Cycling to watch TV, and other clever ways to beat obesity from the comfort of your own home

October 3 2017, by Amin Al-Habaibeh And Dr. Daniel Shin

Credit: AI-generated image ([disclaimer](#))

The [BBC](#) recently reported that middle-aged people are being urged to walk faster to stay healthy, amid concern that high levels of inactivity may be causing health problems such as type 2 diabetes and cardiovascular disease. The [report states](#) that "just ten minutes a day

could have a major impact, reducing the risk of early death by 15%". Meanwhile, other reports indicate that child obesity rates are [on the rise](link) and [a survey](link) of more than 2,000 older people in the UK found that nearly 25% don't do any exercise to maintain good muscle strength. Recent [global statistics](link) also show that a relatively high percentage of people in a majority of countries are becoming obese.

Meanwhile, in developed countries, many people are adopting home automation, using smart phones and remote controls so they don't even have to reach for a switch or stand up to change TV channels. In fact, we seem to be approaching a society that is not very different from that aboard the Axiom in the famous animation movie [WALL-E](link). In the film, the spaceship is populated by people that have machines to do everything for them – and have become hugely obese as a result.

The developed world is becoming a static society in which many people spend the majority of their time in front a screen. Technology does more and more for us and our lives have become ever more efficient. But while this is convenient, it also means we do less and less [physical activity](link). Obesity is an obvious consequence.

Before the industrial revolution, human-powered products (HPP) were the norm in every nation. People used hand crank grinders, bicycles, pedal-powered lathes and manual sewing machines. But with the development and proliferation of electro-mechanical motors and electricity, everyday products have become increasingly automated – and physical activity has become a luxury that we must devote time to.

Everyday activity

In less developed countries, many people still need to use human power and physical activity to achieve many daily tasks at home and work. Their normal physical activities include walking for long distances to

collect water, cycling or walking to work, collecting animal waste for fuel, and manually grinding grains for food. This type of lifestyle keeps people physically active and helps to prevent obesity.

Consequently, our research team at Nottingham Trent University has investigated whether physical exercise should become a necessity to access luxury facilities such as television, portable electronic devices and computers.

In a recent paper, published in the *Journal of Cleaner Production*, we tested the theory by requiring people to cycle at home before watching television. The more time you cycle, the more time you can spend enjoying the luxury of watching TV. In other words, things like television are no longer things we can take for granted, but things we must work for.

This is different from the concept of generating electricity for television as in the episode of British science fiction series Black Mirror, 15 Million Merits, in which most of society must cycle on exercise bikes in order to power their surroundings.

Our research found that human-powered energy is neither cost nor energy effective. But the health benefits are significant and should be considered.

In our research, we developed an adjustable system that rewards the user for the effort and time of exercising, in this case cycling at home in exchange for the luxury of watching TV. The system can be adjusted to suit different ages and capabilities.

If ten minutes of brisk exercise a day is enough to help counter high blood pressure, diabetes, weight issues, depression and anxiety, and musculoskeletal problems such as lower back pain, encouraging such

activity in exchange for access to TV and other electronic devices will significantly benefit the users and prevent sedentary behaviour.

Pedal for your telly: the research in action. Author provided

We conducted the study in nine homes, and cycling time varied from half an hour for one hour of TV watching to three hours for six hours of TV watching per day. Over the course of the one week experiment for each household, the nine households burnt a total of 55,322 calories, and travelled the equivalent of 1,218km – a return road trip from London to

Edinburgh. Quite an achievement.

Improving the future

A recent [OECD report](link) stated that around 70% of British people will be overweight by 2020. But if these individuals cycle for an hour a day to watch TV, it is estimated that it could save the National Health Service (NHS) in the UK [£2.3 billion](link) a year. The actual figure could actually be [much higher](link).

Of course, there are other considerations, such as the cost of the human-powered products, but this may be a price worth paying to increase physical activity and counter the current epidemic of sedentary behaviour.

We are now developing the technology to be compatible with a diverse range of sports for children to motivate them in exchange for access to their [electronic devices](link). To build a better future, we sometimes must look to the past – and the age when luxuries had to be worked for.

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