

Summary Report: Built Environment, Health and Obesity

Introduction

In 2007 the Canadian Institutes of Health Research and the Heart and Stroke Foundation of Canada funded nine projects to examine the relationship between the built environment and obesity in the Canadian context. In Alberta, three projects were funded. This report summarizes key findings from research conducted through the Built Environment Edmonton Project (BEEP), led by Dr. Tanya Berry of the University of Alberta.

Background

There is increasing evidence showing that where we live influences how active we are, how we eat and how easy it is to maintain a stable body weight. For example, research has shown that individuals living in neighbourhoods with good street connectivity, walking infrastructure, and higher housing density walk and bicycle more and have lower rates of obesity than those living in residential-only neighbourhoods (Saelens et al., 2003; Frank et al., 2006). Given such evidence, there is a growing interest in how our local environments influence what we do, how active we are and how healthy we are. By increasing our knowledge about the influences and factors that affect people where they live, we can support the creation of environments that encourage healthy living.

Our Project

The goal of our project was to explore the relationship between the neighbourhood environment, physical activity, food choice and obesity. We wanted to know what factors influence the development of health-promoting neighbourhoods, how residents perceive neighbourhood environments, and how neighbourhood factors might be related to body mass index. By expanding what we know about these topics we can better inform the creation of health-promoting environments.

We examined these topics in three ways:

- Interviews with key stakeholders involved in the development of walkable neighbourhoods.
- Surveys with participants in Edmonton over time (2002 and 2008) and at a single time point (2008).
- Focus groups with Edmonton residents in neighbourhoods across the city.

Interviews—exploring the views of key stakeholders

The purpose of this study was to find out what influences the planning decisions made by key stakeholders in Edmonton. We wanted to find out what might promote or prevent the development of neighbourhoods where walking, being active, and buying healthy, affordable food are easy.

Seventeen stakeholders were interviewed. These included nine employees of the municipal and public health sector (e.g., those working in transportation, planning and community initiatives), three city councillors, and five private sector employees (e.g., land developers).

Participants were asked to explain:

- How they think the built environment might influence health behaviours (physical activity and diet) at a neighbourhood level.
- What role they think their organization plays in the creation of food secure and walkable neighbourhoods.

What we heard:

Municipal and Public Health Sector Employees

- Supported the development of neighbourhoods with more street connectivity, housing density and better access to healthy, affordable food.
- Emphasized the realities of the marketplace and the need to balance a vision for walkable development with the demands of the general public and economic constraints.
- Cited lack of financial resources, poor public and stakeholder awareness, and existing social norms as barriers to development.
- Factors that made their work easier were increased public interest in the environment and health, as well as increased collaboration with municipal, academic and community groups.
- **Suggested solution:** increasing efforts to raise awareness on the part of leaders and politicians, increased education, and more discussion between private and public sectors.

City Councillors

- Supported the development of health-promoting neighbourhoods but cited lack of awareness about relevant issues, economics and car dependency as major barriers to development.
- Were the only group to speak explicitly about the barriers faced by people living in socioeconomically depressed areas, emphasizing that not everyone can afford to choose neighbourhoods that are “healthy” or desirable.
- Noted a shift in consumer demands and increased transit use, but also suggested that factors such as car dependency/reliance and daily commuting from distant neighbourhoods combine to make it less likely that people would make lifestyle choices like walking or biking to work, or taking public transportation.
- **Suggested solution:** more collaboration and discussion between public and private sectors, more education for children and youth about these issues, and better use of local agriculture (e.g., public farmer’s markets).

Private Sector Employees

- Stated that increased media interest around health and environmental issues made the link between built environments and health behaviours “important considerations” in their own work.
- Were sceptical of the influence of walkable development. Many did not believe that creating walkable environments would result in more people walking.
- Cited car culture and car reliance as barriers to development.
- Believed that the public should manage their expectations around demands for bigger roads and lower housing costs.
- **Facilitators identified:** increasing public awareness of community design and personal well-being.

Key Findings:

- **Economic constraints, existing social norms, and consumer trends** were identified by all groups as barriers to the development of “healthier” environments.
- **Tension exists around whether change is needed or desired by the public, who is responsible for change, and to what end.**
- **Increased public awareness and coherent collaborative efforts are needed** to inform and influence policies that will guide the development of health-promoting communities.



