

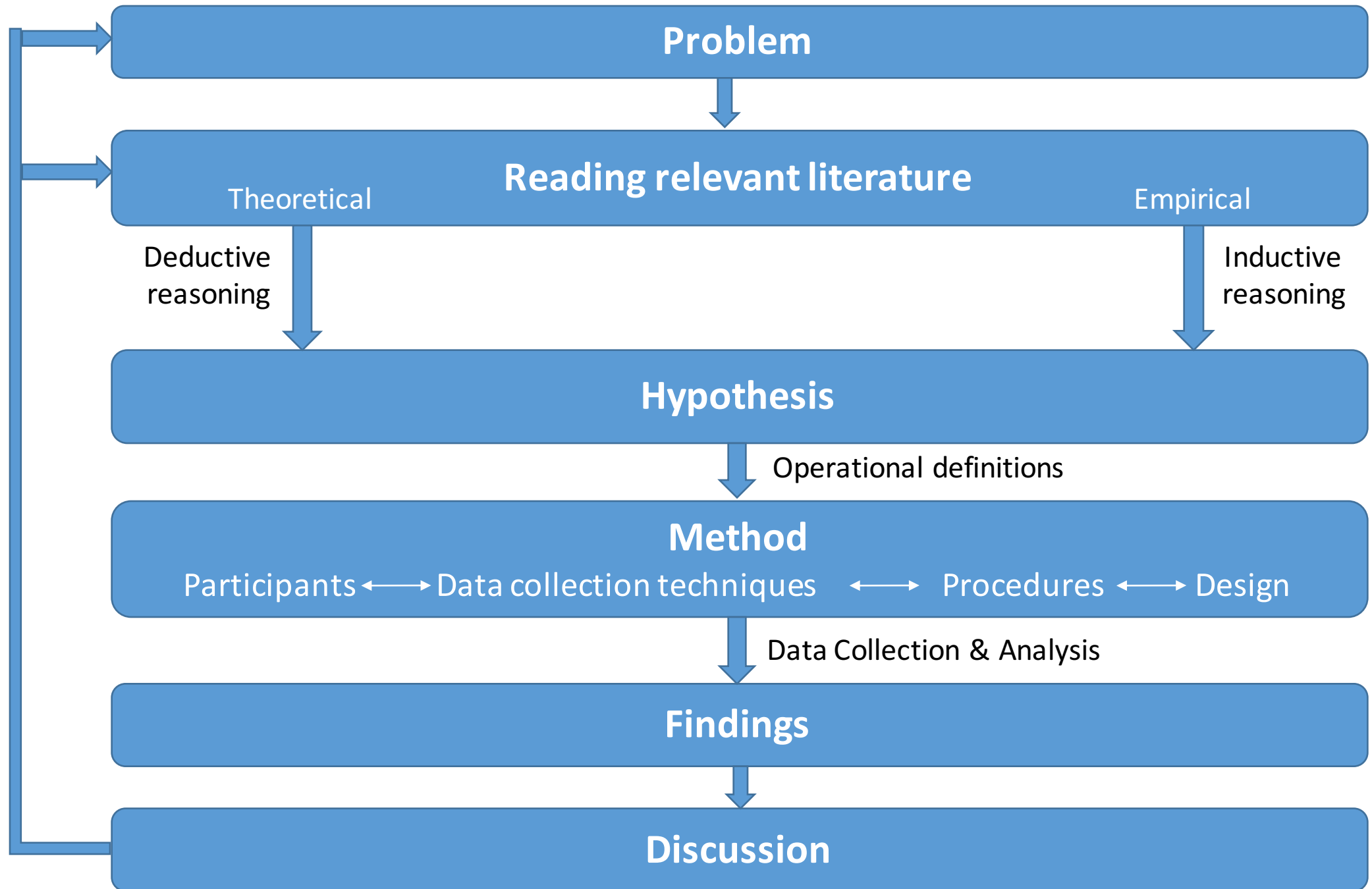


Formulating the Method

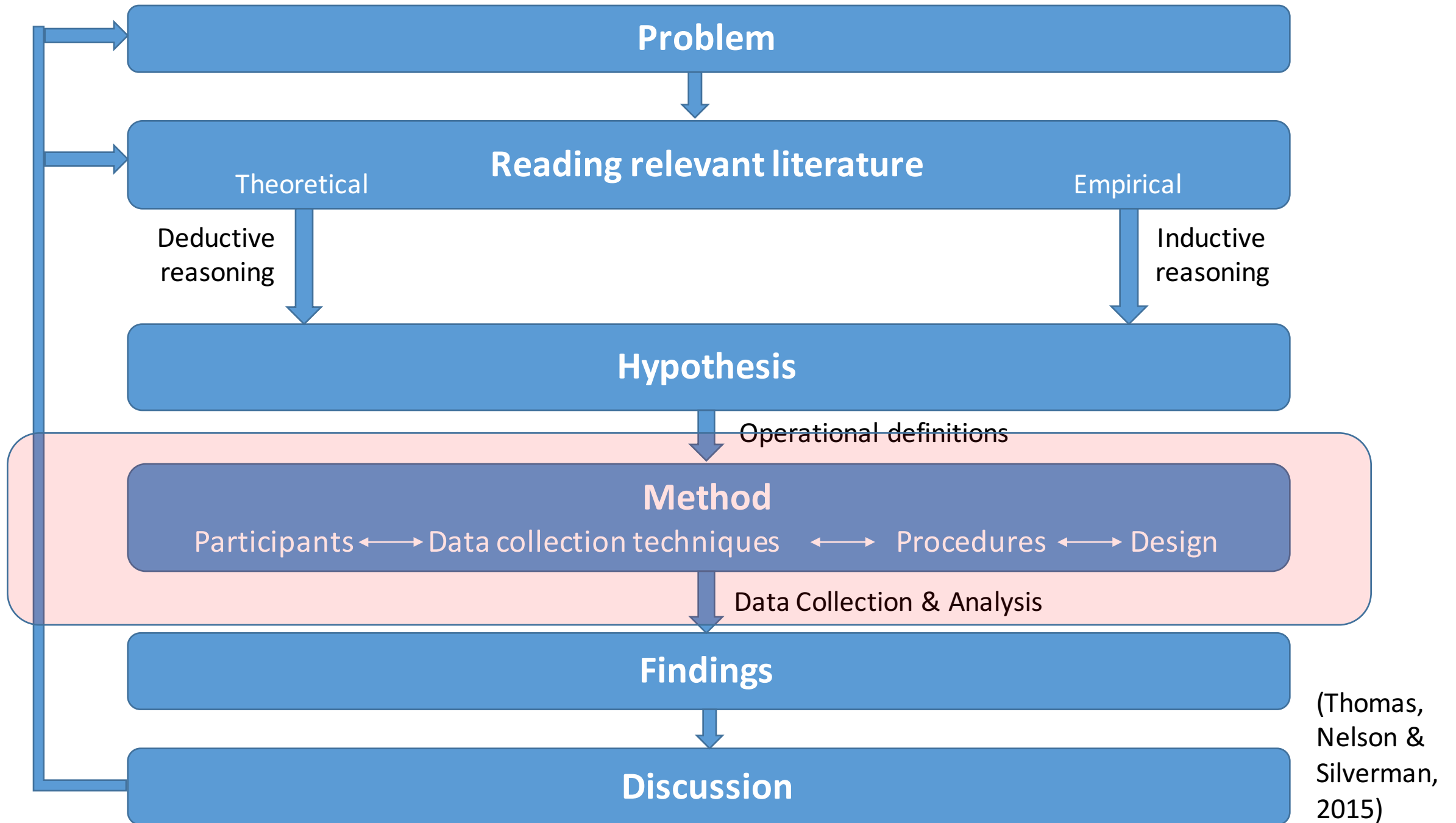
(SHSS-5069)
Dylan Blain

Aims for this session

- Understand different forms of research questions.
- Explain what the method section is & what the method should do.
- Understand important aspects of the method
 - Participants
 - Instruments or Apparatus
 - Procedures



