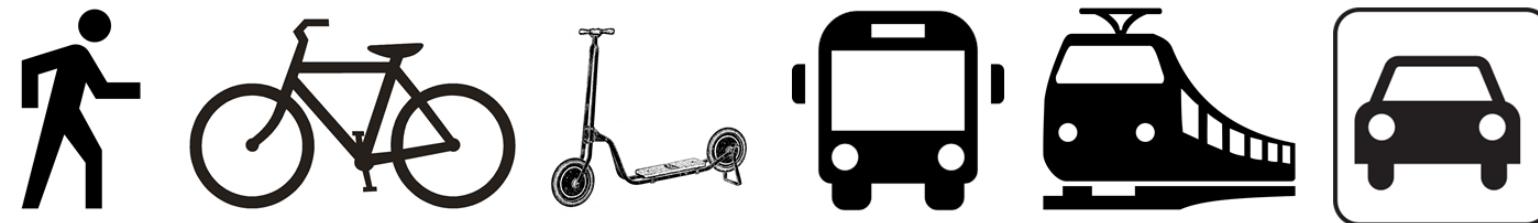


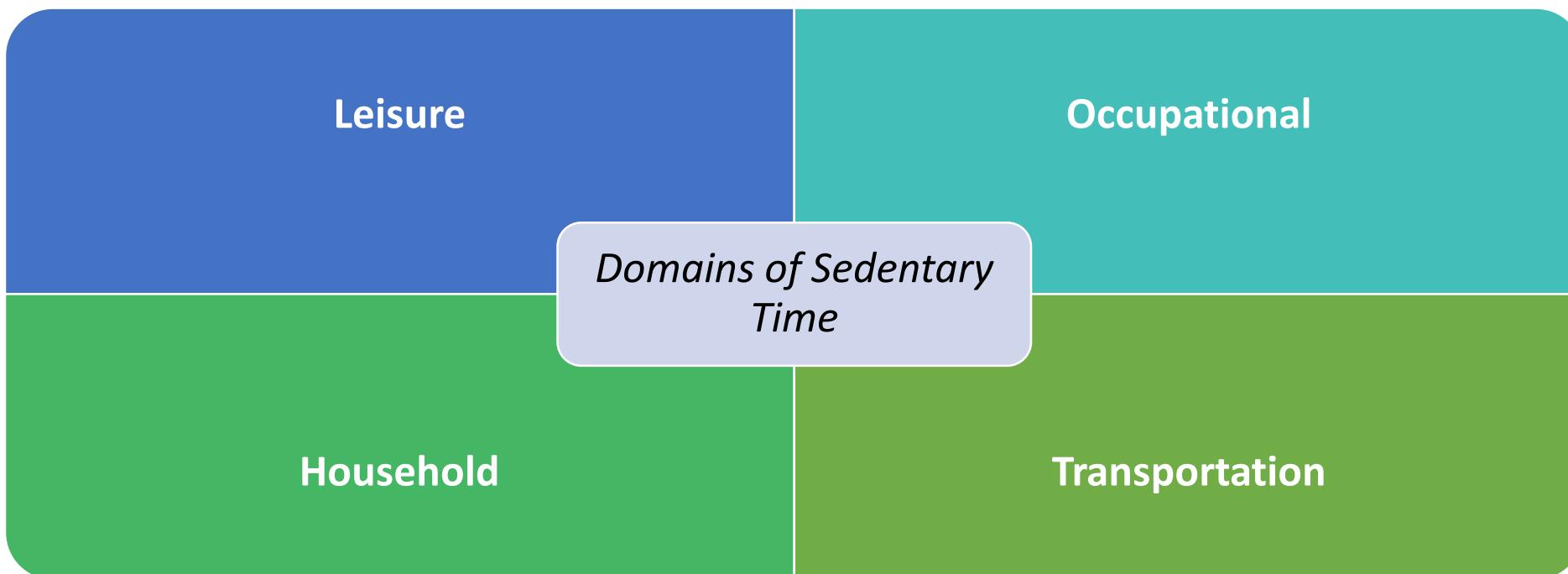
# The Future of Transportation:



