

Electronic activity trackers encourage family fun and fitness

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EDITORIAL

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E-health has been touted as the “single-most important revolution in healthcare since the advent of modern medicine, vaccines or even public health measures like sanitation and clean water”.¹ Common areas of e-health include telemedicine, electronic patient records, computer-assisted surgery, and monitoring systems that are portable and/or wearable such as activity trackers.¹ Some primary care physicians are engaging patients in self-monitoring, and goal setting through the use of novel e-health technologies.^{2,3} In 2013, wearable health-tracking technologies generated over US \$1.6 billion, a number which is expected to rise to US \$5 billion by 2016.⁴

Current physical activity guidelines for adults aged 18–64 include at least 150 minutes of moderate aerobic exercise weekly, completed in intervals of at least 10 minutes, combined with at least two days per week of strength or resistance training.⁵ Unfortunately, few adults meet these physical activity recommendations.⁶ For children, the recommendations are for 60 minutes each day of moderate or vigorous intensity physical activity. Although active play and organised sport is common for some children, computers, hand-held devices, and decreasing school physical education class time may be contributing to our children becoming increasingly sedentary.

A year ago, I started a project with some of my patients using electronic physical activity (PA) trackers. While I used Fitbit activity trackers, other companies have developed electronic PA trackers, including: Garmin, Jawbone, Nike, to name a few. As the Fitbit device is a piece of technology, my six-year-old son was very interested in learning how it works and decided it was his job to monitor my progress. In fact, he became a little obsessive about it by checking my step count several times each day. A few months ago, he began asking if he could have a Fitbit. Since his birthday was coming up, my wife and I thought it would be fun for him to get one. Well lo and behold... he loved it. He wore it everywhere, including in his bed, to ensure he tracked all his steps. He was also very interested in seeing whether or not he was beating me with his daily step count.

Shortly afterwards, we were planning an extended six-month family trip where we would be doing significant amounts of walking. We thought that perhaps the Fitbit devices could encourage each of our three children to do more walking than is typical and hopefully minimise the complaints that sometimes arise when children are not as keen to cover the same distances as their parents. The results were amazing. Our children loved their activity trackers. They were very keen to go for hikes or walks around the various cities. Our son, who often tells us that his “legs are broken” in the hope of having me carry him on my back, wanted to make sure he “gets in 10,000 steps” daily. Our younger daughter (age 10) asked to go for a walk after a long day of walking (e.g., 22,000 steps) so she could reach a new record and get a new digital badge for her daily steps. At the end of other days, we would find our 12-year-old daughter walking around in circles. When we asked her what she was doing, she told us that she had not reached 10,000 steps that day and needed to keep moving until she reached that goal. Even after six months they had not lost interest in attaining their daily totals.

Although PA technologies are fairly new and still developing, the evidence supporting their potential health benefits is starting to be described. One study examined

the effect of using FitLinxx pedometers to track how many steps patients took, which was linked to computer software comparing the steps taken against exercise goals. Motivational tips were sent to patients via text message.⁴ The study found that patients who received these tips had better outcomes with controlling aspects of their health than those who did not receive the tips.⁴ Another study found that participants using pedometers significantly decreased their BMI and blood pressure and increased their physical activity by 2,000 steps per day.² Additionally, the study concluded that the use of pedometers resulted in clinically significant reductions in weight.² Several other studies, including a recent Cochrane systematic review, have demonstrated improved lifestyle and functional outcomes when using Internet-based interventions, pedometers, and logging physical activity electronically.^{2,7–9}

Here are a few insights my wife and I have learned as parents of children who have used electronic activity trackers:

- Children are naturally more active than adults. On regular days, my wife and I would need to go out for a run for at least 45 minutes to keep up with the step-count our kids get by playing.
- Children are naturally competitive. Actually most people are the same. Our children are checking their step-count frequently throughout the day and want to be ahead of their siblings and their parents.
- Through the use of electronic activity, our children often would have the motivation to be more active so that they could catch up to another family member. Our teenage daughter would just go out for a walk on her own so that she could get more steps in during the day.
- The PA monitors have been a great way to encourage personal connections. Our children have enhanced their intergenerational ties. The children have been able to connect, compete, and cheer on their aunts, uncles, and grandparents through the friendly competition created by setting up a family group. Likewise, it can also encourage physical activity amongst peers. Our eldest daughter's friend recently set up a challenge amongst four of her friends to see who could be the most active within a 24-hour period.
- Our children described wearing their Fitbit as "fun" because they can earn badges and get positive feedback on the computer. They also reported that the Fitbit encourages them to get more steps so that they can beat other people.

Although these novel technologies have the potential benefits to improve physical activity, there are also potential

downsides. Concerns range from the privacy of patient information to the technical and reliable collection and analysis of data. The uploading of personal patient data to apps and online tracking websites raises concerns over the potential misuse of patient information.⁴ Some of the devices do not track all exercise activities; for example, cycling and swimming. Several systems have the ability to log these other activities manually, but clearly this is less convenient. In addition, despite the decreased price of these devices, their cost may be prohibitive for many people and families.

Despite privacy and usability concerns, healthcare providers continue to believe that these activity trackers and gadgets could revolutionise medical care and introduce a new wave of personalised medicine.⁴ Certainly, our experience with these electronic devices demonstrate their benefits by creating a fun, competitive way to encourage family physical activity, which can be beneficial to all involved.

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PEER REVIEW

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CONFLICTS OF INTEREST

The author declares that he has no competing interests.