

## Researchers turning to Facebook to diagnose depression

BY ANERI PATTANI  
The Philadelphia Inquirer (TNS)

Depression affects more than 16 million Americans a year, but fewer than half get treatment. Now, researchers are turning to social media to shrink that gap and give doctors another way to find people at risk.

A study published in the Proceedings of the National Academy of Sciences suggests that analyzing language from Facebook posts can predict whether a user is depressed three months before the person receives a medical diagnosis.

The work is still in very early stages, the researchers from the University of Pennsylvania and Stony Brook University cautioned. The study was based on a group of fewer than 700 users and the predictive model is only moderately accurate. But this approach could hold promise for the future, they said.

"Depression is a really debilitating disease and we have treatments that can help people," said Raina Merchant, one of the study authors and director of the Penn Medicine Center for Digital Health. "We want to think of new ways to get people resources and identification for depression earlier."

Researchers recruited participants for the study from a hospital emergency department, asking for permission to access their electronic medical records and Facebook history. For every participant who had a diagnosis of depression in the medical records, researchers found five people who did not — creating a sample that mirrored rates of depression in the national population.

Examining more than 500,000 Facebook posts from both groups, researchers determined which words, post lengths, frequency of posting and timing of posts were most associated with a depression diagnosis. They found people with depression used the words "I, my, and me," as well as such words as "hurt, tired, and hospital," more often than others in the months preceding their diagnosis.

Using indicators such as these, they built a computer model that could predict which people would receive a depression diagnosis with comparable accuracy to commonly used clinical surveys.

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**"We want to think of new ways to get people resources and identification for depression earlier."**

RAINA MERCHANT, Penn Medicine Center for Digital Health director

# SLOW & STEADY



ADVOCATE STAFF PHOTOS BY BILL FEIG  
When his wife's personal trainer left town and he couldn't find anyone locally who taught slow-motion resistance training, John Neyland created his own gym, Strength Science Studios.

## Man opens gym specializing in super-slow, high-intensity training

BY GEORGE MORRIS  
gmorris@theadvocate.com

When John Neyland learned his wife's personal trainer was leaving town, he looked for someone in Baton Rouge who used the same training method. He couldn't find one.

So, he started his own gym. Strength Science Studios, which opened in August at 16645 Highland Road, is different not only because of its emphasis on once-a-week, slow-motion resistance training but also because of what motivated its creation. Neyland, a financial planner, began the studio to benefit his wife and his clients, many of whom are middle-age and older.

"All of a sudden, you walk in one

day and you've gotten older," Neyland said. "The biggest single thing you think about old people is they have no muscle. That's why it's hard to get up, hard to move."

His wife, Karen, 55, wasn't in that situation, but diabetes runs in her family. She wanted to lose weight but didn't like exercise. Then, they discovered Celeste Fortier, a trainer who offered what sounded too good to be true — strength training that would produce results in 30 minutes a week.

In a year, the exercise and dietary changes enabled Karen Neyland to lose 60 pounds.

"I really started to look forward to it because it was one-on-one," she said.

► See **GYM**, page 2D



Ryan Hall, left, instructs client Jill Friloux on using the compound row machine at Strength Science Studios.

A team of researchers has a new anti-cancer vaccine in the works to help the body resist the return of Human Epidermal Growth Factor Receptor 2 breast cancer.

PROVIDED PHOTO BY METRO SOURCE



## Mayo Clinic researchers study vaccine to target aggressive form of breast cancer

Mayo Clinic News Network (TNS)

Treating breast cancer has long involved addressing two problems: the elimination of cancer cells from the tumor and potential disease recurrence. The key may be to harness the full capabilities of the body's immune system to do both jobs.

On Mayo Clinic's Florida campus, a team of researchers has a new anti-cancer vaccine in the works to help the

body resist the return of Human Epidermal Growth Factor Receptor 2 breast cancer. The vaccine is intended to be used in combination with Trastuzumab, an immune-stimulating drug given to women following HER2 tumor removal surgery.

