

Can social networks help you get into shape?

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

Social networks are key tools in the daily lives of most Americans: We use Twitter to get breaking news, LinkedIn to search for jobs and Facebook to connect with friends. But what if social networks could help you be more physically fit?

That's what Greg Ver Steeg and his research team started wondering when a 2007 study suggested that obesity might be contagious.

"If we can ask whether bad things like obesity can be contagious, can we ask the same questions about good traits, like physical fitness? Is it just a matter of designing the right social network and incentives?" asked Ver Steeg, a research assistant professor in the USC Viterbi School of Engineering's Information Sciences Institute and Department of Computer Science.

After partnering with Google and Evidation Health, a company that aims to quantify health outcomes using digital technology, Ver Steeg had the opportunity to delve deeper into the issue at the international World Wide Web Conference in Australia.

Finding Fitbit users

A study conducted by the team monitored more than 44,000 Fitbit users and found that people with larger and more active social networks have higher levels of [physical activity](#): For each additional social tie, participants walked an average of 6.5 more steps.

Ver Steeg's role in the study was to help determine whether the correlations observed were also causal, or related. The results were mixed—while the group found some evidence for a causal link, they couldn't rule out all other possible explanations. In particular, it was difficult to discount correlations related to the changing environment; for example, maybe good weather causes people to spend more time outside and get fitter as a result.

"It's especially complicated in this case because we're looking at human behavior, and there are so many factors that influence human behavior," Ver Steeg said.

His goal was to create a mathematical model that would rule out homophily—the idea that people who are active will tend to be friends

with other active individuals—as the main reason for the observed correlation.

The challenge is to rule out hidden variables that the study's authors could never measure or anticipate, which could theoretically cause two users to become friends and simultaneously impact their [physical fitness](#). Ver Steeg uses the example of two participants joining a secret pie-eating club: It's something the researchers wouldn't think to ask about, but it could be an external factor influencing the correlation between friends and fitness level.

The study also looked at the relationship between social networks and physical activity in the context of chronic conditions. One of the key findings was that the increase in activity among those with larger social networks was even more significant for users with [chronic diseases](#), specifically depression and diabetes. These users walked 36 additional steps for each new tie, compared with 6.5 steps for users overall.

"When you're burdened by a chronic condition, your social [network](#) may have an especially high influence on your behavior," said Luca Foschini, co-founder and chief data scientist at Evidation. Users with chronic diseases might have more overlap between online and offline friend groups.

Positive impact

The study can also help inform design choices for social features in mobile apps.

"A thing that you don't see much covered by research in behavior change is the importance of the user experience. How are people engaging with their friends? How is that interaction coded in the app?" Foschini said. "Those are the real drivers of behavior."

Collaborating with computer scientists such as Ver Steeg is one way Foschini hopes to turn results into technology that can positively impact people's health.

"When I started at USC, I got into machine learning, and the number of interesting problems that you can have an impact on immediately is huge," Ver Steeg said. "If you have the right set of mathematical tools, you can really have an impact right away."

Provided by University of Southern California

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