*Integrated, Age-Friendly, Barrier Free,  
Electrified, Active Transportation*

# Transportation and Sedentary Time

Displacing sedentary transportation with active transportation: a green, inclusive, age-friendly approach to improved health of people and the planet



# Age-Friendly Active Transportation

## Focus Groups

- 9 sessions
- 52 participants

## Survey

- Online survey
- 110 participants
- Data linked to CANUE dataset

Open Access Feature Paper Article

### Perspectives on Active Transportation in a Mid-Sized Age-Friendly City: “You Stay Home”

by  Irmina Klicnik <sup>1</sup>  and  Shilpa Dogra <sup>2,\*</sup> 

<sup>1</sup> Faculty of Health Sciences (Community Health), University of Ontario Institute of Technology, Oshawa, ON L1G-0C5, Canada

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\* Author to whom correspondence should be addressed.

*Int. J. Environ. Res. Public Health* **2019**, *16*(24), 4916; <https://doi.org/10.3390/ijerph16244916>

<https://www.mdpi.com/1660-4601/16/24/4916>

Original Scholarship

### Constraints to active transportation in older adults across four neighbourhoods: a descriptive study from Canada

Nicholas O'Rourke  & Shilpa Dogra

<https://www.tandfonline.com/doi/abs/10.1080/23748834.2020.1833282>

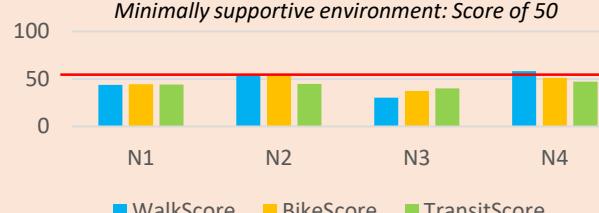
# Active Transportation in Older Adults in Oshawa Neighbourhoods

1. Are our neighbourhoods supporting active living?

## Active Living Environment Score for Four Neighbourhoods in the City of Oshawa



## Walk, Bike, and Transit Score for Four Neighbourhoods in the City of Oshawa



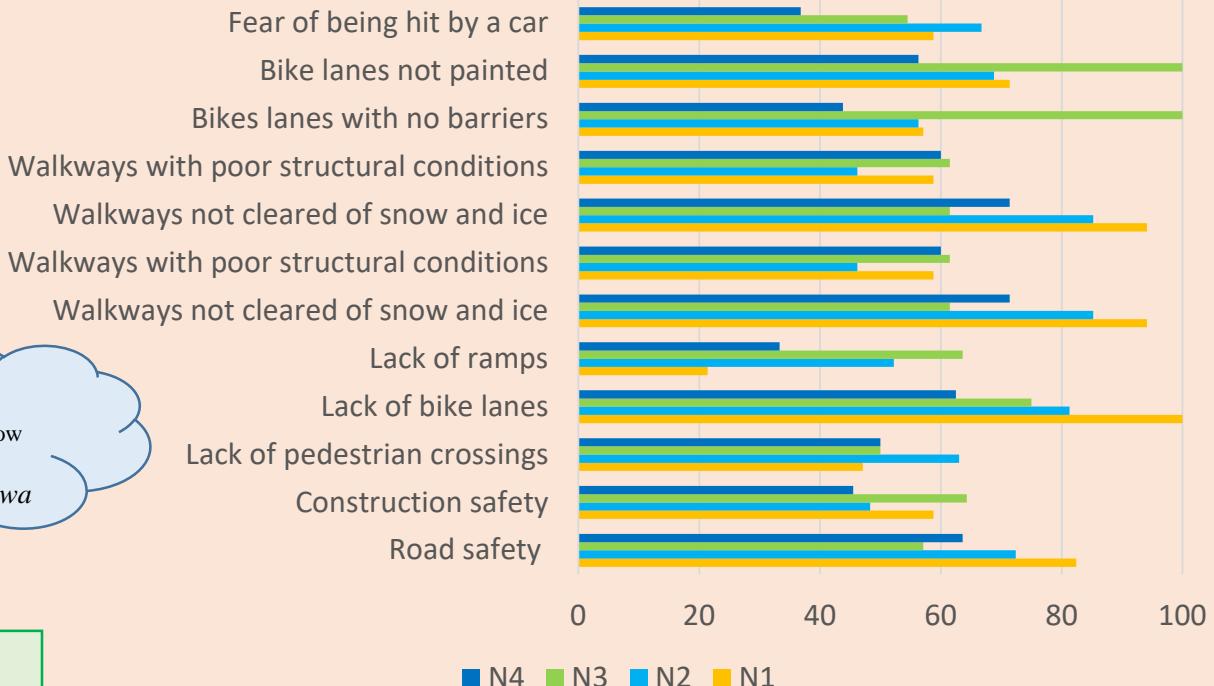
2. Our neighbourhoods do not meet the minimal thresholds to support active living.

