



The association between walkability and physical activity varies by age

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Disclosure Statement

- I have no affiliation (financial or otherwise) with a pharmaceutical, medical device or communications organization.





33% of Canadian children and youth (5 to 17 years) are meeting the Canadian physical activity recommendation (an average of 60 minutes per day of moderate-to-vigorous physical activity)



18% of Canadian adults (18 to 79 years) are meeting the Canadian physical activity guideline (150 minutes per week of moderate-to-vigorous physical activity in 10-minute bouts)

Data Source: Accelerometer-measured data, Canadian Health Measures Survey, 2014-2015₂



29% of Canadian children and youth (5 to 17 years) are overweight or obese



60% of Canadian adults (18 to 79 years) are overweight or obese

Data Source: Measured BMI data, Canadian Health Measures Survey, 2014-2015

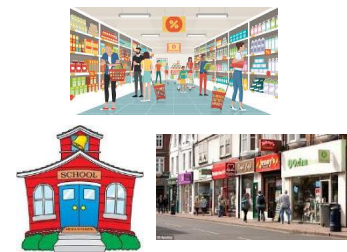


“Without being aware of it, our neighbourhoods and how they are built influence how healthy we are.”

Environments shape our health



Walkability



(Transit Stops)

1. Index (continuous)
2. Classification (categorical)

Canadian Active Living Environment Database - Can-ALE

A Canada-wide database that indicates the active living friendliness of neighbourhoods (2006, 2016)

Dr. Nancy Ross, Geo-Social Determinants of Health Research Group, Dept. of Geography, McGill University



Residential Density

Census



Intersection Density
Street Connectivity

Road Network File (2006)

OpenStreetMap (2016)



Points of Interest

OpenStreetMap

**** Coming soon (May 15, 2019): Hermann T et al., A pan-Canadian measure of active living environments using open data. Health Reports 2019; 30(5):16-25. ****



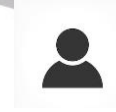
Connectivity



Points of Interest



Density



% of Canadians



Examples

Least walkable



Most walkable

ALE Class	Connectivity	Points of Interest	Density	% of Canadians	Examples
1	-85%	-91%	-93%	33%	Caledon, ON
2	same	-31%	-30%	29%	Kanata, ON
3	+54%	+21%	+35%	24%	Brossard, QC
4	+105%	+127%	+170%	9%	Woodfield (London), ON
5	+256x	+637x	+470x	5%	Kitsilano (Vancouver), BC

Canadian Community Health Survey (2015-2016)

Health surveillance

65,000 respondents per cycle

Annual

National, provincial, health region estimates

Age 12+



Self-reported physical activity by domain:

- Transportation
- Recreation
- Household & Occupation
- School (12 to 17 only)

n = 105,876 (12+ years)

Canadian Health Measures Survey (2009-2015)

Differences between reported and measures health predictors and outcomes

5,700 respondents per cycle

Every 2 years

National estimates only

Age 3-79



Parent-reported active play

n = 4,030
(3-11 years)



Accelerometer-measured:

MVPA
LPA
Step Counts

n = 10,987 (3-79 years)



Purpose

To examine how the association between walkability and physical activity varies across the lifespan and by the various domains of physical activity in Canadians by combining the newly-developed Canadian Active Living Environments Database (Can-ALE) with two nationally-representative health surveys.

