



Overview

There is evidence that promoting physical activity can have a positive effect on children's physical development. The evidence in this approach reinforces the importance of providing opportunities and motivation for children to do this, advising caution on narrowing the teaching of physical development by only prioritising the teaching of specific physical development skills (Ward, 2010; Van Capelle, 2017). Most of the evidence for this approach comes from primary studies: this is because systematic reviews tend to look at the physical development evidence base in its entirety.¹ This means that the conclusions of reviews are not specific to this approach. However, some reviews did identify studies of relevance and these individual studies reported positive effects on outcomes such as gross motor skills,² locomotor skills,³ and stability (Zheng, 2017; Ward, 2010; Van Capelle, 2017). These outcomes are all examples of fundamental movement skills.

Intervention types

For this approach, we found one review and a range of relevant primary studies that reported positive effects. Studies in the evidence base focused on establishing a positive culture to motivate children to be physically active and considered ways to foster a climate of enjoyment. Some studies also considered the way a setting's outdoor and indoor environment—as well as introducing new resources—could further promote physical activity.

Studies focused on establishing a positive culture to motivate children to be physically active generally report positive effects. Studies tend to expose children to playful contexts with the aim of increasing motivation to participate. Often this is explored through ensuring high autonomy and an emphasis on child-directed choice (Krombholz, 2012; Wick, 2010; Robinson, 2016; Telford, 2022; Hashemi, 2015). All but one study reported improvements across a range of physical

development outcomes. Improvements were reported for balance (De Oliveria, 2018; Pavlova, 2018), fine motor skills (Piek, 2013),⁴ object control (Telford, 2022),⁵ and gross motor skills (Veljković, 2021). One study focused on modified yoga but reports null findings (Lawson, 2012). A common feature of these interventions was encouraging motivation through a focus on 'fun' (Piek, 2013; De Oliveria, 2018; Battaglia, 2019; Roth, 2015; Gomez, 2013). Intervention activities included games, visual prompts for movement, copying animal movement during imaginative pretend play, and adding a creative element to traditional exercise postures such as karate and yoga. Educators typically supported children through verbal and physical direction and ensured adequate time for children to engage and participate (Telford, 2022; Robinson, 2016; De Oliveira, 2018; Piek, 2013; Battaglia, 2019). Often these studies also allowed children to play freely to increase autonomy (Krombholz, 2012; Battaglia, 2019; Robinson, 2016; Roth, 2015). To target gross motor skills, educators often introduced activities that were deemed enjoyable such as running, hopping, jumping, crawling, dancing, and skipping (De Oliveira, 2018). Fine motor skills were targeted through scissor skills, pencils, and other in-hand tools (De Oliveira, 2018; Piek, 2013; Battaglia, 2019). In some studies, there was an emphasis on playing together and increasing social interaction to motivate and promote enjoyment (Piek, 2013; De Oliveria, 2018).

Educators established a positive environment by focusing on using a child's physical environment, both indoor and outdoor, to promote participation in physical activity—for example, introducing novel resources or encouraging engagement with nature (Johnstone, 2022; Donath, 2015). There was a wide variety of outcomes measured in this subset of studies; positive effects were recorded for fundamental movement skills,⁶ the time physically active, manual dexterity, object control, and locomotor skills.

¹ In systematic reviews, researchers summarise all of the research on a particular topic that meets predefined eligibility criteria in order to answer a specific research question. This gives an objective overview of the evidence for a particular topic or research question. The methods used must be reproducible and transparent.

² Skills developed using the whole body.

³ For example, running, hopping, and jumping.

⁴ Fine motor skills involve small muscles working with the brain and nervous system to control movements in areas such as the hands, fingers, lips, tongue, and eyes.

⁵ For example, throwing, catching or kicking.

⁶ A range of motor skills that use different body parts and are the building blocks of more complex movement.



One review (Johnstone, 2022) looked more specifically at the role of nature-based learning in promoting physical activity. This involved exposing children to natural playgrounds and environments without any manufactured equipment. Children took part in a range of play—including risky, active, and free—to encourage a positive experience of physical activity in a natural environment. The review reported mixed outcomes but recognised a consistent, positive association between nature-based activities and reduced sedentary time. Most of the included interventions focused on measures of physical activity rather than motor competence; in the few that did consider motor competence, traditional childcare settings and resources were often determined favourable. However, the sample size of these studies was small and they often reported educator judgement alongside attainment outcomes; thus more research is needed to form a more concrete conclusion. Overall, the review suggested that both nature-based learning and more traditional childcare settings can offer a good climate for the improvement of children's physical development. However, educators perceived nature-based play positively, suggesting that opportunities for 'risky' play increased children's enjoyment and engagement.

Four primary studies that focused on establishing a positive environment reported improvements in locomotor and object control skills for the intervention group (Adamo, 2016; Donath, 2015; Fu, 2018; Gomez, 2013). Two studies within this subset reported no clear improvement to motor skills but did record increased time spent being physically active and increased motivation to participate (Branje, 2022; Caldwell, 2023). Several of these studies explored the role of training early years educators in providing developmentally appropriate opportunities and resources. For example, in one intervention, educators were trained on how to make changes to furniture and play equipment to influence children's physical activity (Adamo, 2016). In several studies this included introducing

novel resources—sometimes 'loose parts' play, such as ropes, buckets, counters, and crates (Branje 2022; Caldwell 2023). Children's autonomy remains an important component of these studies with feedback and direction often minimal (Caldwell, 2023; Donath, 2015; Branje, 2022) to enable the children to explore their environment freely. Two studies focused on the use of digital technology to encourage children to be active; one intervention, 'exergaming' (Fu, 2018), yielded improvements in locomotor and object control skills. The authors of this study suggested the engaging nature of the digital platform was a contributing factor. While there is a clear emphasis on child-directed, unstructured play in these interventions, it is worth noting that some adult direction and demonstration at the beginning was a reoccurring component (Bonvin, 2018; Foulkes, 2017; Robinson 2016). Educators clearly had an important role to play in creating a motivating and positive environment.

While there is a strong body of evidence for this approach, it is important to exercise caution when drawing causal conclusions. Practices such as creating a positive culture and environment are common features of many general physical development interventions. The population of studies was aged 0 to 6 but we have focused our conclusions on studies focused on children aged 2 to 6. Studies took place in a broad range of countries including Australia, Iran, Bolivia, and Sweden; however, much of the evidence base comes from the U.S.A. Evidence indicates that children from disadvantaged backgrounds benefit from educators promoting physical activity. However, the studies in our evidence base did not explore whether they benefit more or less than others.

Despite these limitations, there remains a strong body of evidence emphasising the importance of motivating children to be physically active. This can positively affect their physical development.



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