The Science of Happiness
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SHOULD WE CHASE HAPPINESS?
Clearly, it's more pleasurable to feel joy than sadness, but is the pursuit of happiness worth it? Can we affect our own happiness? Well, science would say yes to both.

Positive Affect is a psychologic term that describes the emotional experience of being happy. The higher levels of positive affectivity you show, you will seem more cheerful, enthusiastic and energetic. People who tend towards positive affect have expanded awareness, creativity and problem solving skills. Being in this state leads to psychologic resource building, such as increase social connections, which further promotes our happiness. Happy people have better jobs, higher incomes and superior physical and mental health. Happiness doesn't only feel good, it is good.

It's important to remember while pursuing this goal, that we are not chasing constant positivity. No one feels happy all the time. However, what we are trying to do is build the skill set that allows us balance. We will also experience negative experiences and emotions. However, a happy person is able to process those experiences more efficiently and return to a pleasant baseline. (Lyubomirsky 2005)

It's also important to remember that this is a process. Think of it the same you would any training. You were not a brilliant surgeon on your first day of vet school. This takes time, practice, and even occasional failures to achieve. Like all goals, it takes building a set of daily habits to achieve success here.

To expand on that further, in a 2005 study Lyubomirsky et al showed three major factors contribute to your well-being. First, people have a happiness set point. Roughly 50% of your individual variance in happiness seems to be heritable. Two, your life circumstances, things such as relationships and income account for about 10% of your well-being. Finally, positive cognitive and behavioral and goal based activities account for approximately 40% of wellbeing. Interestingly, increasing our overall happiness tends to positively affect our life circumstances, so by working on the third measure of happiness, we can actually affect the second. So, if you didn't hit the genetic lottery happiness wise, 50% of this is still under your control.

MOTIVATION AND EFFORT
Motivation is important in success here. In one study, an advertisement for a study (Lyubomirsky 2005) was placed in two separate ways. For the first group, the advertisement asked for participants for a study to increase happiness. For the second group, the advertisement asked for participants to take part in a cognitive exercise. The two groups were given identical exercises, but the "happiness" group gained more from the study than the "cognitive" group.

Unsurprisingly, studies have shown that effort matters too. In a journaling exercise, mere compliance (i.e. finishing the assignment) was a less reliable predictor of positive effect than effort given to the assignment (Lyubomirsky 2011).

BEHAVIORAL EXERCISES
Seligman (2005) used a website to recruit 577 participants (411 finished the experiment) for a web based exercises. They were split in to six groups.

1. Placebo Control Exercise: Participants were asked to journal about their early memories one night a week.
2. Gratitude Visit: Participants wrote and delivered a letter of gratitude to a person who had been kind to them but had never been properly thanked.
3. Three Good Things: Participants wrote down three things that went well each day, and their causes every night for one week. Additionally, they were asked to provide a causal explanation for each good thing.
4. You at Your best. Participants wrote about a time when they were at their best then reflected on the personal strengths displayed in the story. They then reviewed the story every day for a week to reflect on strengths.

5. Using Signature Strengths in a New Way: Participants took an inventory of character strengths and received individualized feedback on their top five measures. They were then asked to use these strengths in a new and different way each day for one week.
6. Identifying Signature Strengths: In this exercise, participants did a similar exercise to #5, except they were not instructed to use these strengths in a new way during the week.

Results of this study showed that all groups, including placebo, were happier immediately after the exercise. However, the placebo group showed no effect after one week. The gratitude visit had the highest effect overall in increasing happiness and decreasing depression, but the effect tapered back to baseline at the six month mark. The three good things exercise interestingly showed little effect in the immediate post test, but were happier at one month, three months and six months. This group also maintained lower than baseline depression scores at six months. Similarly, using new strengths in a different way participants showed little effect early on, but were happier at one, three and six month interventions. Unsurprisingly, continuing the exercises over time was significant for happiness scores overtime.