If it works, the vaccine will address the return of the cancer, which can be hard to treat once it spreads to other parts of the body.

Mayo Clinic researchers are address-

ing this unmet need of patients and recently received a grant of \$11 million from the Department of Defense to push ahead the next studies of the vaccine.

The combination approach will engage two types of immune cells. Trastuzumab works by activating the immune system's B-cells, which look for and attack breast tumor cells with HER2 proteins on the surface.

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## DEPRESSION

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The model worked best when using Facebook data from the three months right before a participant received a depression diagnosis. When longer periods of Facebook data were included, the model became less precise.

"We're at the very beginning of trying to understand how this data is sometimes people just saying hi to each other, but sometimes it can give us insight into the health of individuals and communities," Merchant said.

Depression symptoms manifest differently by race, gender, and age, and can be affected by other diseases, making it difficult to diagnose. Most screening tools rely on people accurately reporting their own symptoms and answering survey questions, which can be interpreted differently based on a person's cultural background and language skills.

Primary-care doctors can screen for depression, but their visits with patients are often short and months apart, leaving the discussion focused on crises and immediate concerns.

"With social media and other data, you can start to fill in those gaps," said Munmun De Choudhury, an assistant professor in Georgia Tech's School of Interactive Computing. Her previous research has shown that Twitter data can be used to predict which users will develop symptoms of depression.

In the future, if patients shared social media data with their doctors, it could create more personalized care, De Choudhury said. "How is their social life? Are they getting enough sleep? A lot of these attributes you can measure using social media," she said.

Social media data could be used for public health, too, De Choudhury said. For example, the Centers for Disease Control and Prevention could fig-

ure out which communities are most at risk for suicide by examining their online posts, and then target specific prevention measures to them.

Facebook and Google have started taking steps in this direction. Facebook uses artificial intelligence to flag posts that indicate risks of self harm or suicide. From there, an employee can direct people to national suicide prevention resources. Google prompts users who search depression-related terms to take a screening questionnaire.

It's encouraging to see these companies take social responsibility, De Choudhury said, but this can be only one aspect of mental health care. Predictive models built on social media are not highly accurate yet. They're also built on small sample sizes, which means they may not work the same in a large, diverse population.

"You shouldn't be using such an algorithm by itself at any point in time," she said. It needs to be combined with traditional screening surveys for depression and clinical expertise.

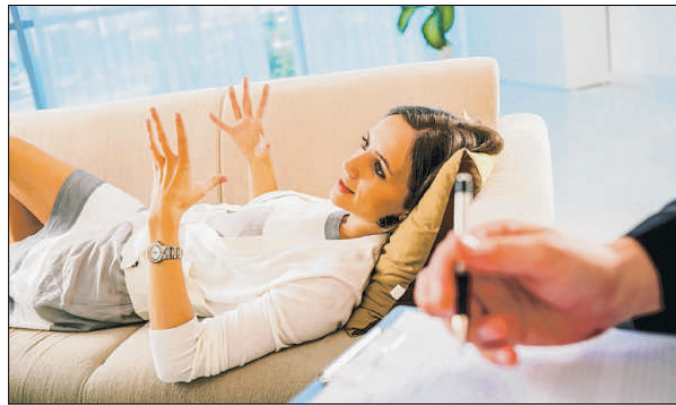
Another reason to be cautious with the use of social media for health care is the issue of privacy, Merchant said.

"We should see this data the way we do any health data," she said. "It is the data of the patients." But it's a tricky premise, given recent high-profile data breaches, including one that compromised millions of Facebook users.

There are also concerns that social media do more than reflect one's mental health. Some studies have shown that those with greater social media use are more likely to be depressed or have eating disorders. But other studies show social media can be helpful in connecting people to resources and peer support.

More research is needed, Merchant said.

"We need a better understanding of not just how it tells us about our health, but also how the use of technology affects our health."