I won't even ride my bike on the road anymore. To me, it's just too scary.  
- Resident of Oshawa

3. What stops older adults from walking and cycling?

You stay home.  
- Resident of Oshawa

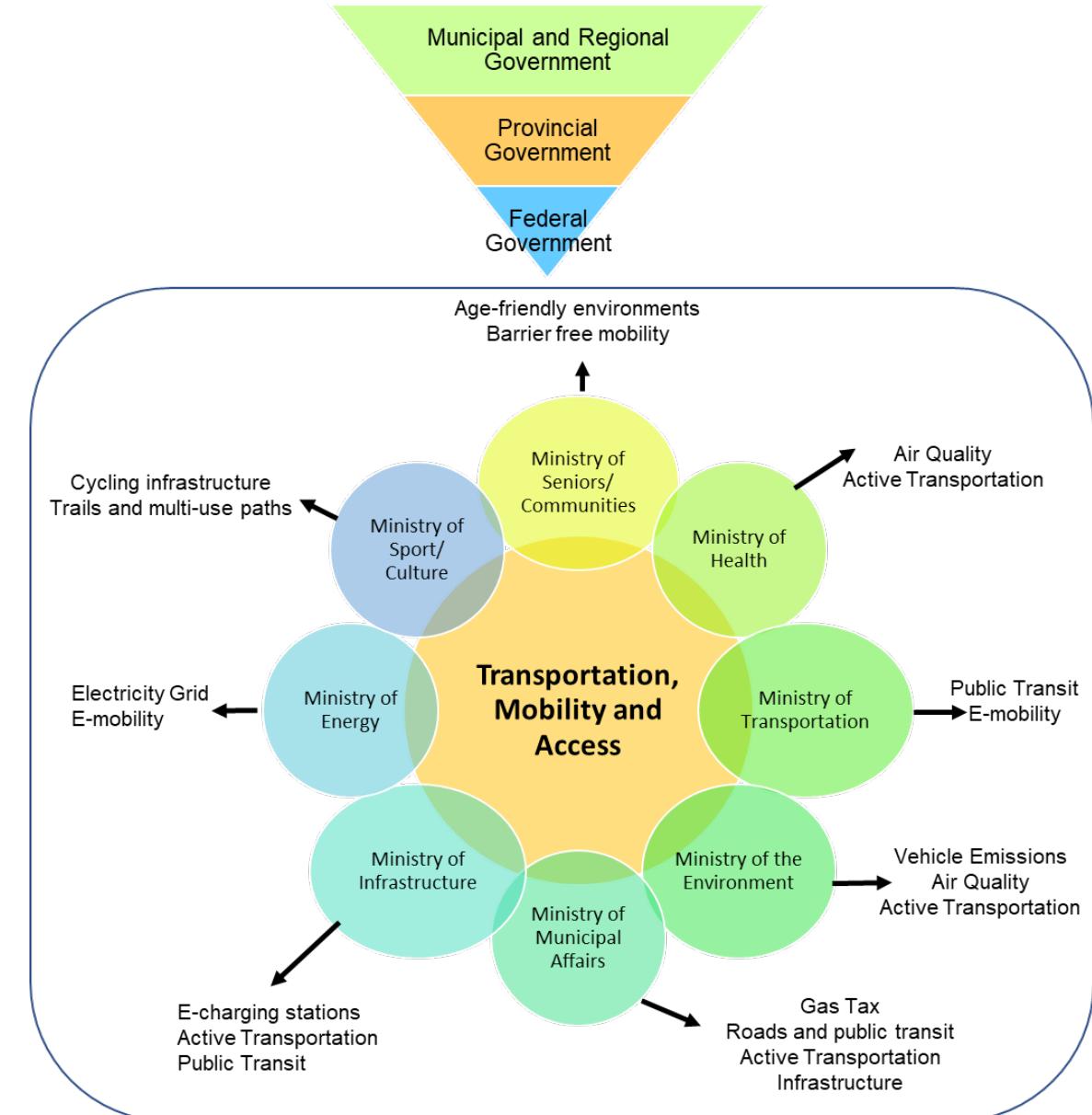
## % of Respondents Indicating the Constraint, by Neighbourhood



