

The

INSIDE STORY[®]

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FOR IMPROVING HEALTH, 'THERE'S AN APP FOR THAT'

...But do they actually work?

Remember the ThighMaster? And what about those plastic sweat suits that (supposedly) helped burn fat? And then of course there was the grapefruit diet and the werewolf diet (when you fast according to the lunar calendar). Are today's new health apps and devices simply the high-tech versions of these long-gone fads? Should they be relegated to the realm of late-night TV infomercials or do they actually work to improve health—and are they here to stay and grow? With so many burning questions, of course the inquiring minds at GSC had to know. Here's what we discovered...



Wild and wonderful?

Often when people think of health apps and devices, they think “wearables” like the Fitbit—that colourful wristband that helps people track activity, exercise, food, weight, and sleep. And no wonder, since the health-wearables market is dominated by fitness activity trackers.

However, not only do health apps and devices go way beyond just trackers, they also go way beyond just wearables. In fact, most of today's health apps and devices are a mashup of different applications and different health issues that involve not only the user's conscious behaviour but also their physiology and psychology. For example, a clip-on sensor tracks activity while also assessing the user's state of mind by monitoring breathing patterns. If it detects stress or anxiety, it vibrates or sends a smartphone notification alerting the user to take a breath.

From helping with important health conditions—like apps for diabetics to monitor glucose levels—to working on specific prevention or lifestyle issues like learning to be mindful—*now there's an app for that*. And health apps and devices are getting more interesting every day.

How about shocking yourself—literally—into stopping an unwanted behaviour? Every time you do the unwanted behaviour—like smoking, eating chips, biting your nails—a wrist device can give you a shock. That's right, an *electric* shock. Based on aversion therapy, the idea is that this negative association with the electric shock should help deter the unwanted behaviour. You may be relieved to hear that it's up to you to decide the strength of the shock—you can set it to be a strong vibration at 50 volts up to more of a real sting at 450 volts. (FYI, a police Taser is about 50,000 volts.)¹

...And what about the range of high-tech apps now available for calorie counting. Is taking photos of everything we eat just filling our seemingly insatiable obsession with documenting everything, or can these apps accurately count calories based on photos? This brings us to the crux of the mystique swirling around today's health apps and devices. Although they are certainly getting wilder, are they actually both wild *and* wonderful—do they actually work?

It's not enough that they just "work" in terms of their features, like a wearable technology that fits well, looks good, and is easy to use or an online program that works the way it's supposed to. Ultimately, the technology also has to work in terms of actually improving the health issues it promises to improve. To see if today's health apps and devices are making a difference, our first stop, as always, was to check out the scientific evidence...

The jury is still out

So far the body of scientific evidence specifically around the effectiveness of health apps and devices doesn't lead to a definitive "yes" or "no" regarding whether they improve health outcomes. As usual, where health is concerned, it's complicated.

- Suppliers producing or distributing the technology are often also conducting the research; however, that means their bias could creep in.
- In the academic world, although less risk of bias exists, to date the studies are very focused, so in most cases, the results are not overly generalizable.
- There is a lot of anecdotal feedback from health app and device users in cyberspace, which is interesting, but not reliable because it has no scientific rigour.

With so much uncertainty, it seems that all we know for now is there is a solid body of evidence around behaviour change and behavioural economics. Accordingly, driven by logic (of course!), what we can say is that health technologies that incorporate principles like goal setting, feedback, gaming, and rewards have more potential to make an impact than technology that does not.

But why not check with an expert? We contacted Amos Adler, the founder and president of MEMOTEXT Corporation, which was the IT platform and methodology behind GSC's original Stick2It medication adherence program. Amos established MEMOTEXT as a texting reminder messaging service; however, it turned out that 87% of MEMOTEXT users were using the platform specifically for medication adherence. As a result, today MEMOTEXT focuses on improving health outcomes for patients—and the bottom line for health care stakeholders—by ensuring patients adhere to their medications.

