

# Physical Literacy in the Early Years (PLEY) project : A loose parts intervention to promote active outdoor play in preschool aged children

<b>Submission date</b> 05/09/2017	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
<b>Registration date</b> 20/10/2017	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
<b>Last Edited</b> 05/11/2024	<b>Condition category</b> Other	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

The mental and physical health and wellbeing of children in Nova Scotia (NS) is in jeopardy, as a result of rates of chronic diseases that are among the highest in Canada. A modifiable risk factor in chronic disease prevention is physical activity (PA). Currently, only 7% of children achieve the recommended amount of PA. Historical declines in outdoor play, and in quality outdoor play experiences, have contributed to these trends. Changes in outdoor play spaces in early learning centres have restricted children's opportunities to engage in unstructured, self-directed and "risky" play, movements necessary for children to develop physical literacy. Physical literacy is the confidence, physical competence, knowledge, and understanding to be physically active for life. For children's curiosity to be sparked and heightened, they require environments that offer freedom, wonderment, and access to open-ended and natural materials like logs, sticks, rocks or leaves ("loose parts"). These loose parts can be moved, manipulated, stacked, carried or combined in various ways to encourage creative thinking, help children develop sensory awareness, and provide an opportunity for children to discover and master their environments. Loose parts can help children learn complex problem solving skills, provoke questions about scientific processes and concepts and encourage fine and gross motor skill development, balance and coordination, by manipulating, pushing, pulling, lifting and rolling objects. While there is evidence to support the effectiveness of embedding loose parts into school outdoor settings, there is limited published literature on whether this type of intervention could be applied to settings with younger children, such as early learning centres. The aim of this study is to determine if children who participate in active outdoor play, facilitated by educators trained in embedding loose parts into outdoor play spaces, develop greater physical literacy.

### Who can participate?

Children aged three to five years old that attend one of the participating early childcare centres.

### What does the study involve?

Participating schools are randomly allocated to one of two groups. Those in the first group receive the loose part kits (including items such as balls, wood planks, buckets and tubing) for use in their outdoor play equipment. Educators are instructed to encourage the use of these

loose parts to their children but let them use it as they choose. After six months, the loose parts remain a part of the centres. Those in the second group receive similar loose part it's after the six months. Participants are followed up to measure their physical activity and movement skills before study, and at three and six months.

What are the possible benefits and risks of participating?

There are no direct benefits to participating in this study. Indirect benefits for participating include an improved understanding of loose parts materials and their use in outdoor settings. For the children, this will provide an opportunity to use loose parts that may not have been part of the outdoor play setting prior to this intervention. Early childhood educators from across NS will have an opportunity to develop their knowledge and skills around promoting outdoor play, and will be able to support other educators in the province to achieve this goal. It may also contribute to the long-term health and development of young children, improve relationships within a community, and improve the supports available to families while parenting children between the ages of 3-4 years. There are no anticipated risks or safety concerns for participants. All of the movement assessment activities for the study are similar to what children would perform in their regular outdoor play at the centre. There are no invasive procedures. However, as with any type of physical activity, there is a small risk of a child falling or getting hurt. All of the research equipment is similar to what the children would use in their own centres' play activities. In the event of an injury, standard organizational policies will be followed. Educators participating in focus groups and completing the questionnaire may feel uncomfortable sharing specific information and images (through photovoice) about planning and implementing the programs and services in the EYC site to which they are associated. In order to minimize the risk associated with the evaluation interviews, informed consent will be required from the educators. Interviews will be conducted in an environment comfortable to the participant. We will ensure focus group participants are aware that they are not obligated to respond to any questions they are not comfortable answering and may withdraw from the study at any time up to the point that data are analyzed. All identifying information will be removed and replaced with a code number. Any quotes from interviews used in reports, publications, or presentations will not contain identifiers. Parents participating in the interviews and completing the questionnaire may feel uncomfortable sharing information about their personal physical activity and outdoor play views as well as their child's participation in physical activity. In order to minimize the risk associated with the evaluation, informed consent will be required from the parents. Interview participants are aware that they are not obligated to respond to any questions they are not comfortable answering and may withdraw from the study at any time up to the point that data are analysed. All identifying information will be removed and replaced with a code number. Any quotes from interviews used in reports, publications, or presentations will not contain identifiers.

Where is the study run from?

This study is being run by Dalhousie University (Canada) and takes place in child care centres in Nova Scotia (Canada).

When is the study starting and how long is it expected to run for?

April 2016 to December 2018

Who is funding the study?

Lawson Foundation (Canada)

Who is the main contact?

Dr Michelle Stone

michelle.stone@dal.ca

# Contact information

## Type(s)

Scientific

## Contact name

Dr Michelle Stone

## Contact details

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Dalhousie University  
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Nova Scotia., B3H 4R2  
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Canada  
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# Additional identifiers

## Protocol serial number

GRT 2015-67

# Study information

## Scientific Title

Physical Literacy in the Early Years (PLEY) Project

## Acronym

PLEY project

## Study objectives

The objectives of this research are to evaluate the efficacy of the loose parts intervention versus standard early years settings' practice to:

1. Improve children's physical literacy
  2. Increase time in active outdoor play
  3. Improve educators' attitudes, beliefs, perceived competency, and intentions towards incorporating the intervention into practice, and
  4. Increase educators' and parents' understanding of play in child health and development.
- Overall, this will determine if children who participate in active outdoor play, facilitated by educators trained in embedding loose parts into outdoor play spaces, develop greater physical literacy.

## Ethics approval required

Old ethics approval format

## Ethics approval(s)

**Study design**

Quasi-experimental randomized, mixed-methods controlled trial, where quantitative and qualitative data will be collected pre- and post-intervention.

