Grin and believe it

WHEN IS A SMILE MORE THAN JUST A SMILE?
WHEN IT LOWERS YOUR BLOOD PRESSURE, BOOSTS YOUR IMMUNE SYSTEM AND LENGTHENS YOUR LIFE.

Stories By AMY WILSON • Photos by MINDY SCHAUER
ORANGE COUNTY REGISTER

H er mother still has the “smiling camper” award Sarah Pressman won when she was 12. So maybe this was meant to be. That Pressman would grow up to be one of the few scientists in the world who is proving that happy people are darn near bullet-proof.

Which is not exactly science-talk, but it’s a start for the layman interested in living well.

What Pressman and her colleagues are doing, for the first time ever, is consistently showing that people who are happy, optimistic, on-the-bright-side types have an honest-to-goodness, physiological advantage over the angry, hostile, depressed, sad or pessimistic viewers of life.

How honest-to-goodness? Recent scientific studies in the field of positive psychology have found that happy people’s heart rates recover more quickly after being stressed. That the rate at which they contract colds is lower. That they experience less pain and inflammation after surgery. That they have less heart disease and die less frequently when they do have heart attacks. That they survive lung cancer longer. That they have better immune function. That they suffer fewer strokes. That even their wounds heal faster. If elderly, they fall less often. Perhaps not surprisingly given all that, they live longer.

But how can this be? How does this work?

“It’s not a placebo, I’ll tell you that,” Sarah Pressman is smiling. She does a lot of that. She is wired for it. In fact, scientists have determined that 50 percent of her happiness is genetic, 10 percent is determined by her life circumstance and 40 percent she controls. That’s how it is for all of us.

“Happiness is the anti-stress,” she says, but the associate professor at UC Irvine is not really wired for slow, so she continues apace. “It has everything to do with helping the body recover from stress. When you are under stress, your blood pressure goes up, your heart rate goes up, your stress hormones go up, your cortisol levels (which increase your blood sugar and suppress your immune system), they’re up. Your adrenaline rises. The wear and tear on your body is advancing at an accelerated rate. There’s no question, stress kills you. When you smile, or show joy and enthusiasm, could

LIVEHAPPY IPHONE APP Dr. Sonja Lyubomirsky developed this app using her scientifically based findings on what works to improve happiness and, thus, well-being. The 99 cent app, which reviewers have found to be helpful though at times technologically problematic, leads you through a set of daily activities that have been proven to boost both short- and long-term happiness.

Want more happiness? Grab a pencil ...

The groundbreaking work of University of California Riverside professor Sonja Lyubomirksy in how to create more happiness in your life is the result of years of complex study and delicate parsing of data and human emotional calculus.

Luckily, she’s done the math for us and offers us happiness-enhancing strategies that, research indicates, work best.

Start by writing a few things down:

1. Count your blessings.
   Do it privately or in a journal or out loud to those you’ve been meaning to thank for years.

2. Cultivate optimism.
   Write down what your best possible future could be. Practice looking at the bright side of everything.

3. Replay and savor life’s joys.
   Write about those moments, share them with others.

4. Commit to your goals.
   Pick the most significant and devote time and effort to pursuing them.

>> Page 20: Things to do actively.
Sarah Pressman, associate professor of psychology and social behavior at UC Irvine, plays with her dog, Milo, at the Huntington Beach Dog Beach. Does Pressman smile like this a lot? Oh, you bet she does. And, she says, Milo has a lot to do with that.
Stop writing and start doing

UC Riverside psychology professor Sonja Lyubomirsky has written a lot on how to take advantage of the 40 percent of our happiness that seems to be within our control. (Fifty percent is genetic, and the remaining 10 percent is life circumstance.) Here are her tips—all have some science behind them:

**DO**

Practice acts of kindness. Doing for anyone, known or unknown, planned or unplanned, lifts you. The research is unequivocal.

Nurture relationships. Pick one that needs work and invest time and energy into making it great again.

Engage in activities. Lose yourself in things that give you pleasure.

Develop strategies for coping. Practice ways to endure stress or hardship.

Learn to forgive. Work on letting go of anger toward those who have hurt you.

**Practice spirituality or religion.** Involve yourself or read and ponder the possibilities for you.

Take care of your body. Physical activity and meditation are good; so are laughing and smiling.

**DON'T**

Engage in social comparison or overthinking. As in comparing yourself to the Joneses or the other housewives of Orange County. Disturb yourself to cut down on these destructive behaviors.


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be just contentment, in a variety of ways, all those elevations drop.

Let’s take the cold and influenza viruses study for an example of how this works. It was conducted in 2006 by doctoral candidate Pressman and researcher Sheldon Cohen, Ph.D., while Pressman was working in the Laboratory for the Study of Stress, Immunity and Disease at Carnegie-Mellon University.