PROVIDED PHOTO BY METRO SOURCE

A study published in the Proceedings of the National Academy of Sciences suggests that analyzing language from Facebook posts can predict whether a user is depressed three months before the person receives a medical diagnosis.

## ALZHEIMER'S Q&A

**What exercise can I do at home with someone with dementia?**

Being physically active is important with individuals with dementia. Exercise is beneficial for physical and mental health, improves quality of life and maintains well-being. Additionally, engaging in physical activities can also improve self-esteem and mood and encourages social engagement.

Before embarking on any exercise program, however, talk to the individual's physician for confirmation that he or she can safely engage in physical activity. Some conditions, such as bone and joint problems, heart problems, high blood pressure, and/or breathing and balance issues, may hinder exercise.

Once the physician approves, start out slowly and design an exercise program that is easy to follow and manage and one that can be done routinely at the same time every day. There are several web-based programs, "Sit and Be Fit" DVDs or YouTube videos, seniorexercises.com, just to name a few. Any program you choose should include appropriate elements of aerobic exercise, resistance training and flexibility and balance exercises. Walking is an excellent form of physical activity.

Here is a simple exercise routine that might be beneficial to you. In the beginning, sit facing each other as you do the exercises together. Don't overdo; start with three or four basic exercises, repeated about 8-10 times. Then

you can broaden the program. Playing music as you exercise can make it more enjoyable. Be mindful of breathing in and out between each repetition during the exercises.

- Spread arms out, breathe, spread arms down, breathe.

- Shoulder lifts — lift each shoulder up and down.

- Head rolling — turn head forward, left, right and back.

- In a sitting position, stretch legs in and out, one at a time, then both.

- Cross legs, rotate foot to the left, then to the right.

- Turn wrists of each hand in a circle, bend fingers, rub and press hands.

- Finish: Take a deep breath in, then a long and slow breath out. Take a deep breath in, then a quick and forceful breath out.

An exercise routine incorporated into your lifestyle is more likely to be maintained as the disease progresses, extending the benefits to health and well-being for as long as possible.

If the person experiences any pain or distress during the physical activity, you should stop immediately and make an appointment to be checked by a physician.

Questions about Alzheimer's disease or a related disorder can be sent to Dana Territo, the Memory Whisperer, director of services at Alzheimer's Services of the Capital Area at [advice@alzbr.org](mailto:advice@alzbr.org) or visit the organization at 3772 North Blvd., Baton Rouge.



ADVOCATE STAFF PHOTOS BY BILL FEIG

The angle of deflection is shown as Ryan Hall works with client Jill Friloux on the lumbar extension machine.



Ryan Hall, right, works with client Jill Friloux on the lumbar extension machine.

## GYM

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"It's a hard workout. We got to be friends. It was once a week. I'm an occupational therapist, and the science behind all of it as I started to learn about it just made total sense."

So, when Fortier announced she was moving, the Neylands' search for a new trainer took them to New Orleans, where Ryan Hall has a gym that teaches the same methods. Karen Neyland worked out there several times, so her husband decided Baton Rouge needed a similar facility and hired Hall to develop a group of personal trainers to staff it.

Hall is a proponent of what he calls super-slow, high-intensity strength training. Instead of using multiple weekly sessions of high-repetition weightlifting, Hall's method uses resistance machines in which clients move extremely slowly until they reach muscle failure. Slower movements work muscles harder, Hall said, and reduce the likelihood of injuries during workouts. The method grew out of a treatment designed for osteoporosis patients.

A bigger difference from traditional training is that the workouts happen just once a week. It's counterintuitive, but Hall said weight training more often is in many cases a waste of time and can actually damage muscles. A week gives muscles enough time to recover, a key component of gaining strength, he said.

That tracks with Hall's own weightlifting experience as a younger man.

"I was working fulltime, putting myself through college, and I had to take time off, and I came back stronger," he said. "Why am I taking six days off and becoming stronger? That didn't make sense at the time. It did later. It made a lot of sense."

