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Many cities around the world are spreading faster than their populations are growing. According to researchers at New York University, between 1985 and 2000 the population of Accra in Ghana increased by 50%, but its land area grew by 153%. People are having to travel further: in Nairobi, for example, the average commuting distance increased from less than 1 kilometre in 1970 to 25 kilometres in 1998. As this trend continues, governments face the problem of how to move people around ever-expanding metropolises efficiently enough that residents can take advantage of the opportunities — economic and otherwise — that cities have to offer.

This issue is certainly a public-policy challenge, but it's also an opportunity to improve the health of the world's growing urban population. And researchers and public-health experts say that making cities of the future function well and support human health may depend on the most low-tech, ancient assets available — our own two feet.

"If the pedestrian is happy and you see many pedestrians, that's a city with a good transport system," says Clayton Lane of the Institute for Transportation and Development Policy, a non-profit organization based in New York. "The pedestrian is the indicator species for a sustainable transport system" — and, as it turns out, for a healthy one.

But getting there will require a major shift in government spending priorities and in public attitude. "In many cities around the world, the people and the politicians have this vision of modernity that prominently features automobiles," Lane says. As residents become wealthier, the urban infrastructure is remodelled to favour cars. Many cities in the developing world spend around 70% of their transportation budgets on car-oriented facilities, even though around 70% of trips take place on foot or by public transport, Lane says. The result is that the world is on track to have 2.3 billion cars by 2050. That's just over double the number that were on the road in 2010, and it represents a major threat to the health of the urban population.

ROAD TO HEALTH

Cars promote a sedentary lifestyle, with its attendant risk of health problems such as obesity and heart disease. Driving, especially in congested traffic, causes stress, and air pollution worsens respiratory diseases such as asthma.

According to the World Health Organization (WHO), 1.3 million people die from traffic accidents and 3.2 million from lack of physical activity every year. Outdoor air pollution causes 3.7 million deaths annually, and land traffic is responsible for around 5% of deaths caused by fine particulate matter and ozone¹. Cars are responsible for only a portion of that pollution (two-stroke scooters are thought to contribute a disproportionate amount to

MOBILITY

The urban downshift

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urban air pollution), but are “the worst mode of transportation in terms of all these categories,” says Jeff Speck, an urban planner and author of *Walkable City* (Farrar, Straus and Giroux, 2012).

Much better is what researchers call active transport: walking and cycling, mainly. Sitting in traffic is stressful, whereas physical activity boosts happiness (see page S56). Fewer cars on the road means less choking pollution and fewer deaths in car crashes. Furthermore, the more that people walk and cycle in the city, the safer these activities become — both because there is safety in numbers and because cities provide infrastructure to accommodate these activities.

In general, people are healthier when they are able to do most of their day-to-day activities and errands on foot. For example, rates of childhood obesity are lower in more walkable neighbourhoods². Among older adults in low income neighbourhoods, people living in walkable areas have a lower body mass index than those living in areas where moving around on foot is difficult³. And moving from a low-walkability to a high-walkability neighbourhood decreases the risk of having high blood pressure⁴. “Most cities uniformly seek to improve mobility for their citizens, and I think that itself is worth questioning,” says Speck. “Mobility is often seen as the ideal, when in fact what we really want is access.” That means urban planning needs to emphasize not just moving people around efficiently, but also making sure people’s needs can be met nearby.

Of course, walking and cycling are not by themselves sufficient to meet people’s transportation needs, especially in the growing number of megacities (those with 10 million residents or more). But walking and public transport support each other. A walkable city needs good transport to move people around. By the same token, walkable neighbourhoods make transport systems more cost-efficient to build and help to ensure that they are well used. Some studies have found that access to public transport improves physical activity and health, largely because it gets people walking.

DESIGN FLAWS

A well-designed city can encourage habits that promote good physical health. “Walking is a very simple physical activity that most people can do,” says Yan Kestens, who studies how the built environment contributes to public health at the University of Montreal, Canada. But making an environment more walkable can be challenging — especially in cities that took shape after the advent of the car. “The physical structure of our cities lasts for centuries,” says Lane. “If we build our cities and suburbs for cars, it’s very difficult to retrofit them for walking.”