The study, published in the journal Psychosomatic Medicine, was done in collaboration with researchers at the University of Pittsburgh School of Medicine, the University of Rochester School of Medicine and Dentistry, and the University of Virginia Health Sciences Center.

Over the course of a couple of weeks, participants in the study were asked to assess their own emotional styles. They were sequestered in a hotel and nose drops that contained the viruses were introduced into their systems. Everyone waited to see who got sick. And, lo, those who had more positive outlooks were less likely to get sick. And those who had negative emotional styles were more likely to think they were sick despite the fact that objective evidence said they weren’t.

There were several medical measures to confirm that they weren’t sick, but one involved a simple scale: Weighing the volume of discarded tissues to determine mucus volume. Sometimes, science isn’t pretty.

The happy truth

While it’s true that even Aristotle pondered the role health might play in his voluminous study of happiness, it was only 40 years ago that it was first hypothesized that emotions could influence immunity and disease.

But 100 times more work has been done on negative emotions and their effects on illness than on positive emotions. That work is only about 15 years old.

The science of positive psychology is not without its critics—those who think happiness can’t be quantified or specified enough to be of much help to healers.

“It’s not common to have doctors ask if you are happy,” says Pressman, “and we’d like to change that.”

There is no more persuasive argument that they should ask than a review of how cardiovascular patients have done when someone thought to ask about their natural optimism. It’s not a new study but, for sheer simplicity, it’s instructive.

In the 1980s, 120 Bay Area men survived their first heart attacks and a group of psychologists set about trying to alter their Type A personalities. As might be expected, the psychologists failed. But in the process, they gathered a lot of data about the lives of the men—the amount of original damage to their heart, blood pressure history, body mass and lifestyle, including whether they were optimistic or pessimistic types.

So when half of the men later died of a second heart attack, any possible way anyone could have predicted those deaths was worth a look. And only one characteristic was borne out: Of the 16 most pessimistic men, 15 had died. Of the 16 most optimistic, only five had died.

The study’s results have been confirmed in study after study since, in country after country, with researchers now wondering if depression is such a contributing factor to heart attack death that it should be its own area of research. Other questions have also arisen about whether good genes are tied to good hearts and good dispositions. More research is clearly indicated.

Still, the results were eye-opening.

So what is the known anatomy at work here?

In Pressman’s words in most studies like ones the authors, the measures used include things like how quickly blood pressure rates recover after stressors are applied, or how quickly heart rates go down or how cortisol—stress hormone—measurements are altered. It wasn’t a giant leap for University of North Carolina researchers Barbara Frederickson and Bethany Kok last year to turn their attention to the vagus nerve, which starts in the brain and runs through various branches to the lungs and stomach and, in one of its many jobs, helps control the heart rate. The nerve also has responsibility for conveying the state of most of the body’s organs to the brain. What interested Frederickson and Kok was the difference between those who had high and low vagal tone.

Vagal tone is measured by monitoring someone’s heart rate as he or she breathes in and out.

As Kok explains: “Another way to look at vagal tone is that it measures a person’s physiological flexibility, or responsiveness— their ability to be in the

STOP SMOKING Part of the LIVESTRONG agenda, the MY-QUIT COACH app, which comes in the original version ($4) and a lite version (free), is set up to see where you’re at, where you could be and how to get you there. Tips, progress charts and lotsa cheerleading provided. The difference between the versions looks to be in monitoring. The full-price option also could be useful in that the more buy-in you have, the more likely you are to quit.
John Regan, MD of the Spine Group Beverly Hills is participating in a clinical trial to evaluate the safety and effectiveness of the ACADIA® Facet Replacement System for those suffering from Lumbar Spinal Stenosis (LSS). In LSS, the spine narrows and puts pressure on the spinal cords and nerves causing painful symptoms in the leg, thigh, buttock, and back. Currently, a surgical option for the treatment of LSS is fusion. Now, a new investigational device called ACADIA® is being studied by Dr. Regan that does not require fusion and was designed to maintain the normal motion of the spine after surgery. Dr. Regan is one of up to only 30 sites in the U.S. approved for inclusion in this study.

The ACADIA® study is open to both male and female patients between the ages of 21 to 85 who have been diagnosed with LSS, have persistent leg, thigh, hip, buttock symptoms, are willing to return for post-operative follow-up visits, and have had at least six months of non-surgical treatments, such as physical therapy, injections, or medication. Additional criteria must also be met for inclusion in this study. For more information please call: 310-881-3730 or email: nicole@spinegroupbeverlyhills.com
smiling had any real health-related benefits. Previous research had shown them that positive emotions helped during stressful times, and smiling affects emotions, but they wondered whether smiling did anything to alleviate stress.