The last component is the equipment, built by MedX, which maintains the same level of resistance throughout the movements, Neyland said. The 17 machines work muscles throughout the body.

"I'm stronger than I've ever been, even in my 20s and 30s when I was living at the gym," said Anne Clouatre, who has been using the super-slow method. "I have muscle tone and shape I've never had in my life. Even my brothers, who have been workout people, they just say, 'Anne, what are you doing?'"

After making the workouts available to his clients, Neyland has opened it to the public. Sessions cost \$40 and can be made by calling (225) 800-7562 or emailing [strengthsciencestudios@gmail.com](mailto:strengthsciencestudios@gmail.com). It's more expensive than gym memberships, but each workout is supervised by a trainer, so the costs are more comparable to using personal trainers. And cost, Neyland said, is not the biggest concern.

"You cannot buy your health," Neyland said.

You can, however, buy your own health club.

Follow George Morris on Twitter, @GWMorris.

## CANCER

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The new vaccine stimulates another group of cells in the immune system, long-lasting T-cells that "remember" the proteins and promote resistance to the recurrence of the disease.

"The vaccine provides a prevention strategy to deter cancer reformation," says Dr. Keith Knutson, a Mayo Clinic

immunologist who is principal investigator of the study. "The body's T-cells and B-cells synergize with each other for a strong, durable, immune response."

In previous Mayo Clinic studies, the team studied the physical effects of the vaccine and looked for whether it stimulated an immune response. They found the vaccine promoted mild responses typical of any vaccination, such as fatigue. They also found that the vaccine promotes a measurable

immune response in patients to the HER2 protein.

Future research, to be conducted at Mayo Clinic and in collaboration with other medical centers, will determine if the vaccine is effective against the recurrence of HER2 breast cancer.

This research will determine how long immunity lasts and whether booster shots are necessary to help the immune system continue identifying the cancerous cells. In addition, the study will help iden-

tify specific tumor subtypes that are good candidates for vaccine treatments.

"The standard approaches to treating cancer address the existing disease," Dr. Knutson says. "Our goal is to develop a strategy to address recurrence. We have good drugs, like Trastuzumab, that can interfere with the recurrence of HER2 breast cancer. Our hope is that a vaccine that engages multiple aspects of the body's own immune system will build on those successes."

## HEALTH EVENTS

Health fair expo

**WHAT:** Capital Area Agency on Aging's annual event

**WHEN:** 9 a.m. to noon Thursday

**WHERE:** Lamar-Dixon Expo Center, 9039 S. St. Landry Ave., Gonzales

**INFORMATION:** [facebook.com/events/294413411324095/](https://www.facebook.com/events/294413411324095/)

Mammos & Mimosas

**WHAT:** Baton Rouge General's annual Saturday morning brunch event

**WHEN:** 9 a.m. to noon Saturday

**WHERE:** BRG's Bluebonnet campus, 8585 Picardy Ave.

**DETAILS:** Guests can enjoy a variety of food options, mimosas, music, local retailers and demonstrations in addition to having a private clinical breast exam and mammogram.

**COST:** \$20, and covers brunch, mimosas and mammograms. To register, visit [brgeneral.org/mammos](http://brgeneral.org/mammos).

Relay For Life

**WHAT:** Annual area fundraiser for the American Cancer Society in which team members take turns walking around a track or designated path

**WHEN:** 6 p.m. to 10 p.m. Friday, Nov. 2

**WHERE:** William H. Scott Civic Center, 1200 Major Parkway, New Roads

**DETAILS:** 4 p.m., survivor registration begins; 5:15 p.m., survivor dinner and activities; 6 p.m., opening and survivor celebration; 7 p.m., live entertainment and activities; 9 p.m., luminaria ceremony. Free admission.

**INFORMATION:** [relayforlife.org/PointeCoupeeLA](http://relayforlife.org/PointeCoupeeLA)

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