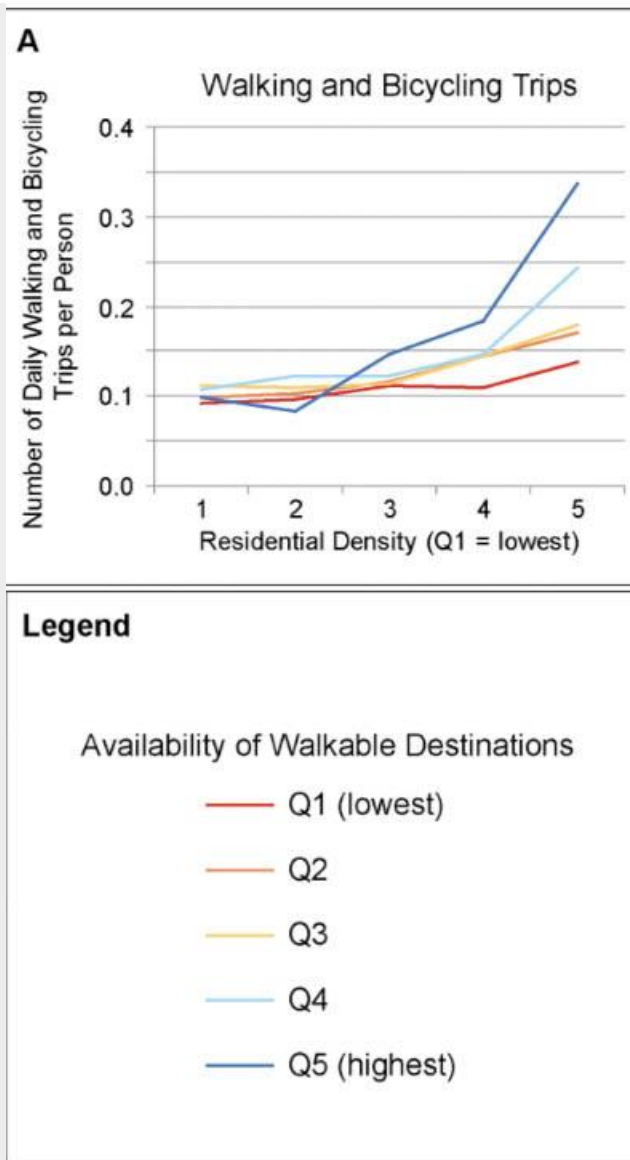http://usa.streetsblog.org/2014/02/06/what-sets-apart-the-places-where-people-walk-more/

What Sets Apart the Places Where People Walk More?

by Angie Schmitt

A lot of research has shown a link between living in a walkable community, active transportation habits, and better health outcomes.

As residential density increases, so do walking and biking. Image: PLOS ONE

But what aspects of "walkability" are tied to better health? Is it the mix of uses, the connected street grid, the density of housing, or all of the above? It's an important question to understand if we want to design places that encourage healthier habits.

Researchers at St. Michael's Hospital in Toronto set out to determine what features of urban neighborhoods lead to more activity and thus better health outcomes. Their study of Toronto-area residents, published in the peer-reviewed science and medical journal PLOS-ONE, examined the link between four built environment factors and people's health records and transportation habits.

Researchers started by looking at street connectivity, population density, residential density (which measures occupied housing units), and "availability of walkable destinations" (a measure of non-residential uses).

They found that street connectivity was not an especially strong predictor of active transportation habits, but the other three factors were. Basically, if you live in a dense area, you are more likely to walk and bike often, and you're even more likely to get physical activity if there are a lot of destinations close to your house.

The team found that both residential density and the presence of walkable destinations were strongly predictive of residents' transportation habits, and that walking and biking trips per person seem to be linked most strongly to residential density. Even in low-residential-density areas with a high number of destinations, people were unlikely to walk or bike.

More often than not, however, the places that were densely settled also had a high number of destinations. And while both factors make pretty good predictors of how much activity residents get, the combination of the two — places that are both dense with residences and full of other types of uses — is especially powerful. Street connectivity was found to be a weaker predictor of travel behavior than the other measures, but was also strongly correlated with density and number of attractions.