Source: Klicnik & Dogra. *IJERPH*. 2019.  
O'Rourke & Dogra. *Cities and Health*. 2020.  
Funding: Teaching City, Oshawa, Social Sciences and Humanities Research Council.

## IMPROVED MOBILITY IN ONTARIO: **MOVING TOGETHER!**

Encourage multi-modal transportation that is equitable and barrier free. This is critical for ensuring that people of all ages, colors, income levels, and ability levels are able to move in their community.



# Integrated Transportation

Recommendation	Intended Transportation Effects	Health and Environmental Effects
<b>Support the creation and development of accessible and safe active transportation infrastructure.</b>	Increase in the number of residents who choose to participate in active transportation will lead to a reduction in personal vehicle use.	
<b>Incentivize and prioritize use of active, public, and shared transportation over use of personal vehicles.</b>	Increase in the number of residents who use active or public transportation will lead to a reduction in personal vehicle use.	Direct health benefits to the users of active transportation
<b>Ensure connectivity of active transportation infrastructure with major destinations and public transportation options.</b>	Connectivity is a significant barrier to active transportation and public transportation use. Thus, work should be prioritized to facilitate greater uptake of both modes of transportation. This will lead to a reduction in personal vehicle use.	Decrease in GHG associated with reduced number of vehicles
<b>Work towards low-carbon personal and public transportation, e.g. electrification and hydrogen.</b>	A higher proportion of low-carbon vehicles will lead to a reduction in greenhouse gas emissions from personal vehicles and public transportation.	Improved air quality associated with reduced particulate emissions
<b>Work across siloes to improve integrated mobility to impact climate and health related outcomes.</b>	Equitable, barrier free, eco-friendly mobility.	