**Primary study design**

Interventional

**Study type(s)**

Other

**Health condition(s) or problem(s) studied**

Physical inactivity in young children

**Interventions**

The quasi-experimental loose parts outdoor play intervention includes 16 preschools randomly assigned to the control or intervention group for the purpose of the study.

Preschools in the intervention are provided with loose parts kits (including items such as balls, wood planks, buckets, tubing, etc.) for use in their outdoor play environment. The goal of this intervention is to determine how loose parts play influences physical activity and movement skill development among three-five year old children. Upon receiving the materials, intervention site educators are instructed to encourage the use of these loose parts to their children, but otherwise let the children creatively use the materials as they choose. These materials are intended to be used in the designated outdoor play area at each centre. Educators are instructed to contact the research group if any changes to the loose parts materials (damages, additions, etc.) take place over the course of the intervention. The intervention is six months long, with measures taken at baseline, three-months, and six-months post intervention.

Upon completion of the six-month intervention, loose parts remain a part of the centre, and control centres also receive similar loose parts kits for their children to use.

**Intervention Type**

Behavioural

**Primary outcome(s)**

1. Children's physical activity is measured with accelerometers at baseline, 3-months, and 6-months post intervention
2. Children's movement skill ability is measured with the TGMD-3 and PGMQ-balance at baseline, 3-months, and 6-months post intervention

**Key secondary outcome(s)**

1. Educators observations of outdoor active play is measured using photovoice and focus group interventions at 3-months and 6-months post-intervention
2. Parental views on outdoor active play, risky play, and their child's physical literacy is measured using a questionnaire and interviews at 6-months post-intervention

**Completion date**

01/12/2018

# Eligibility

## Key inclusion criteria

1. Children between the ages of 3 and 5 years at the start of the intervention
2. Receive parental consent to participate and are attending one of the participating early childcare centres

## Participant type(s)

Other

## Healthy volunteers allowed

No

## Age group

Child

## Lower age limit

3 years

## Upper age limit

5 years

## Sex

All

## Total final enrolment

209

## Key exclusion criteria

Children who are physically or mentally unable to perform the movement skill assessment.

## Date of first enrolment

30/01/2017

## Date of final enrolment

01/06/2017

# Locations

## Countries of recruitment

Canada

## Study participating centre

Mawio'mi Child Care Centre

80 Mawiomi Place

Dartmouth, NS  
Canada  
B2Y 0A5

**Study participating centre**  
**Leeds Street Child Care Centre**  
5685 Leeds Street  
PO Box 2210  
Halifax, NS  
Canada  
B3K 2T3

**Study participating centre**  
**Mount Pleasant Nursery School**  
39 Harris Avenue  
Truro, NS  
Canada  
B2N 3N3

**Study participating centre**  
**South End Community Day Care Centre**  
5594 Morris Street  
Halifax, NS  
Canada  
B3J 1C8

**Study participating centre**  
**Akerley Child Care Centre**  
21 Woodlawn Road  
Dartmouth, NS  
Canada  
B2W 2R7

**Study participating centre**  
**Beaver Bank Children's Learning Centre Ltd.**  
95 Kinsac Road  
Beaver Bank, NS  
Canada  
B4G 1C5

**Study participating centre**  
**Willowbrae Academy Hammonds Plains**  
21 Glen Arbour Way  
Hammonds Plain, NS  
Canada  
B4B 0L8

**Study participating centre**  
**Small World Children's Centre (in Bridgewater, NS)**  
352 York Street  
Bridgewater, NS  
Canada  
B4V 0B4

**Study participating centre**  
**Willow Creek Children's Centre**  
1702 Sackville Drive  
Middle Sackville, NS  
Canada  
B4E 3A8

**Study participating centre**  
**Creative Kids Education Centre**  
109 White Hills Run  
Hammonds Plains, NS  
Canada  
B4B 1W6

**Study participating centre**  
**Spring Garden Child Care Centre**  
2380 Spring Garden Road  
Westville, NS  
Canada  
B0K 2A0

**Study participating centre**  
**Point Pleasant Child Care Centre (SMU)**  
5845 Gorsebrook Avenue

Halifax, NS  
Canada  
B3H 1G3

**Study participating centre**  
**Point Pleasant Child Care Centre**  
5651 Ogilvie Street  
Halifax, NS  
Canada  
B3H 1B8

**Study participating centre**  
**Wee Care Developmental Centre**  
5217 Young Street  
Halifax, NS  
Canada  
B3K 6A6

**Study participating centre**  
**Dartmouth Child Development Centre**  
61 Boland Road  
Dartmouth, NS  
Canada  
B3A 1M9

**Study participating centre**  
**University Children's Centre**  
6101 South  
Halifax, NS  
Canada  
B3H 1T2

## **Sponsor information**

**Organisation**  
Healthy Populations Institute

**ROR**  
<https://ror.org/01e6qks80>



# Funder(s)

Funder type  
Charity

Funder Name  
Lawson Foundation (Canada)

## Results and Publications

Individual participant data (IPD) sharing plan  
The data sharing plans for the current study are unknown and will be made available at a later date.

IPD sharing plan summary  
Data sharing statement to be made available at a later date

### Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>		13/06/2023	13/06/2023	Yes	No
<a href="#">Results article</a>		04/04/2019	05/11/2024	Yes	No
<a href="#">Results article</a>		27/12/2021	05/11/2024	Yes	No
<a href="#">Results article</a>	Early childhood educator perceptions	08/03/2021	05/11/2024	Yes	No
<a href="#">Results article</a>	Educator perceptions	29/10/2019	05/11/2024	Yes	No
<a href="#">Participant information sheet</a>	Participant information sheet	11/11/2025	11/11/2025	No	Yes