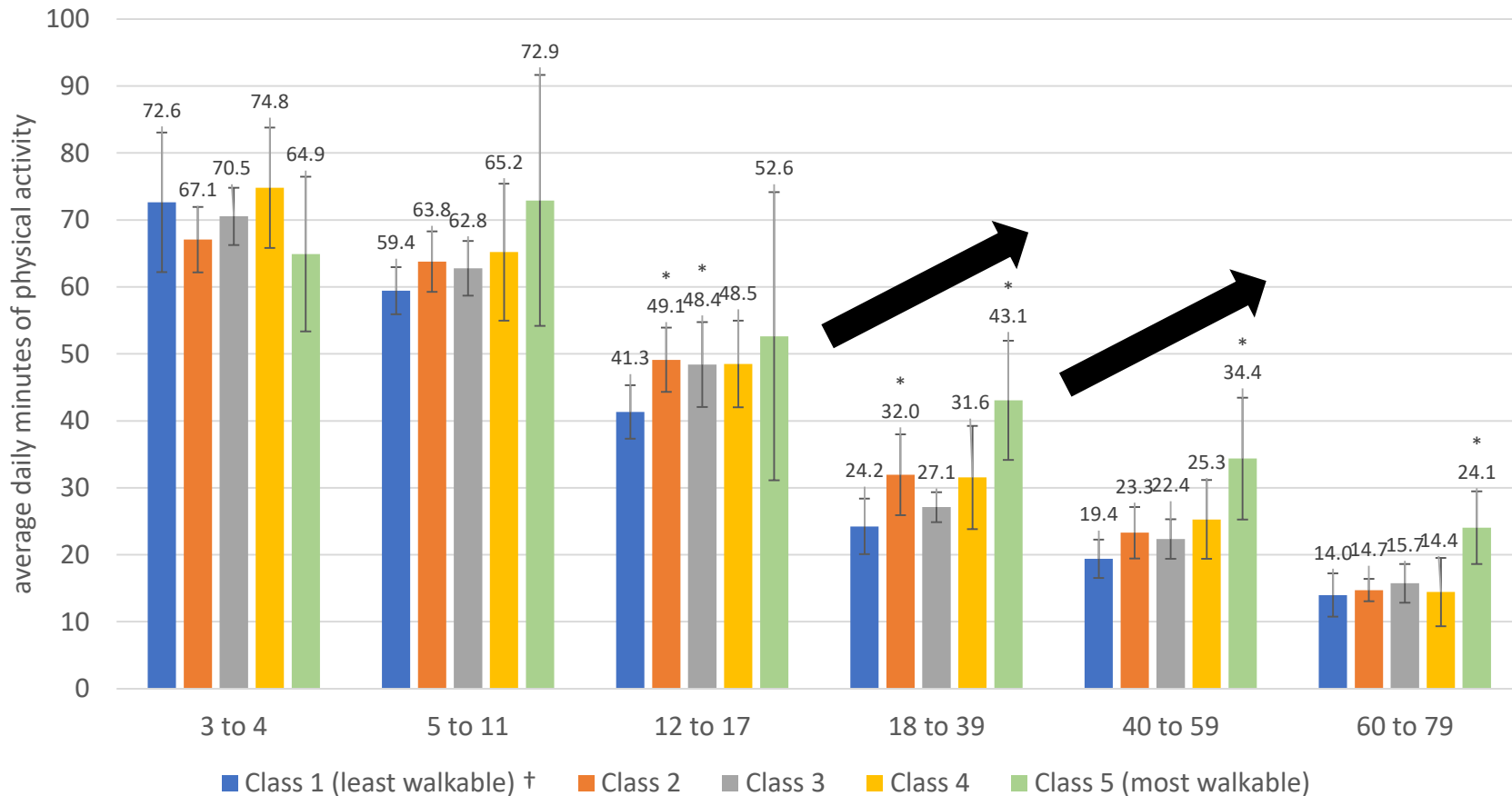


Results



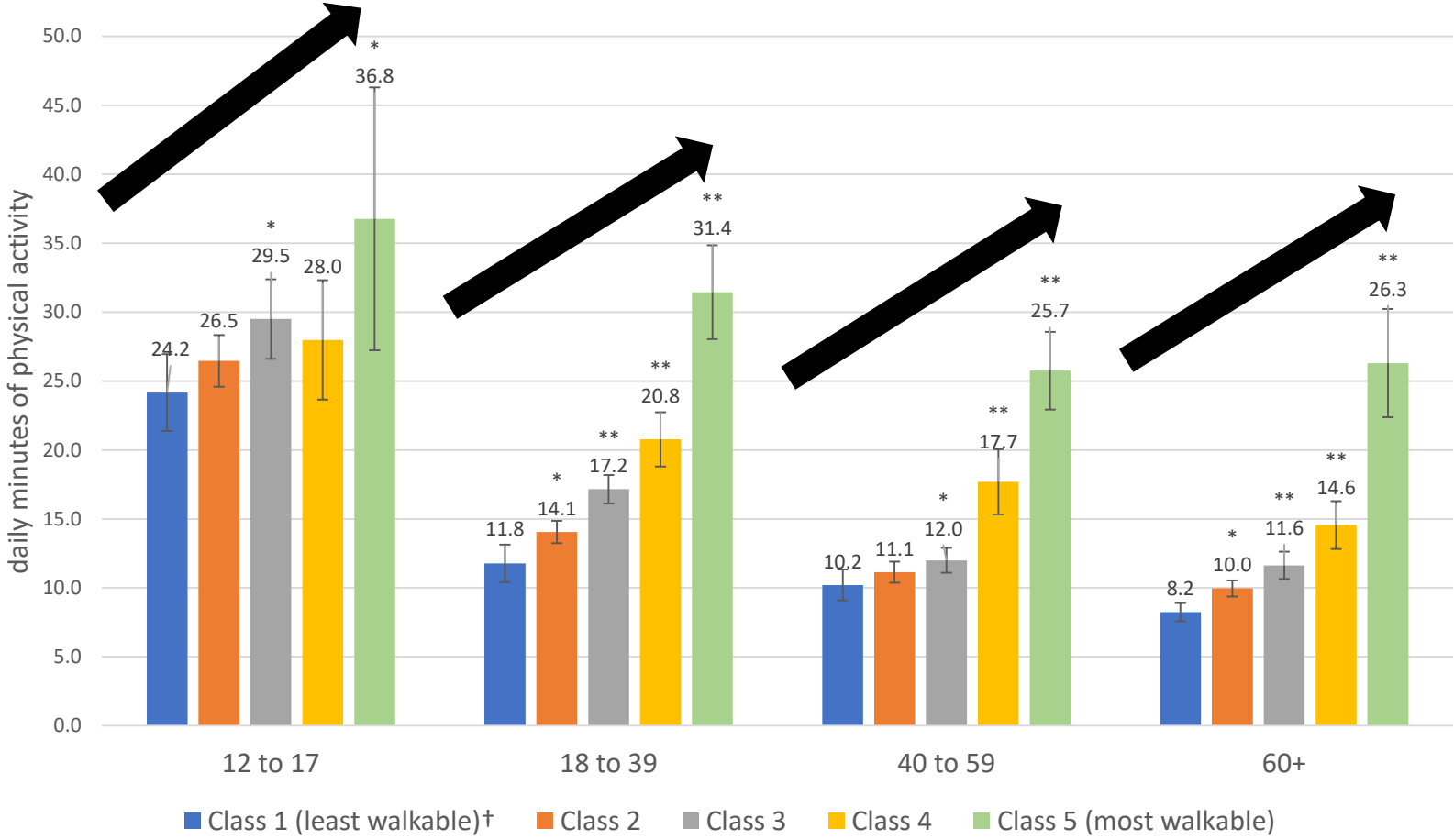


Accelerometer-measured data from CHMS: Upward trend in MVPA across Can-ALE categories for adults aged 18 to 59 only





Self-reported data from the CCHS: Upward trend in transportation physical activity across Can-ALE categories for youth and adults