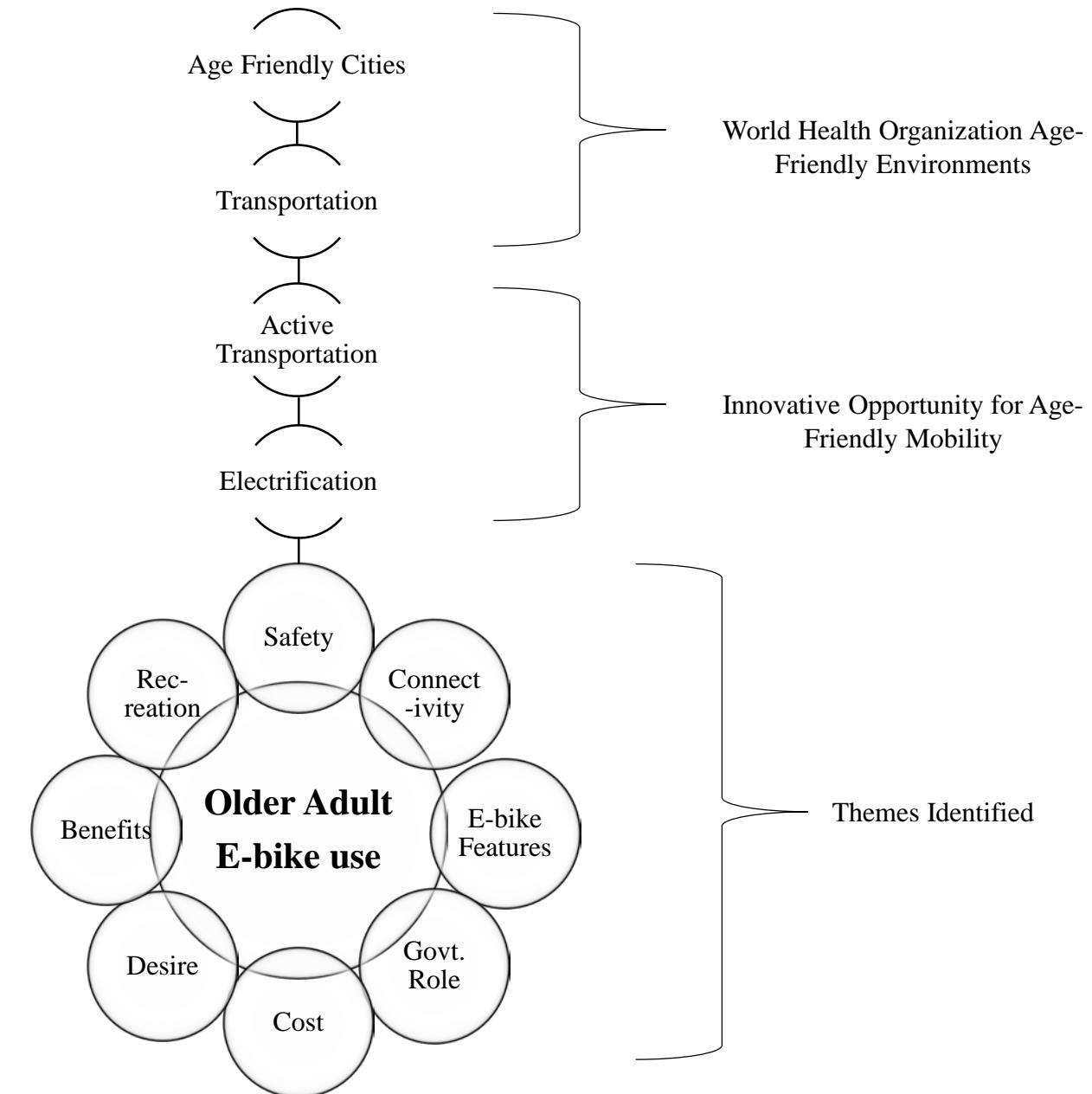
# E-bikes

"I need something to kind of **keep up with the boys** without having to fall off the back every time. So, I jump on the e-bike and then it's a little more equal, when we get back, we're both exhausted but allows me to keep up."

"... but most certainly as I age, definitely e-bikes would be included."

"his health situation prevented him from really riding his other bike at all. So, the e-bike has given him sort of like a new lease on life and that's been great".