As Amos explains,

“ We 'action' our users' data by using it to personalize and integrate behaviour change into their everyday lives. And we do this based on scientific principles that shift away from the idea of 'getting people to do things' toward figuring out *why* people do things. Health technologies have a better chance of engaging users and ultimately, helping them change behaviour by focusing on *why*. For example, it's not enough to just remind people to take their medications, we need to figure out why they are non-adherent in the first place.”

Amos elaborates, "To do this, health technology suppliers need to think of their technologies as having a digital conversation with their users. Not only does the technology allow users to be heard, it also provides the supplier with a chance to make the digital conversation more effective. The supplier needs to really understand the power of the user-generated data, as well as data from stakeholders, to scale behaviour change and improve health while decreasing costs."

Amos provides the example of chatbots, the new, cool trend in private messaging. Chatbots are computer programs that use artificial intelligence to help the user to find information in a more conversational and natural way, rather than by having to input a series of key words and gradually piece together the information. For example, instead of browsing a website, you could have a text-based conversation via a chatbot and essentially interact with the chatbot as if it were a real person who is helping you. One health care chatbot allows parents to discuss their children's symptoms—like fever, cough, headache, rash, vomiting, sore throat—and the chatbot helps them determine whether the symptoms warrant a call to the doctor.

“How people interact with their phone, how they interact with content on social media, all of this user-generated data can not only improve consumer engagement but also identify lack of engagement,” explains Amos. “In fact, the user-generated data can be used in a range of important ways, like helping triage care priorities to support decision-making around diagnosis and treatment, and it can flag risks. For instance, current research includes studies that analyze Twitter logs to identify individuals who may be at high risk for suicide.”

Beyond just shiny objects?

On Christmas Day in 2015, the Fitbit app was the top downloaded app in the Apple App Store.² However, in 2016 Fitbit's stock has been described as “on the struggle bus.”³ And in terms of smartwatches, Apple shipped 55% fewer watches in the second quarter of 2016 than it did a year ago.⁴ What's going on here?

Are health apps and devices in fact a fleeting trend or is their design and overall offering not quite there yet? Or are they mainly purchased by already-healthy types who eventually drop the technology but keep on being healthy? Do some people just want to collect health data with no intention of acting on the data, so after enough data compilation it's bye-bye technology?

So what is Amos's take?

“**There are a lot of what could be referred to as 'shiny objects' out there right now.** Many are a case of a lot of flash and essentially very little substance. The technologies that will be winners in the long run will be the ones that are based on proven methodologies like cognitive behavioural therapy and motivational interviewing. The technologies that will endure will use traditional methodologies that have been around for decades, but use them in new ways. I like to think of it as not reinventing the wheel, but attaching a high-tech engine to the wheel of the existing science.”

Crystal balling?

As always seems to be the case where technology is concerned, the future seems wide open. However, as far as we can tell, the future is likely to hold health technologies that continue the trend of linking with the physical world—and in ever-expanding ways. For example, technologies that detect changes in physiological states will increasingly trigger events in the user's environment—like tracking sleep patterns and then turning on the coffee maker when the user wakes up in the morning.

Virtual reality (VR) is also set to go well beyond just fun and games with more VR related to health and medicine. There's an exercise bike that is essentially a game controller complete with joysticks and access to a range of games and software. The user also needs a VR headset and computer but then is ready to ride—like ride a virtual Pegasus to take the monotony out of cardio training.

One size doesn't necessarily fit all

To shed light on what's going on, new research surveyed 193 people who had abandoned Fitbits or financial trackers.⁵ Many study participants experienced no real difference in their lives after ditching it, whereas others felt guilt over abandoning it or relief because they no longer had to keep using it.

The researchers also found that people threw in the towel for different reasons: “Some don't like what their Fitbit or financial tracking tools reveal, others find collecting data a hassle, don't quite know how to use the information, or simply learn what they need to know about their habits and move on.”⁶

Digging deeper, the researchers also specifically focused on the 141 people who stopped using Fitbit.⁷ They showed them seven different visual designs and ways of framing previously collected data to see if new and interesting approaches would help encourage users.