Surveys—examining what factors predict body mass index

Two different surveys were conducted in Edmonton to investigate the relationship between individual, social, and environmental factors and body mass index (BMI). One survey was conducted in 2008 and the other across two time points (2002 and 2008). The core factors measured are listed to the right.

Based on participant postal codes, we also calculated the neighbourhood level factors using census data and geographical information systems.

From these surveys, we examined three questions:

- What factors predicted body mass index (BMI) at a single time point (2008)?
- What factors predicted BMI change among participants who did not relocate over six years?
- What factors predicted BMI change among participants who did relocate?

Core factors measured were:

Age and gender
Fruit and vegetable intake
Height and weight
Reasons for choosing a neighbourhood
Physical activity levels
Perception of neighbourhood walkability

Neighbourhood level factors:

Neighbourhood walkability (how easy/pleasant it is to walk): very low, low, medium, high, very high

Socioeconomic status (SES): low, medium, high

What we learned:

We found that multiple factors predicted BMI and change in a person's BMI. These included:

- Demographic factors: **age and gender**
- Health behaviour factors: **physical activity level and fruit and vegetable intake**
- Neighbourhood level factors: **neighbourhood level SES**
- Perceived walkability factors: **perception of traffic**
- Neighbourhood choice factors: **choosing a neighbourhood for ease of walking and proximity to outdoor recreation**

At a single time point in 2008 we found:

- Older participants had higher BMI than younger participants.
- Men had higher BMI than women.
- Highly active participants had the lowest average BMI compared to those moderately or low active
- Those who ate fewer fruits and vegetables had higher BMI than those who ate more.
- The more importance participants placed on ease of walking when choosing a neighbourhood, the lower their BMIs.

- Participants in low SES neighbourhoods had higher BMI than participants in medium SES or high SES neighbourhoods.

Among those who did not relocate from 2002-2008 we found:

- Younger participants were more likely to have increases in BMI than those in the oldest age category.
- The more participants agreed with the statement “traffic makes it difficult to walk,” the greater the likelihood of BMI increase.
- Participants in the lowest SES neighbourhoods were more likely to have increases in BMI than those in the higher SES neighbourhoods.

Among those who relocated we found:

- Younger participants had greater increases in BMI than older participants.
- Participants who decreased or did not change their physical activity level had increases in BMI, while those who increased their physical activity had a small decrease in BMI.
- Participants in the lowest SES neighbourhoods had the largest increases in BMI compared to those in medium SES neighbourhoods and high SES neighbourhoods.
- Participants who relocated and rated choosing a neighbourhood for “ease of walking” as low importance showed greater increases in BMI than those who rated this as important.
- Participants who relocated and rated choosing a neighbourhood to be close to outdoor recreation as important had greater gains in BMI than participants who rated this as low importance.

Key Findings:

- Across studies, **objective neighbourhood SES** (e.g., higher vs. lower) predicted BMI change/BMI. **Participants in lower SES neighbourhoods were more likely to have higher BMI or increases in BMI.**
- Across studies, **objective neighbourhood walkability** (e.g., higher vs. lower) **did not predict BMI change/ BMI.** However;
- **Perceived neighbourhood features, such as traffic, did predict BMI change.**
- **Neighbourhood choice for ease of walking was demonstrated to be an important predictor of BMI.**
- **Multiple individual and environmental factors are implicated in the relationship between neighbourhood environments and BMI.** Future research is needed to better understand this complex relationship.





Focus Groups—exploring resident perceptions of neighbourhood environments

In early 2010 we held 11 focus groups with Edmonton residents in higher and lower walkability neighbourhoods. Our goal was to gain a deeper understanding of how neighbourhood environments might influence health, from the perspectives of residents.

Questions focused on how residents define walkability, how their neighbourhood environments influence physical activity and food choices, what factors influence their choice of neighbourhood, and suggestions for improvement.