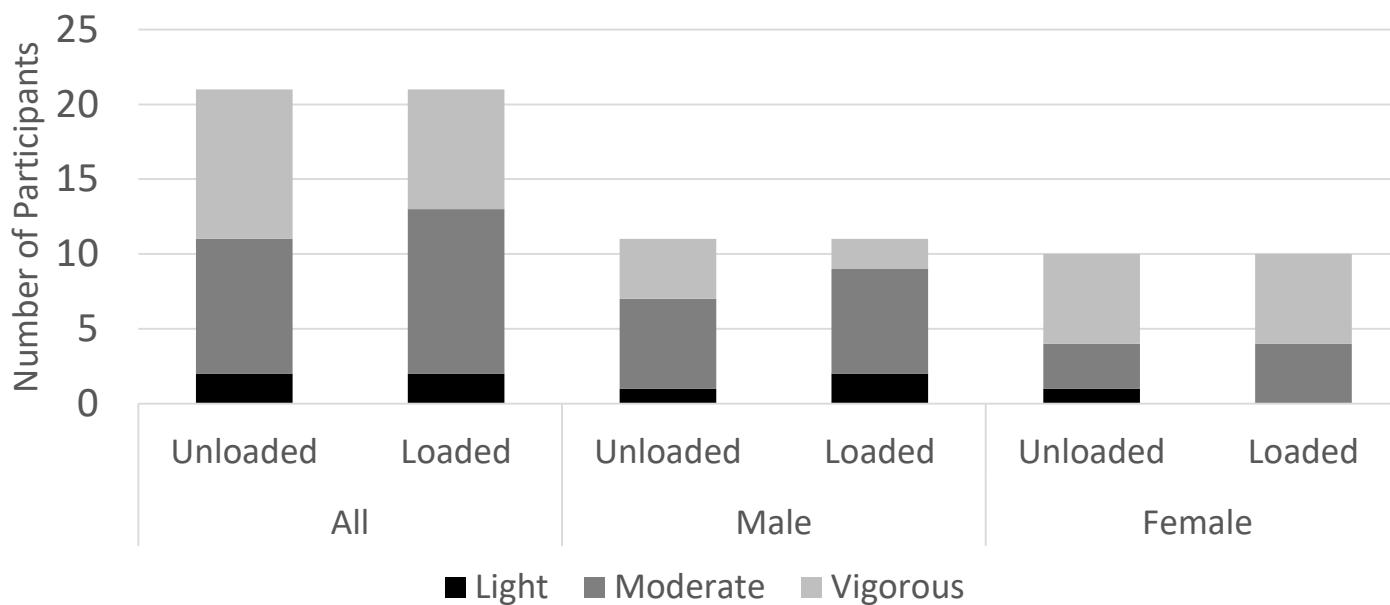
"I think a lot of people would find a \$4,000 bike out of their price range."



# E-bikes

Mean % of HRmax Achieved During E-bike Rides

	All (n=21)	Male (n=11)	Female (n=10)
Unloaded	75.69 ± 12.00	74.53 ± 11.84	78.00 ± 12.55
Loaded	75.01 ± 10.81	71.74 ± 9.46	79.86 ± 11.00