(Thomas,
Nelson &
Silverman,
2015)



(Thomas,
Nelson &
Silverman,
2015)

Types of Research Question

- Descriptive:
 - Describe conditions happening or characteristics that exist (e.g., observational, case study, surveys)
- Relational:
 - Looks at relationship between two or more variables.
- Difference:
 - Tests for a difference between variables
 - Experimental & non-experimental

Task 1

- Think of an example of a research question from your area of interest for each type of research:
 - Descriptive
 - Relational
 - Causal/Difference

Quantitative Research Questions

- Identify the variables of study:
 - Independent
 - Variable of study – researcher manipulates
 - Variable that causes change in other variables
 - Dependent
 - Variable of interest
 - Variable measured to determine effect of independent variable

Method

- Should be presented in a way that someone else could replicate the study in an identical manner
- Includes:
 - Participants.
 - Instruments or Apparatus.
 - Procedures.

Participants

- Sampling method:
 - Do you require participants with specific characteristics (inclusion/exclusion criteria)?
 - Age
 - Sex
 - Level of training or performance
 - Size
 - Special types (e.g., triathletes, rugby, netball)
 - Can you obtain necessary permissions & cooperation from the participants?
 - Can you find enough participants?
- Protecting participants – “do no harm” (Ethics lecture)

Instruments & Apparatus

- Validity & Reliability
- Access to instruments/apparatus
- Do you know how to administer the tests (can you learn?)
- Do you know how to evaluate participants' test performance?
- Will instruments yield enough range in scores?
- Will participants be willing to spend whatever time is required for you to administer the tests or instruments?

Procedures (1/2)

- How data obtained.
- Collecting data:
 - When? Where? How much time is required?
 - Pilot data to demonstrate skill/knowledge in using equipment and knowing how participants will respond
 - Scheme for data acquisition, recording and scoring
- Planning the treatments (quasi-experimental/experimental)
 - How long? How intense? How often?
 - How to determine adherence to treatments?
 - Pilot data to show treatment effect or that you can administer treatments
 - Are treatments appropriate for type of participants used?

Procedures (2/2)

- Should allow study to be replicated.
- Should include
 - Specific order in which steps were undertaken
 - Timing of the study
 - Instructions given to participants
 - Briefings, debriefings & safeguards

Data Analysis

- How will the data collected be analysed?
 - Statistical analysis?
- Should be planned beforehand

Task 2

- Look at the following papers & decide if they are examples of descriptive, relational or causal/differential research.
- Where possible, identify the independent and dependent variables.

Effect of Using a Sit-Stand Desk on Ratings of Discomfort, Fatigue, and Sleepiness Across a Simulated Workday in Overweight and Obese Adults

Authors:

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[ABSTRACT](#)[FULL TEXT](#)[REFERENCES](#)[PDF](#)