What we heard:

Walking, Physical Activity & Food Choice

- Almost all participants felt their neighbourhoods were very or reasonably walkable regardless of the objective classification as higher or lower.
- Walking was perceived mostly as an exercise or leisure activity, as opposed to transportation.
- Almost all participants indicated they regularly saw others out and active in their neighbourhoods.
- Social interaction with neighbours was mentioned repeatedly in connection to neighbourhood walking and local opportunities for physical activity.
- Walking paths, river valley trails and health facilities (e.g., city of Edmonton leisure centres) were popular venues for physical activity.
- Almost all participants perceived they had high food choice, with multiple food outlets nearby, though few accessed these on foot.

Valued Features & Improvement Suggestions

- Many valued “older neighbourhood” planning and development features of connectivity and the integration of destinations, green space and infrastructure for walking and cycling.
- These same features were cited as suggestions to improve neighbourhoods, e.g., better path and crosswalk availability and quality.

Neighbourhood Choice

- Key reasons for choosing a neighbourhood were location, nearby schools, recreation opportunities, the residence or lot itself, and affordability.
- Many also indicated choosing based on “drivability”; the ability to drive easily to multiple destinations outside the neighbourhood.

Factors Influencing Behaviour

- Path connectivity and quality (e.g., sidewalk infrastructure and maintenance), winter conditions and safety (e.g., fear of unsafe, busy roadways, or crime) were key factors influencing walking behaviour.
- Dominant car-culture and car dependency was identified by many as an influential factor.
- Many believed that even in built environments that have lots of opportunities for physical activity and healthy eating, it is still a matter of individual choice to be active and eat healthy foods.

Key Findings:

- **Almost all participants perceived their neighbourhoods as reasonably or highly walkable, regardless of objective walkability classification.**
- Path connectivity and quality, land-use mix and social interaction may encourage leisure and exercise walking and physical activity.
- Car dependency, traffic safety (e.g., busy roadways, speeding cars and unsafe crossings), and seasonal conditions (especially winter) may negatively influence behaviour, regardless of built environment features.

Conclusions & Recommendations

Our goal was to increase what we know about how built environments influence health, in the Canadian context. We hoped to better inform the creation of environments that support healthy living, including physical activity and access to healthy food.

We learned that there are multiple factors implicated in the relationship between our environment and body mass index:

- 1) demographic factors, such as age and gender;
- 2) health behaviours factors, such as physical activity level and fruit and vegetable intake;
- 3) factors in our social environment, such as neighbourhood level socioeconomic status;
- 4) neighbourhood choice factors, e.g., choosing a neighbourhood for walking or outdoor recreation; and
- 5) how we perceive our environments, e.g., perceptions about traffic safety.

We found that how we perceive our environments for walking and physical activity may be as important, or more important, than environmental features alone (e.g., how objectively “walkable” a neighbourhood is).

Edmonton residents identified specific factors that influenced how active they were in their neighbourhoods.

Factors that positively influenced their behaviour included:

- how connected and well-maintained the paths and walking trails were;
- whether there was a mix of places in their neighbourhood, e.g., schools, gyms, parks; and
- whether there were social gathering places and opportunities to interact with others.



Factors that negatively influenced behaviour (reducing likelihood of walking in the neighbourhood) were:

- poor street and path connections and quality;
- car dependency and social norms favouring automobile use;
- pedestrian safety (e.g., busy roadways, speeding cars and unsafe crossings); and
- seasonal (especially winter) conditions.

We also learned that individuals in socially disadvantaged (low SES) neighbourhoods face greater health obstacles; not everyone can choose a neighbourhood based on features promoting health.

We learned that among key stakeholders involved in the development of walkable neighbourhoods there are specific barriers that make their work challenging. These barriers include economic constraints, existing social norms, and consumer trends. In addition, tension exists between different stakeholder groups about whether health-promoting developments (built environments) are needed or wanted by the public and who should be responsible for such change/s.

Overall, these findings emphasize the complex relationship between environmental, social, individual factors, and health. They highlight the need to consider how residents perceive their environments for physical activity and food choice, in addition to traditional features associated with walkable development. Across studies, we saw that perception of environment is a critical factor that influences health behaviours and that those who are active and value walking are those most likely to be influenced by their perceived environments.

Further research examining these factors and coherent collaborative efforts are needed to inform policies that will guide the development of health-promoting communities.

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The overall aim of our project is to influence the creation of healthier neighbourhood environments. By sharing information about our project and creating connections, we hope to reach this goal.

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