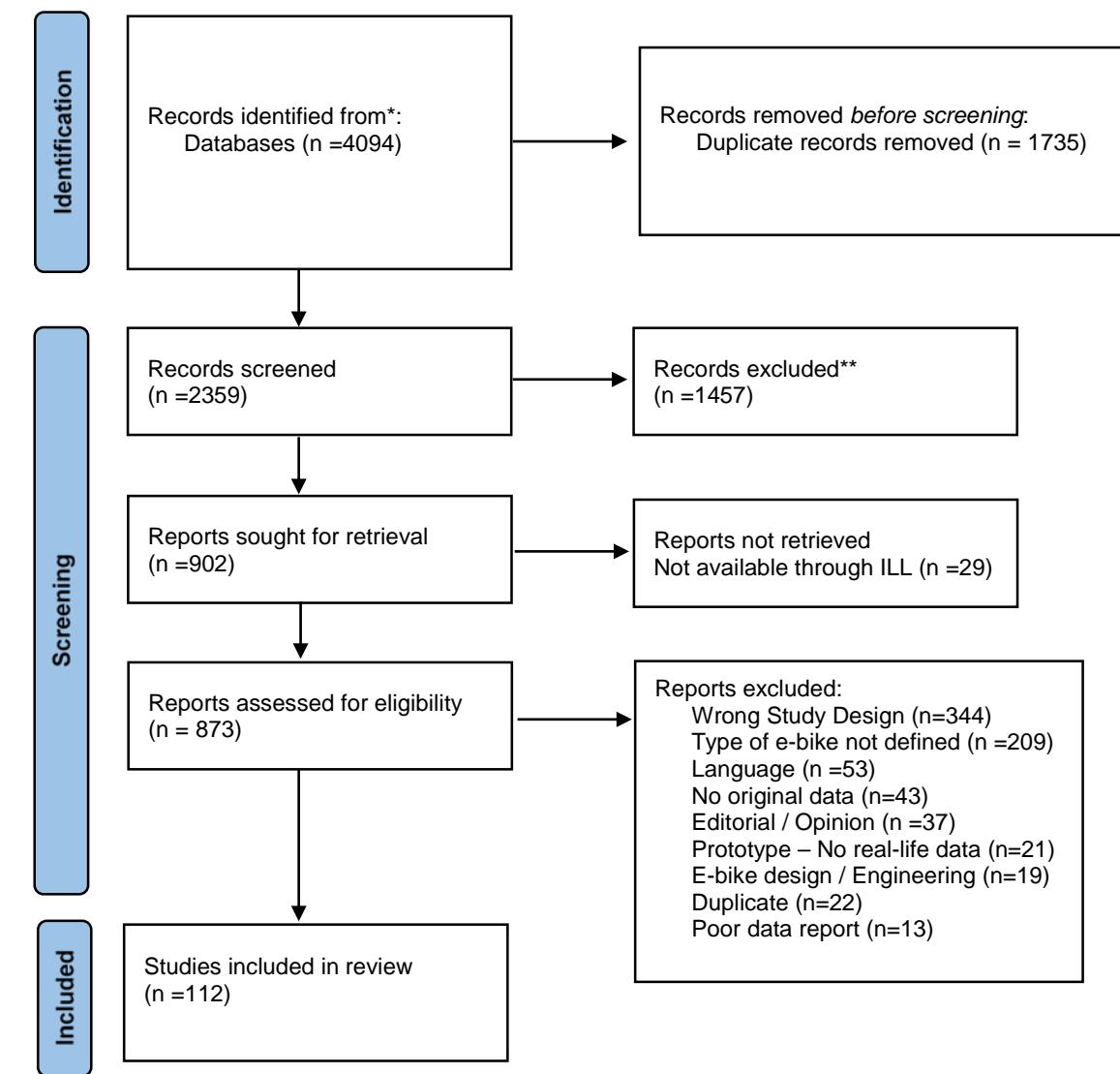
older adults self-select a moderate intensity of physical activity

compared to the unloaded e-bike ride, added load did not result in any significant differences in average heart rate or average power output

E-bikes can provide moderate intensity activity, and displace daily sedentary time

# E-bikes

- Scoping Review
  - Informing Inclusive E-Bike Policy and Infrastructure Development
- SSHRC and Canada Infrastructure funding and reporting



# Findings and Implications

- Definition:
  - Pedal assist e-bikes or pedelecs
- Violations/Accidents/Injuries
  - Helmet use: poor
  - Traffic conflict and violations: similar
    - Running red lights
    - Conflict with pedestrians, other cyclists, cars
  - Risk of injury or accidents: similar!
  - Speed perception of drivers: poor
  - Actual speed: below 20km/hour
  - Braking: harsher
- Age, gender, income
  - Diverse sociodemographics need to be considered in policies and programs

# Next Steps

- Increase Access
  - Share or rental programs
  - Can affect culture
- Improve Policies
  - Differentiate between pedelec and e-bikes
  - Regulation of pedelec not onerous
- Urban Mobility Consortium



# Thank you!



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SSHRC CRSH  
Social Sciences and Humanities Research Council of Canada  
Conseil de recherches en sciences humaines du Canada

  
CIHR IRSC  
Canadian Institutes of Health Research  
Instituts de recherche en santé du Canada

  
TeachingCity  
Oshawa