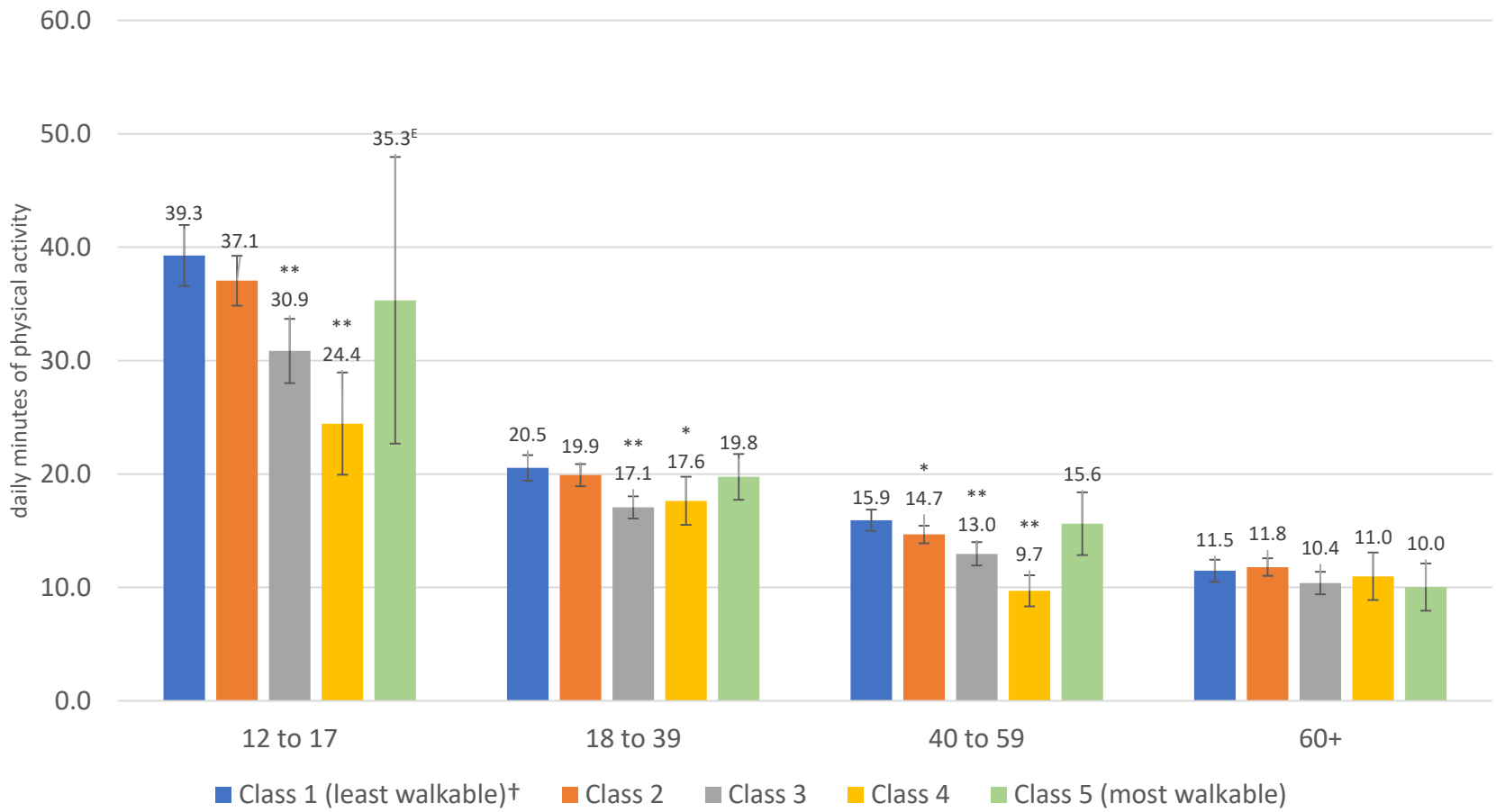
QUESTIONNAIRE

- Very often
- Often
- Sometimes
- Rarely



Self-reported data from the CCHS:

No trend in recreation physical activity across Can-ALE categories for youth and adults