Background: Limited research examines the influence of sit-stand desks on ratings of discomfort, sleepiness, and fatigue. This study evaluated the time course of these outcomes over 1 day. **Methods:** Adults (N = 25) completed a randomized cross-over study in a laboratory with two 8-hour workday conditions: (1) prolonged sitting (SIT) and (2) alternating sitting and standing every 30 minutes (SIT-STAND). Sleepiness was assessed hourly. Discomfort, physical fatigue, and mental fatigue were measured every other hour. Linear mixed models evaluated whether these measures differed across conditions and the workday. Effect sizes were calculated using Cohen's *d*. **Results:** Participants were primarily white (84%) males (64%), with mean (SD) body mass index of 31.9 (5.0) kg/m² and age 42 (12) years. SIT-STAND resulted in decreased odds of discomfort (OR = 0.37, *P* = .01) and lower overall discomfort (β = -0.19, *P* < .001, *d* = 0.42) versus SIT. Discomfort during SIT-STAND was lower in the lower and upper back, but higher in the legs (all *P*s < .01, *d* = 0.26–0.42). Sleepiness (β = -0.09, *P* = .01, *d* = 0.15) and physical fatigue (β = -0.34, *P* = .002, *d* = 0.34) were significantly lower in SIT-STAND. Mental fatigue was similar across conditions. **Conclusions:** Sit-stand desks may reduce acute levels of sleepiness, physical fatigue, and both overall and back discomfort. However, levels of lower extremity discomfort may be increased with acute exposure.

RESEARCH

Open Access



Cardiorespiratory fitness is associated with physical literacy in a large sample of Canadian children aged 8 to 12 years

Justin J. Lang^{1*}, Jean-Philippe Chaput¹, Patricia E. Longmuir¹, Joel D. Barnes¹, Kevin Belanger¹, Grant R. Tomkinson^{2,3}, Kristal D. Anderson⁴, Brenda Bruner⁵, Jennifer L. Copeland⁶, Melanie J. Gregg⁷, Nathan Hall⁷, Angela M. Kolen⁸, Kirstin N. Lane⁴, Barbi Law⁵, Dany J. MacDonald⁹, Luc J. Martin¹⁰, Travis J. Saunders⁹, Dwayne Sheehan¹¹, Michelle R. Stone¹², Sarah J. Woodruff¹³ and Mark S. Tremblay¹

Abstract

Background: The associations between cardiorespiratory fitness (CRF) and physical literacy in children are largely unknown. The aim of this study was to assess the relationships between CRF, measured using the 20-m shuttle run test (20mSRT), and components of physical literacy among Canadian children aged 8–12 years.

Methods: A total of 9393 (49.9% girls) children, with a mean (SD) age of 10.1 (± 1.2) years, from a cross-sectional surveillance study were included for this analysis. The SRT was evaluated using a standardized 15 m or 20 m protocol. All 15 m SRTs were converted to 20mSRT values using a standardized formula. The four domains of physical literacy (Physical Competence, Daily Behaviour, Motivation and Confidence, and Knowledge and Understanding) were measured using the Canadian Assessment of Physical Literacy. Tertiles were identified for 20mSRT laps, representing low, medium, and high CRF for each age and gender group. Cohen's *d* was used to calculate the effect size between the low and high CRF groups.

Results: CRF was strongly and favourably associated with all components of physical literacy among school-aged Canadian children. The effect size between low and high CRF tertile groups was large for the Physical Competence domain (Cohen's *d* range: 1.11–1.94) across age and gender groups, followed by moderate to large effect sizes for Motivation and Confidence (Cohen's *d* range: 0.54–1.18), small to moderate effect sizes for Daily Behaviour (Cohen's *d* range: 0.25–0.81), and marginal to moderate effect sizes for Knowledge and Understanding (Cohen's *d* range: 0.08–0.70).

Conclusions: This study identified strong favourable associations between CRF and physical literacy and its constituent components in children aged 8–12 years. Future research should investigate the sensitivity and specificity of the 20mSRT in screening those with low physical literacy levels.