Researchers assigned each block in the city to five quintiles — from most to least walkable. Using available data about health and travel statistics, the study found a fairly strong pattern.

People who lived in the least walkable areas of Toronto had twice as many vehicles per household and were twice as likely to travel by car as those in the most walkable. They were also half as likely to use public transportation and one-third less likely to walk or bike for transportation.

The research also indicated a less clear-cut relationship to health outcomes. In less walkable areas, 49.7 percent were overweight compared with 41.3 percent in walkable neighborhoods. When adjusting for age and sex, people in less walkable communities also had higher diabetes rates: 11.3 percent, compared with 8.5 percent. However, while

those results were consistent with other data, they fell within the margin of error, which researchers say is likely due to the small sample size.

It can be difficult in a study of this nature to separate cause from effect. Researchers were not able to control for income and education because of the way the study was designed. The authors noted that "there were few clear socio-demographic differences across quintiles apart from a higher proportion of children and seniors living in the least walkable areas, and a higher average household income, yet lower education, in the least walkable areas."

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- *Laurence Aurbach*

"They found that street connectivity was not an especially strong predictor of active transportation habits, but the other three factors were."

Hmm, that's not what I see. The areas with the best street connectivity had three times more walking and biking than the areas with the worst street connectivity. That spread was similar to the spreads for density and destinations. See Table 2, Transportation Behaviors by Quintiles of Walkability and its Components.

The study also seems to have found a correlation between street connectivity and diabetes occurrence.

However, I do question the definition of street connectivity used in the study. It defines connectivity as the count of all intersections with at least 3 converging roads or pathways. That means intersections leading to cul-de-sacs are counted — but those intersections do not add to the connectivity of the street network.

So the metric used in the study is more like a measure of the density of streets, which has been less clearly associated with walking and biking in previous studies.

- *Charles_Siegel*

The highest number in the graph shown in this article is only .35 walking trips per day. I would think that in real cities (eg, Manhattan or Paris), the average person makes 2 or more walking trips per day.

- *madelinebrozen*

I commend the researchers for embarking on this project and their work on walking trips holds some promise. But I'm not surprised that they could not find a clear connection between the travel behavior and health because so many things go into your health such as eating habits, availability of food options, exercise outside of travel, genetics, etc. I think that unless you try to put in a variety of more health related variables, it is unlikely that a link will be found. Even if you assume that your travel behavior has a 20% effect on your overall health that means that you can't explain the 80% of what else is going on, so finding a correlation would just be difficult from the outset.

- *Wanderer*

Kudos to the authors for publishing this in Open Access form.

There's been an ongoing discussion of how useful walkscore is as a measure of walkability. Walkscore measures the walk accessibility of non-residential destinations from a point or neighborhood. This study shows that access as being one of the factors that influences walking rates, but not the only one–kind of the common sense conclusion all along.

It's relatively rare, but there are dense places which don't have good access to destinations–dense areas that are largely single use. Condo Canyon in west Los Angeles and parts of Brickell Avenue in Miami come to mind. It's good to tease out these factors.

- *ChrisLoos*

Absent from this study is the large part that urban design plays in a neighborhood's walkability. Case in point: here in LA, I recently moved from Koreatown to Downtown. Both neighborhoods have an extremely high population density and have lots of destinations you can reach on foot. And yet I find myself walking far more in Downtown LA than in Koreatown, and see far more people on the street here as well. Why? DTLA has wider

sidewalks, narrower streets, and unbroken walls of retail. It provides a safer, more pleasant walking experience that Koreatown with its wider boulevards, faster moving traffic, and retail organized around strip malls.

- *gonewest818*

Seems to me, people walk more often if they can walk to places worth caring about. See Kunstler:

http://www.ted.com/talks/james_howard_kunstler_dissects_suburbia.html

- *Miles Bader*

A worthy point…but keep in mind that despite his great rants against suburbia, Kunstler is kind of nuts.