The results reveal that most people preferred social comparisons that made them look better than their peers. For instance, “you walked more than 70% of people,” versus negative framing like “30% of people walked more than you.”⁸ Overall, the researchers conclude that a design approach that is one-size-fits-all misses opportunities to support different types of users.

Amos comments, “Technologies coming down the pike will become more integrated into each user’s specific environment, which affects their health and lifestyle. For instance, given that most health care happens outside the doctor’s office, we will see more technologies that extend care into people’s lives, like robots that help people with mobility. Technologies will identify what risks are in people’s everyday lives and environment and then design solutions that work for people in their natural habits at home, at work, in the community.”

The future is also sure to include an ever-expanding range of health conditions that can be assisted through technology. For instance, Amos feels that as technologies improve in their ability to personalize interactions and engage people, they may be especially effective in helping people with mental health conditions. MEMOTEXT is currently working with the Centre for Addiction and Mental Health (CAMH) to develop a technology to help people with schizophrenia self-manage their illness.

Overall, Amos believes that ongoing technological development will result in a more empowered and involved patient. “This will mean that health care providers and processes will have to adjust to work *with* the patient rather than work *on* the patient.”

Solid category of technology

The good news is that health technologies that are evidence-based will not simply represent a high-tech version of wacky health trends as in the past—like the cookie diet (come on!) and those shoes that promised to tone your leg and butt muscles without ever having to break a sweat. Quite the opposite, they have the potential to represent a solid category of technology that can help transform people’s health—and the possibilities are limitless. Those that work to actually impact health will not just be a bundle of desirable features, but will be based on science. As Steve Jobs once said, “Design is not just what it looks like and feels like. Design is how it works.”⁹

Sources:

¹ “A Shocking Way (Really) to Break Bad Habits,” *The New York Times*, *Wired Well*, Jennifer Jolly, May 2, 2016. Retrieved September 2016: <http://well.blogs.nytimes.com/2016/05/02/a-shocking-way-really-to-break-bad-habits/>

² “Shares of Fitbit rise on signs its fitness trackers were hot sellers for Christmas,” *CTV News*, Joseph Pisani, December 28, 2015. Retrieved September 2016: <http://www.ctvnews.ca/business/shares-of-fitbit-rise-on-signs-its-fitness-trackers-were-hot-sellers-for-christmas-1.2716124>

^{3,4} “Fitness Bands and Smartwatches: Where are they now?” *Toronto Star Touch*, Jennifer Van Grove, August 21, 2016. Retrieved September 2016: http://startouch.thestar.com/screens/7c64642a-fb80-4803-a9de-f834750b5c9c%7C_0.html

^{5,6,7,8} “Life after Fitbit: Appealing to those who feel guilty vs. free,” University of Washington website, News and Information, Jennifer Langston, September 8, 2016. Retrieved September 2016: <http://www.washington.edu/news/2016/09/08/life-after-fitbit-appealing-to-those-who-feel-guilty-vs-free/>

⁹ Brainy Quote, Steve Jobs Quotes. Retrieved September 2016: <http://www.brainyquote.com/quotes/quotes/s/stevejobs169129.html>

OUT & ABOUT... EVENTS NOT TO MISS

2016 Mental Health Summit – November 8, 2016

Fairmont Royal York, Toronto, Ontario

www.benefitscanada.com/conferences/mental-health-summit-toronto

COMMUNITY GIVING PROGRAM

HERE'S HOW WE **ADD TO THE GREATER GOOD...**



Paving the way for a brighter future

Take a look at how our grant recipients are making a difference

Frontline care—like dental services, vision care, prescription drugs, disease management, and mental health supports—can act as a catalyst for change. That's why the GSC Community Giving Program is focused on supporting organizations and initiatives that provide frontline care for underinsured or uninsured populations. And all grant recipients include a navigator component—this means ongoing positive change as clients are referred to any additional services they may need.