Effect of breakfast omission and consumption on energy intake and physical activity in adolescent girls: a randomised controlled trial

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Abstract

It is not known if breakfast consumption is an effective intervention for altering daily energy balance in adolescents when compared with breakfast omission. This study examined the acute effect of breakfast consumption and omission on free-living energy intake (EI) and physical activity (PA) in adolescent girls. Using an acute randomised cross-over design, forty girls (age 13·3 (SD 0·8) years, BMI 21·5 (SD 5·0) kg/m²) completed two, 3-d conditions in a randomised, counter-balanced order: no breakfast (NB) and standardised (approximately 1962 kJ) breakfast (SB). Dietary intakes were assessed using food diaries combined with digital photographic records and PA was measured via accelerometry throughout each condition. Statistical analyses were completed using repeated-measures ANOVA. Post-breakfast EI was 483 (SD 1309) kJ/d higher in NB *v.* SB ($P=0\cdot025$), but total daily EI was 1479 (SD 11311) kJ/d higher in SB *v.* NB ($P<0\cdot0005$). Daily carbohydrate, fibre and protein intakes were higher in SB *v.* NB ($P<0\cdot0005$), whereas daily fat intake was not different ($P=0\cdot405$). Effect sizes met the minimum important difference of $\geq 0\cdot20$ for all significant effects. Breakfast manipulation did not affect post-breakfast macronutrient intakes ($P\geq 0\cdot451$) or time spent sedentary or in PA ($P\geq 0\cdot657$). In this sample of adolescent girls, breakfast omission increased post-breakfast free-living EI, but total daily EI was greater when a SB was consumed. We found no evidence that breakfast consumption induces compensatory changes in PA. Further experimental research is required to determine the effects of extended periods of breakfast manipulation in young people.

Key words: Breakfast: Children: Exercise: Health: Nutrition: Youth

The Effect of Organized Versus Supervised Recess on Elementary School Children's Participation, Physical Activity, Play, and Social Behavior: A Cluster Randomized Controlled Trial

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ABSTRACT

FULL TEXT

REFERENCES

PDF

Background: Recess strategies that increase children's physical activity and contribute to the daily 60 minutes of moderate to vigorous physical activity (MVPA) are recommended. **Methods:** A cluster randomized trial was conducted to examine the effect of supervised versus organized recess on children's participation, physical activity, play, and social behavior. In supervised recess, children were free to play, and physical education (PE) teachers ensured safety. In organized recess, PE teachers provided challenging tasks. Data were collected using systematic observation. Children (N = 281; 8–10 y) from 14 schools received a 6-day parkour unit in PE and three opportunities to participate in a 20-minute parkour recess. Schools were randomized over a supervised and organized parkour recess condition. **Results:** The majority of children participated in parkour recess (range = 56%–85%), with more boys participating in all 3 organized versus supervised recess sessions (57% vs 35%, $P = .01$). Boys spent more time in MVPA during organized recess (79% vs 71%, $P = .02$). Boys and girls spent more time in activity games during organized recess (59% vs 46%, $P = .01$; 59% vs 47%, $P = .001$). **Conclusion:** Organized recess attracted more children and made the largest contribution to daily MVPA.

RESEARCH

Open Access



Physical literacy levels of Canadian children aged 8–12 years: descriptive and normative results from the RBC Learn to Play–CAPL project

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Abstract

Background: The current physical literacy level of Canadian children is unknown. The Royal Bank of Canada (RBC) Learn to Play – Canadian Assessment of Physical Literacy (CAPL) project, which is anchored in the Canadian consensus statement definition of physical literacy, aimed to help establish the current physical literacy level of Canadian children.

Methods: The CAPL was used to assess the physical literacy (and component domains: Daily Behaviour, Physical Competence, Knowledge and Understanding, and Motivation and Confidence) of Canadian children aged 8–12 years. Data were collected from 11 sites across Canada, yielding a sample of 10,034 participants (5030 girls). Descriptive statistics by age and gender were calculated and percentile distributions of physical literacy scores, including each domain and individual measure, were derived.