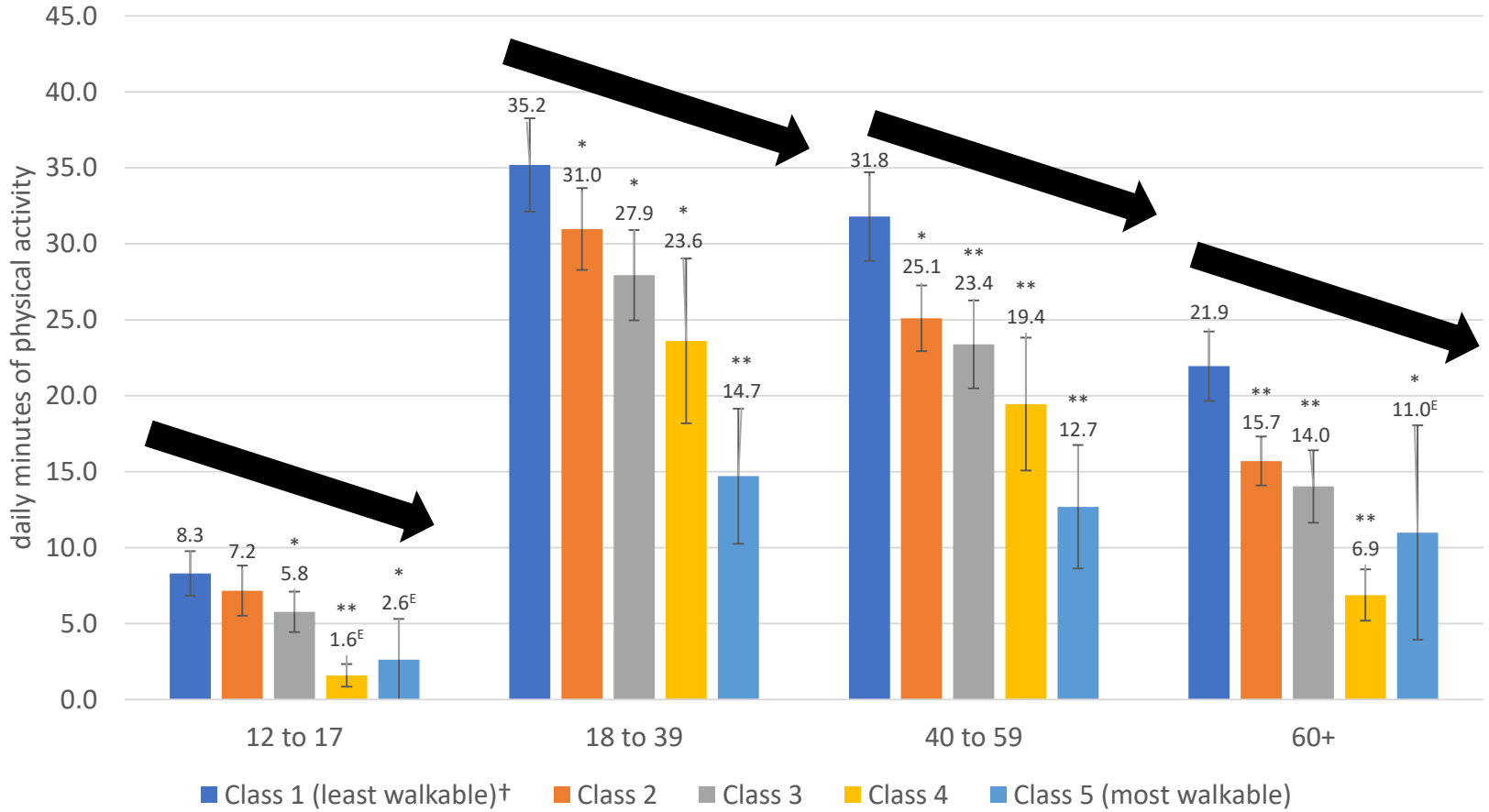




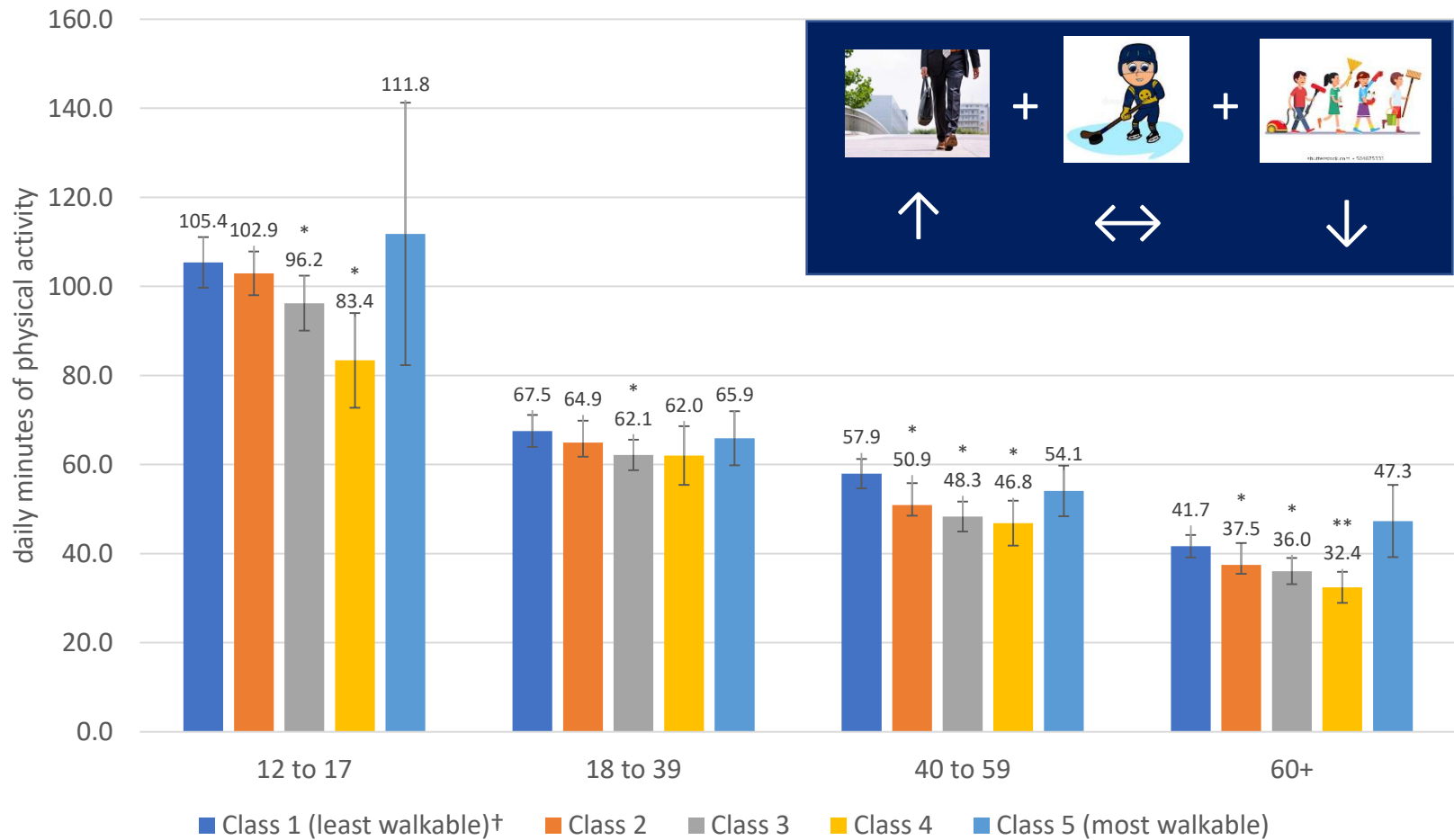
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Self-reported data from the CCHS: Downward trend in household/occupational physical activity across Can-ALE categories for youth and adults