According to British geographer Adam Davies, who recently collaborated with researchers at Yahoo Labs on an analysis of 7-million geotagged photos taken in central London, walkability is hugely compromised by

street networks designed around the car. “The more cars and the more lanes of traffic, the less human-friendly that particular street probably is,” he says.

There are many reasons that people choose not to walk to destinations that are within walking distance, Davies says. Lack of pavements, inconveniently placed pedestrian crossings, and the need to cross a major thoroughfare, for example, can make walking unappealing or even unsafe. And for some older people, or anyone who has trouble walking, factors such as these can erode walkability surprisingly fast. “I’ve heard of stories where people take a taxi to go across the street,” says Verena Menec, a healthy-ageing researcher at the University of Manitoba in Winnipeg.

Unpicking the subtle barriers that drive people to this kind of extreme is tough — not least because people’s real-world behaviour is difficult to predict. Menec and her team⁵ asked middle-

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aged and older adults about their walking behaviour and attitude to walkability. Nearly 60% said it was important to have a grocery store within walking distance. But of this group, 76% said that they drive there rather than walk. “If people are still within their ‘car mode’ they will probably not actually walk,” Menec says.

But some studies have failed to show clear links between walkability and better health. One analysis⁶ of data from the Nurses’ Health Study — a large, long-term epidemiological study of women in the United States — for instance, found that women living in walkable neighbourhoods are exposed to higher levels of harmful air pollution. But this relationship varies in different parts of the country, suggesting that exposure to pollution isn’t inevitable. And, the more people that walk rather than drive, the cleaner the air will be.

A similarly puzzling set of results comes from one of Kestens’ studies⁷, which found that low-income residents in Montreal were less likely to walk to places than wealthier people, even in parts of the city that were relatively good for walking. Kestens says that the field needs more qualitative studies to uncover the reasons why people do or do not choose to walk. He is also using GPS and wearable devices to more precisely measure how people get around their cities. The goal is to use those insights to help design more walkable urban landscapes.

FIRST STEPS

Communities and urban planners around the world are coming up with creative ways to improve neighbourhood walkability. A grass-roots effort in the Indian city of Chennai, for example, is addressing conditions faced by many of the world’s poorest urban dwellers. They have no choice but to get around on foot; however, they do so on streets that are

not particularly good for walking. “We have city after city where many people are walking, yet the city is not walkable at all,” Lane says. In such environments, pedestrians are especially vulnerable to injury and death from traffic accidents, according to the WHO.

The Chennai government has committed to spending at least 60% of the city’s transportation budget on measures to encourage walking and cycling. By 2018, the city is aiming to make 80% of its roadways ‘complete streets’ — wide pavements, bike lanes, space for public transport and organized parking, as well as lanes for cars.

Another piece of the puzzle is developing public transport systems to link walkable neighbourhoods that are within the reach of cities, using scarce financial resources. Bus rapid transit (BRT) has emerged as a practical, affordable solution for many cities, says Lane, whose organization wrote a set of BRT standards, because BRT lines are much faster and cheaper to build than rail-based systems. Yet, they are fast and efficient — they have dedicated lanes, preferential treatment at intersections, and platforms to help people board faster.

Curitiba in Brazil built the world’s first BRT network in the 1970s, with the intention of concentrating urban development around bus stops along the route — a planning tactic known as transit-oriented development. Although successful for a time, the city’s rapid growth eventually overwhelmed the capacity of their plan. Curitiba now intends to revisit the strategy with a new BRT line and an associated development corridor.

One of the latest converts to the BRT approach is sprawling Accra, which is building a line between the suburb of Amasaman and the city centre. Until now, the city’s transport system has been dominated by licensed minibuses known as *tro-tros*, but these only service a little over half the routes that they are licensed to run on. Accra is like many cities in the developing world that lack a functioning mass transport system. “There’s such a huge, huge deficit to address, but BRT is a good solution to do it quickly and affordably,” Lane says. “High-quality transit is key to a walkable city so you can access other parts of the city that are also walkable.” ■

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