

Physical Literacy Builds Better Brains

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Educators and parents understand the importance of the early years. Early brain development tells us that the 90% of a child's brain has been built by the age of five and the metaphors of the Core Story (<https://www.albertafamilywellness.org/what-we-know>) tell us how that process happens. An understanding of early brain development has shown that increased amounts of active play are important for the healthy development of young children.

The Canadian 24 Hour Movement Guidelines tell us that young children need at least 180 minutes of active play every day and that physical literacy, the fundamental movement skills, provide the tools for children to develop healthy active lifestyles. (link to stroller potato article) What is the connection between early brain development, active play, and physical literacy?

Since the summer of 2018, The Early Years Physical Literacy Research Team, with funding from Active for Life, B2ten, and Government of Canada's Social Development Partnerships Program - Children and Families Component, has been conducting a proof of concept study to determine the potential benefits for young children when they experience enhanced physical literacy in their child care settings. Working with 30 centres in Alberta and BC including over 600 children and 100 educators, we are learning about multiple benefits. Many of these benefits relate directly to helping young children build better brains.

The Core Story of early brain development

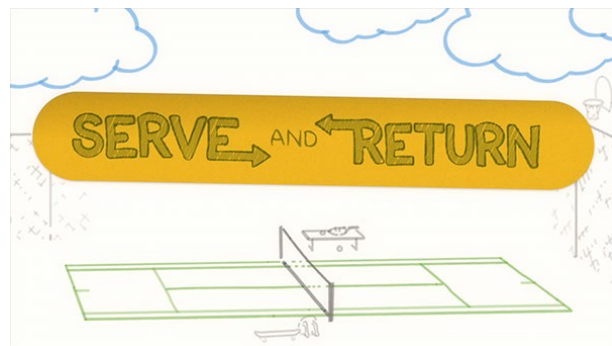
The Core Story consists of a series of metaphors which help to explain how the growing brain develops and how the adults in children's lives support that healthy growth. When we looked at the data from our study, we found connections to four of the metaphors: Serve and Return, Building a Brain is Like Building a House, Air Traffic Control, and the Resilience Scale.

Serve and return

Relationships, relationships, relationships – the core of healthy brain development. Serve and return refers to the back and forth interactions between children and adults. Play is one of the best ways to support serve and return between adults and children.

The educators in our study talked about how their relationships became stronger with the children as they implemented physical literacy activities both in the playroom and outside. Encouraging active play meant that they became more engaged with the children and played with them more. As a result, educators found themselves spending less time managing

challenging behaviours and saying "no", and more time enjoying activities together. Both educators and children felt calmer and more productive, and experienced days filled with joy and laughter.



Building a brain is like building a house

The metaphor, building a brain is like building a house, explains the importance of laying a solid foundation in the early years. Stable relationships, serve and return interactions, and positive experiences are the building blocks for a healthy brain which set the trajectory for the rest of life.



Encouraging very young children to participate in active play every day will help children develop a positive attitude towards maintaining an active lifestyle all through their life.

A house has four walls which, in the metaphor, stand for

the four main areas of development: cognitive, social, emotional, and physical. Each of the four walls needs to be well built so that the child's brain can withstand adversity and last for a lifetime. Our study found that physical literacy provides benefits in all four areas of development.

Cognitive

- More able to focus and pay attention
- Less distracted
- Increased persistence on task
- More divergent thinking and problem solving
- Increased ability to plan and carry out tasks

Physical

- Better balance – sitting in chairs and in circle, dressing in winter clothes independently
- Confident locomotion – moving around without bumping into obstacles or others
- Increased coordination – small motor skills (ability to hold a pencil and scissors), hand/eye coordination

Social

- More cooperative play
- More imaginative and creative play
- Able to make and keep friends
- Improved ability to share and work together

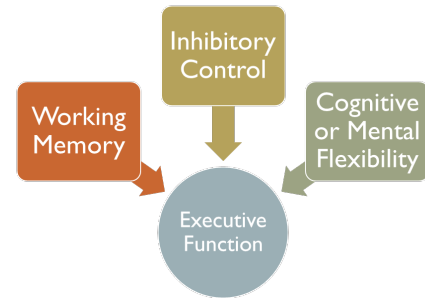
Emotional

- Better emotional self-regulation
- Better inhibitory control
- Calmer transitions
- Improved overall behaviour

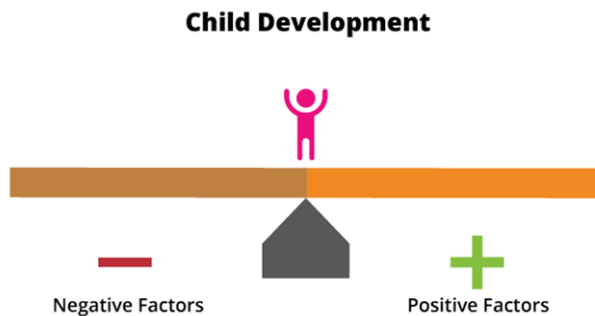
Air traffic control

The metaphor of air traffic control outlines the skills necessary to be successful in school, at work, and in life. These core capabilities, known as executive function, are found in the pre-frontal cortex (behind our forehead), the decision-making part of our brain. This part of the brain starts to develop in the first couple of years of life but continues to develop well into our mid to late twenties.

We heard from educators that ensuring children were engaged in significant amounts of active play every day, resulted in noticeable improvements in children's abilities to follow instructions, be patient and wait their turn, and make and alter plans during play. Along with these increased executive function skills, educators reported that children were more able to regulate their emotions. This led to fewer challenging behaviours during the day.



Resilience Scale



Resilience is a balance between positive supports and negative experiences. As much as we would wish otherwise, no child can be completely shielded from negative experiences. Instead, when children encounter challenges while being supported by caring adults, they learn how to overcome adversity, build coping strategies, and become more resilient.

Children in the study were given opportunities to test their boundaries during active outdoor play with loose parts or in natural playgrounds. They learned how far to push themselves and to set their own comfort boundaries while being supported by their educators. Educators reported that the children demonstrated increased confidence and competence in moving actively alone and with others. They learned that they didn't always succeed; instead, they changed their plans and tried again. Children were building resilience with the support of their educators.

Conclusion

Our PL Proof of Concept study has shown that when children are provided opportunities for active play every day, they become more motivated, confident, and competent to move for a lifetime. But more than that, active play and physical literacy every day helps to build better brains.