The two scientists divided study participants into three groups. Each group had stress-inducing tasks to do, but each was trained to hold a different facial expression during the task. One group held chopsticks in their mouths so they could not engage their smile muscles; another was asked to put on a standard smile, a fake smile that engaged the mouth but not the eyes; and another was to engage the eyes using what science calls a Duchenne smile. (Half the entire study, as a control group, was not trained in smiling.)

The genuine and the fake smile groups both buffered the stress well, and – get this – both offered their wearer the benefit of a lowered heart rate and faster recovery after the task was completed.

“It was as fake as it gets,” Pressman says, obviously pleased. “The happiness does not have to be deep-seated to get health-positive results.”

The theory is so promising it’s breathtaking: That because stress recovery predicts future heart disease, if you manage the one, you can manage the other. And when the immune system is involved, cell growth is involved, and a vast array of other diseases could be affected as well.

Pressman is cautious. “Of course, if you are already sick, you can’t happy your way to a new kidney.”

What is happiness, after all? And how does it work?

Martin E.P. Seligman, Ph.D., known as the father of the positive psychology movement, summed this up in his book, “Flourish: A Visionary New Understanding of Happiness and Well-Being” (Free Press, 2011). To paraphrase:

People who are happy believe their actions matter. Hence, they take better care of themselves, see a doctor more frequently, do as they are told to do by that doctor. Maybe that explains some of this.

People who are happy, studies show, are more likely to diet, not smoke, exercise and sleep better.

People who are happy have more friends, richer social lives, thus more people to call for support when they need it, a more sure path to health. People who are happy might have a

### Measuring happiness

The field of positive psychology is young, but the science is evolving, with hundreds of researchers working to find the connections between how we feel and how we are. One study at a time, scientists are endeavoring to find how the mechanism of that connection works and how it can be made to work better for us.

The Grin and Bear it study: Doctoral student in clinical psychology and Pressman’s co-researcher Tara Kraft shows a “fake” smile, engaging the mouth, not the eyes. The study showed that faking a smile has the same effect as genuinely smiling when it comes to battling stress.

Kraft holds chopsticks in such a way that the muscles we use when smiling cannot be engaged.

Kraft’s Duchenne smile engages the muscles around the mouth and the eyes. This one’s a “genuine” smile.

Some of the major studies mentioned in the story, in order of appearance:

genetic advantage. Cohen of Carnegie-Mellon found in a separate study in 2006 that sad, depressed and unhappy people secrete more interleukin-6 – an inflammatory substance known to elevate body temperature that may be indicated in such diverse diseases as depression, arthritis, lupus and cancer – than happy people.

People who are happy – well, is this just a luxury emotion for people who have plenty?

Pressman wondered about that. Did emotions only matter to the health of those who already had their basic needs met? Did happiness only figure in as a boost to those who were already safe, fed, getting good health care, support and comfort?

In work that was published online in the journal Psychological Science last month, Pressman was again a little taken aback by her study’s results.

The researchers were looking at how strong the effect between positive emotions and health were on people in Third World countries, specifically those with low gross domestic products like Malawi and Rwanda.

In those places, researchers hypothesized that other factors – like starvation, infection, lack of shelter, violence – would inordinately influence health so that happiness would hardly figure in. That positive emotions making a difference in health was a luxury afforded those who had much and who could spend time actually thinking about their health.

Researchers examined the connection in 150,000 people in 142 countries. “What was surprising here,” Pressman says, “was that the (happiness) associations were about twice as strong.”

That is, the more likely that basic needs were not met, the more happiness mattered to health.

Yeah, it’s that strong.

What a difference a smile makes. Look at the photographs on the right. Famous faces, sure. Pretty smiles, absolutely.

Science tells us that not only do we respond positively to those smiles – let’s not get into politics here, for the sake of science – but when Marilyn, Julia and President Obama smiled, their brains kicked in some serious feel-good dopamine that worked to make them even gladder still. So the very act of smiling begets more happiness.

The smile’s purpose? A few theories are out there. Maybe it was a fancy way of bracing ourselves and asking others not to hurt us. It worked and perpetuated itself. Or it was a learned constraint – to keep us from biting others – that contorted our faces in this interesting way.

UCI’s Sarah Pressman says there’s actually been “little work on the physiological reasons we smile. My recent research suggests that smiling might activate a relaxation – or low-threat – response in the body, for example, by lowering heart rate in times of stress, but we don’t know the physiological processes and neural pathways that allow this to happen yet.”

Pressman intends to keep looking.