Results: The mean age of participants was 10.1 ± 1.2 years. Total physical literacy scores (out of 100) were on average 63.1 ± 13.0 for boys and 62.2 ± 11.3 for girls. For boys and girls respectively, domain scores were 19.9 ± 4.7 and 19.3 ± 4.1 (out of 32) for Physical Competence; 18.6 ± 7.9 and 18.5 ± 7.4 (out of 32) for Daily Behaviour; 12.7 ± 2.8 and 12.2 ± 2.6 (out of 18) for Motivation and Confidence; and 11.8 ± 2.8 and 12.2 ± 2.6 (out of 18) for Knowledge and Understanding. Physical Competence measures were on average 28.1 ± 8.4 cm (sit-and-reach flexibility), 33.5 ± 9.4 kg (grip strength, right + left), 23.4 ± 14.1 laps (Progressive Aerobic Cardiovascular Endurance Run [PACER] shuttle run), 61.8 ± 43.8 s (isometric plank), 19.0 ± 3.8 kg/m² (body mass index), 67.3 ± 10.8 cm (waist circumference), and 20.6 ± 3.9 out of 28 points for the Canadian Agility and Movement Skill Assessment (CAMSA), with scores for boys higher than girls and older children higher than younger children for grip strength, PACER, plank, and CAMSA score. Girls and younger children had better scores on the sit-and-reach flexibility than boys and older children. Daily pedometer step counts were higher in boys than girls ($12,355 \pm 4252$ vs. $10,779 \pm 3624$), and decreased with age.

(Continued on next page)

In It Together: A Qualitative Evaluation of Participant Experiences of a 10-Week, Group-Based, Workplace HIIT Program for Insufficiently Active Adults

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Abstract

Using guidance from the reach, efficacy, adoption, implementation, and maintenance evaluation framework, we aimed to qualitatively evaluate the participant experiences of a workplace high-intensity interval training (HIIT) intervention. Twelve previously insufficiently active individuals (four males and eight females) were interviewed once as part of three focus groups. Perceptions of program satisfaction, barriers to and facilitators of adherence, and persistence to exercise were explored. HIIT initiates interest because of its novelty, provides a sense of accomplishment, and overcomes the barriers of perceived lack of time. The feeling of relatedness between the participants can attenuate negative unpleasant responses during the HIIT sessions. HIIT, in this workplace setting, is an acceptable intervention for physically inactive adults. However, participants were reluctant to maintain the same mode of exercise, believing that HIIT sessions were for the very fit.

Keywords: health promotion, high-intensity interval training, intervention, physical activity

Objectively Measured Physical Activity and Low Back Pain in Japanese Men

Authors:

Yuko Hashimoto ,* , Ko Matsudaira ,* , Susumu S. Sawada ,* , Yuko Gando ,* ,

[+ Show all authors](#)[+ Affiliations](#)**Volume: 15 Issue: 6 Pages: 417-422**<https://doi.org/10.1123/jpah.2017-0085>[ABSTRACT](#)[FULL TEXT](#)[REFERENCES](#)[PDF](#)

Background: There are several studies on the relationship between low back pain and physical activity. However, the results of these studies vary, and the relationship between them remains unclear. Therefore, we conducted a cross-sectional study to evaluate the association between objectively measured physical activity and low back pain in Japanese men. **Methods:** The study included 4022 Japanese men [average age: 47 (10) y]. Daily amount of moderate to vigorous physical activity and step counts were measured using an accelerometer. Low back pain, drinking and smoking, and lifestyle-related diseases were surveyed using a self-administered questionnaire. A logistic regression model was used to evaluate the relationship between physical activity and step counts with persistent low back pain after adjusting for confounders. **Results:** Persistent low back pain was reported in 428 participants. The multivariable-adjusted odds ratios of presenting persistent low back pain across quartiles of amount of moderate to vigorous physical activity were 1.00 (reference); 0.93 (95% confidence interval, 0.70–1.22); 0.97 (95% confidence interval, 0.74–1.28); and 0.67 (95% confidence interval, 0.50–0.90); *P* for linearity = .012. **Conclusion:** We found a significant inverse relationship between objectively measured physical activity and persistent low back pain.

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