Frontline care in action on the east coast



Salvus Clinic Moncton – Navigator

Definitely not your ordinary clinic in Moncton, New Brunswick—in addition to providing primary health care to vulnerable people struggling with poverty, mental health, and addictions—the clinic also offers hope and support to those who feel there is nowhere left to turn. Not only does the clinic make it easy for vulnerable people to receive routine health assessments, immunizations, and blood work, but it also provides counselling, addiction management, health prevention services, referrals to specialists, and specialized seminars. With this emphasis on the whole person, the clinic recognizes that simple health problems can become unmanageable when people struggle to meet basic needs like food and shelter. Accordingly, in collaboration with community partners, the clinic established two buildings that provide housing and support for clients with any number of issues. To help the clinic become increasingly client-centred, funding from GSC made it possible for the clinic to hire a navigator. The navigator works alongside each client to ensure holistic care—or “wrap around” services—that insulate the client from falling through the cracks by helping them with their specific, and often complex, needs. To learn more, visit www.salvusclinic.com.

Veith House – Registered Counselling Therapist

Often described as a neighbourhood hub, the house—which was previously an orphanage—provides services and opportunities to Halifax residents, bringing people together to build a healthier, more vibrant community. For instance, the house offers a preschool program, summer day camp, drop-in coffee hours, affordable drop-in yoga, opportunities to get involved in community gardening and food preparation, space for other non-profits, and trusteeship (which involves providing financial management and budgeting support for clients receiving income assistance). In addition, a community social worker acts as an advocate, navigator, and counsellor for clients struggling with mental health issues and people who need trusteeship. Recently, the house collaborated with community partners to launch a social enterprise that recruits, employs, trains, and supervises youth to provide services like snow removal and leaf raking for older Halifax citizens. This enterprise has gained support from other community members who want to improve their neighbourhood and help local youth. Thanks to GSC funding, the house will be able to hire a new staff member who will expand the services for preventing and managing mental health issues. GSC funding provides clients with paid access to registered counselling therapists, to help via one-on-one intensive therapy; a service their clients would otherwise have little to no access to. For more information, visit www.veithhouse.com.

NEW RESEARCH CONTINUES TO CHALLENGE OUR KNOWLEDGE

The nature of scientific evidence is that it builds over time triggered by factors such as societal concerns, technological advances, and researcher curiosity. As researchers make new discoveries, they disseminate the information through peer-reviewed publications—this often leads to new research studies. As a body of knowledge grows, the prevailing viewpoints can change. Two recent studies provide a good example of how new scientific evidence challenges current thinking, and may ultimately lead to changes in treatment guidelines:

Debate over the nasal spray flu vaccine

In the United States, the Centers for Disease Control and Prevention (CDC) recommended against using the nasal spray flu vaccine for the 2016-2017 flu season because of a lack of evidence that it works. CDC studies found that it offers “no protective benefit.” However, findings from a Canadian study published in the *Annals of Internal Medicine* contradict the CDC findings. Based on the Canadian research—and despite the CDC recommendation—the government of Ontario says it will continue to offer the nasal spray flu vaccine for children. The conflicting evidence has numerous researchers commenting on the range of variables involved in both studies, stressing the complexity involved in analyzing the flu vaccine. The differing findings will likely serve as the impetus for additional research. For more information, visit the *Annals of Internal Medicine* at <http://annals.org/article.aspx?articleid=2543271>.

Controversy concerning the safety of statins

Based on a review of the evidence from numerous large-scale randomized controlled trials about the use of statins—which lower cholesterol levels in the blood preventing heart attack and stroke—researchers conclude that statin therapy is safe and effective. Published in *The Lancet*, the review conveys that previous studies had a range of problems like design flaws and that they exaggerate the risks and side-effects of using statins. Reactions to the study include physicians who disagree with the conclusions and caution that statins can be dangerous. This study adds to an ongoing debate over statins regarding whether they are—or aren’t—worth the risk. For more information, visit *The Lancet* at [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(16\)31357-5/abstract](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(16)31357-5/abstract).

October
Haiku

Whiz bang techy stuff
Coming at us really fast
Let’s see if it works

Winner of the draw for a Fitbit

Congratulations to **C. MACLEOD-BOUCHER**, of **North Vancouver, Canada**, the winner of our monthly draw for an Fitbit. Through this contest, one name will be drawn each month from plan members who have registered for Plan Member Online Services for that month.