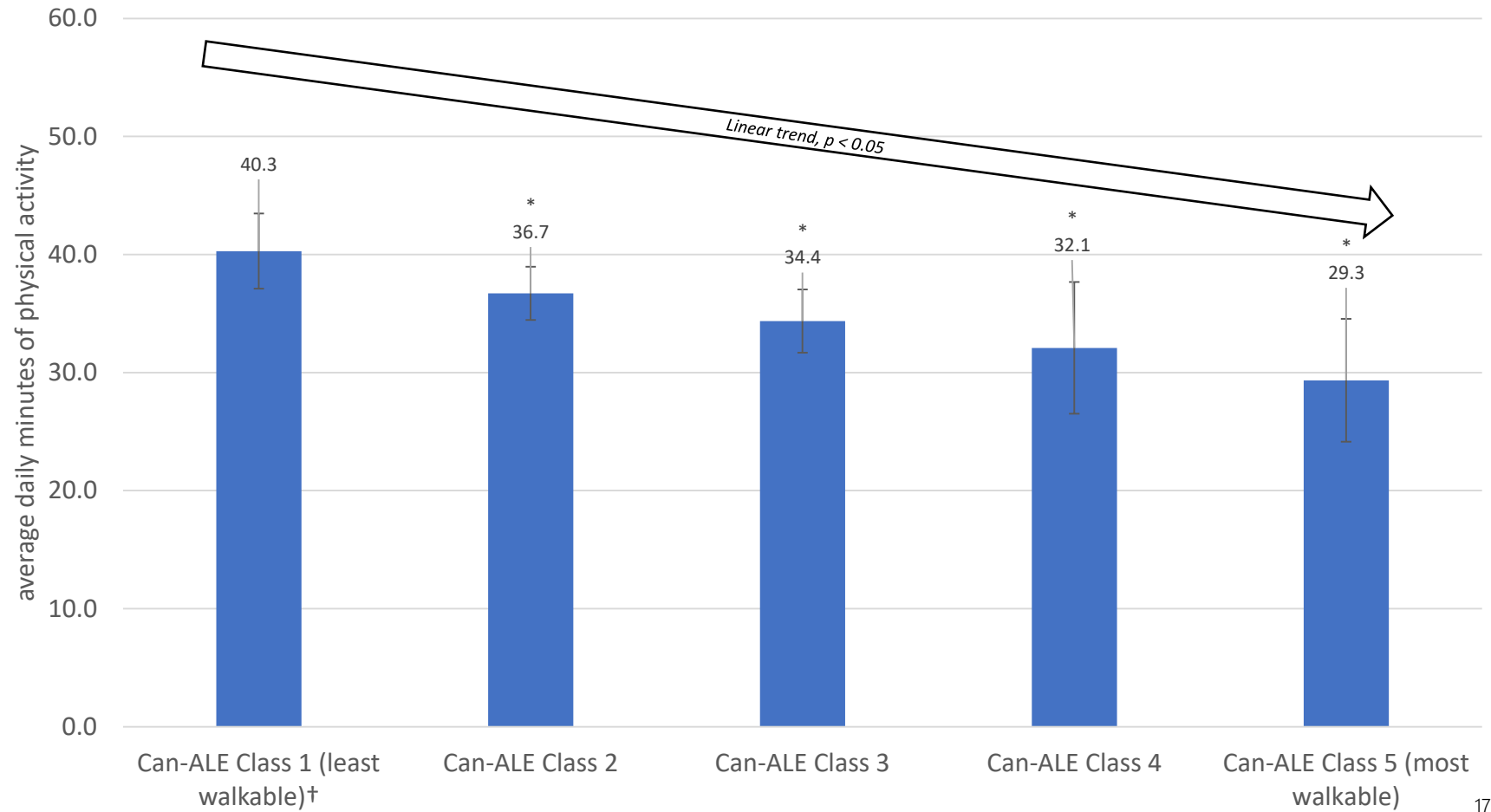
Self-reported data from the CCHS:
 No trend in total physical activity across Can-ALE categories for youth and adults





Parent-reported data from the CHMS:

Downward trend in unorganized physical activity across Can-ALE categories for children 5-11 years



Summary

- Walkability was positively associated with measured MVPA and self-reported transportation physical activity in adults.
- Walkability was not associated with recreational physical activity.
- Walkability was negatively associated with unorganized free play in young children.

Strengths & Limitations

Strengths

- The Can-ALE is freely available for use by all Canadian researchers: <https://nancyrossresearchgroup.ca/research/can-ale/>
- The use of both measured and reported physical activity data

Limitations

- Rural areas were excluded from this analysis
- Cross-sectional design cannot account for impact of residential self-selection

Discussion Points

- **“Walkable neighbourhoods are not playable neighbourhoods”** (Janssen and King, 2015)
 - Parks, crime rates, parental perceptions of safety, quiet streets, bike paths, natural surroundings etc.
- **Walkability is only part of the story, even for adults**
 - Greenness, access to recreation facilities, parks, paths
- **Walkability and health**
 - Future work: Association between walkability and obesity, self-rated general and mental health

Thank you

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Manuscript submitted and under review with
Health Reports

Acknowledgements:

Nancy A. Ross

Michael Tjepkema

Tanya Christidis

Isabelle Michaud



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