Federal and State/Territory (6 out of 8) level do have mandated physical activity policies that are typically consistent with one another. However, it has been identified that these policies are not usually consistent with expert recommendations about the length of time that should be spent being active and the qualifications of individuals delivering physical activity. They also lack clear directives as to how schools should be held accountable via implementation monitoring.¹⁷⁶
- + Similar to all previous report cards, there continues to be outstanding commitment from non-government organisations, such as the National Heart Foundation of Australia, the Australian Cancer Council, Nature Play, Blueearth Foundation, Physical Activity Foundation, and the Confederation of Australian Sport, to improve the health of all Australians.

WHAT THE YAC HAS TO SAY

Government ads such as girls make your move have a severe impact on kids around Australia. Kids are always watching TV or on their iPads so if they see an ad from the government about getting outside and being active it is likely to have an impact on what they do after school or when they are sitting around doing nothing. There could definitely be more encouragement from the government on kids being active for both genders not just females — Renee, 17, New South Wales.

PHYSICAL FITNESS D+


Confidence Rating



- + Objectively measured data show Australian children and young people aged 9–15 years typically fall within the 35th percentile (95% confidence interval: 29 to 41) for both aerobic and muscular fitness.³⁷ This is relative to international sex- and age-specific 20 m shuttle run norms (from 1,142,026 children and young people from 50 countries)¹⁸⁰ and European standing long (broad) jump norms (from 464,900 children and young people from 29 countries).¹⁸¹

WHAT THE YAC HAS TO SAY

I do soccer in winter (3–4 x a week) and I love skiing (I've been down to the snow 5 times this season), basketball all year round (2x a week), in summer I do cricket (2x a week) athletics (1x a week), nippers (2x a week) Oztag (1x a week). I also go swim training all year round — Lachlan, 8, New South Wales.



It's time for a jump start...
what part will you play?

MOVEMENT SKILLS D+

Confidence Rating



- + Objectively measured (via reliable and valid movement skills competency assessment¹⁹⁶) data show girls in Grade 6, typically, demonstrate low levels of mastery for both locomotor (proportion of girls showing mastery — run: 30%; vertical jump: 33%; side gallop: 71%; leap: 31%) and object-control (proportion of girls showing mastery — kick: 13%; over-arm throw: 14%; catch: 49%) skills.³⁷
- + Objectively measured (via reliable and valid movement skills competency assessment¹⁹⁶) data show boys in Grade 6, typically demonstrate low levels of mastery for locomotor skills (proportion of boys showing mastery — run: 32%; vertical jump: 32%; side gallop: 68%; leap: 13%) but show marginally better levels of mastery for object-control skills (proportion of boys showing mastery — kick: 50%; over-arm throw: 53%; catch: 59%).³⁷

WHAT THE YAC HAS TO SAY

I think that if kids are helped to learn more skills when they are young like balance like running or hopping or standing on one leg, and playing with balls like throwing and catching, it will be easier for them to feel good about learning other skills when they are around other people at school and be happier to try new things, they won't feel as worried that people may make fun of them, they will be more confident — Madison, 10, South Australia.



Muscular fitness is an important indicator of current and future health...

Image supplied by Sport Australia and was sourced from their Sporting Schools program.

METHODOLOGY, DETAILED FINDINGS AND OTHER RESOURCES

The 2018 AHKA Report Card on Physical Activity for Children and Young People was developed using synthesised data from a number of national and state/territory-based surveys. The AHKA Research Working Group evaluated all the data in order to assign letter grades to each of the 12 indicators using pre-determined criteria and benchmarks and provided a confidence rating for the data (using a 3-star scale to reflect representativeness and robustness).

The long form of the 2018 AHKA Report Card describes in detail: the data sources used to assign grades; the methodology and processes employed; informative tables and figures; and complete references.

The University of South Australia is the Lead Research University for the Report Card initiative and the Administering Organisation of Active Healthy Kids Australia.



Sport Australia is the Principal Media and Communications Partner, assisting in the dissemination and communication of the 2018 Active Healthy Kids Australia Report Card on Physical Activity for Children and Young People.



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The 2018 AHKA Report Card was developed via a harmonised process as part of the Active Healthy Kids Global Alliance (www.activehealthykids.org).



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