EXERCISE

Exercise is a powerful tool for elevating mood. Van Kim et al analyzed data from 14700 college students nationwide gauging level of physical activity, mental health, social activity level and perceived stress. Those who got physical activity three or more days a week reported better mental health and less stress than other students. They also found a link between social activity and physical activity- those who were more social (spend 2+ hours socializing a day and had at least 5 close friends) were more likely to exercise.

In fact, multiple studies have shown this effect. Exercise has been shown to reduces Symptoms of Panic Disorder, GAD, Social Anxiety, OCD and PTSD. Exercise improves outcomes for both antidepressants and therapy for anxiety based conditions. Exercise has been shown to immediately increase positive affect, and that change last for four hours after completing the activity. The times and level of effort vary from study to study, but the World Health Organization recommends at least 150 minutes of moderate to vigorous activity a week. (Asmundson 2013)

RELAXATION TECHNIQUES

Breathing Exercises

Simple breathing exercises can be a powerful and accessible technique to decrease stress and improve wellbeing. Pramayamic Breathing, the controlled breathing exercises that are for instance practiced in Yoga, have been shown to increase parasympethic nervous system activity and reduce stress, anxiety, add and schizophrenia. (Jerath 2006, Brown 2013))

Interestingly, this technique has been shown to not only reduce stress, but also some of the physiologic consequences of stress. For instance, in a randomized double-blind study of 122 hypertension patients at Massachusetts General Hospital. Have were given a relaxation exercise based on breathing, and the other half were given information about blood pressure control. At 8 weeks, 34 of the relaxation group had achieved a systolic BP reduction of more than 5mmHg and were eligible for the next phase of the study, where they could reduce their blood pressure medication. 50% of the people in the second phase of the trial were able to eliminate at least one blood pressure medication, which was significant over controls. (Dusek 2008)

Mindful Meditation

Miller et al and Kabat-Zinn have shown patients with anxiety disorders as well as depression showed clinical and statistically significant improvements in both subjective and objective symptoms of anxiety and panic following an eight-week outpatient mindfulness training. Three years later, the result of the Miller study was repeatable in a larger group of subjects and showed lasting benefits.

References and Further Reading

- Asmundson et al. “Let’s Get Physical: A Contempary Review of the Anxiolytic Effects of Exercise for Anxiety and It’s Disorders”. Depression and Anxiety. 30:362–373 (2013)
- Berridge, Kent C., and Morten L. Kringelbach. "Affective neuroscience of pleasure: reward in humans and animals." *Psychopharmacology* 199.3 (2008): 457-480.
- Dusek, Jeffery A., et al. "Stress management versus lifestyle modification on systolic hypertension and medication elimination: a randomized trial." *The journal of alternative and complementary medicine* 14.2 (2008): 129-138.
- Jerath, Ravinder, et al. "Physiology of long pranayamic breathing: neural respiratory elements may provide a mechanism that explains how slow deep breathing shifts the autonomic nervous system." *Medical hypotheses* 67.3 (2006): 566-571.
- Lyubomirsky, Sonja, et al. "Becoming happier takes both a will and a proper way: An experimental longitudinal intervention to boost well-being." *Emotion* 11.2 (2011): 391.
- Lyubomirsky, Sonja, Laura King, and Ed Diener. "The benefits of frequent positive affect: Does happiness lead to success?" *Psychological bulletin* 131.6 (2005): 803.
- Lyubomirsky, S., Sheldon, K. M., & Schkade, D. Pursuing happiness: The architecture of sustainable change. Review of General Psychology, 9, 111–131. (2005).
- Miller, John J., Ken Fletcher, and Jon Kabat-Zinn. "Three-year follow-up and clinical implications of a mindfulness meditation-based stress reduction intervention in the treatment of anxiety disorders." *General hospital psychiatry* 17.3 (1995): 192-200.
- Seligman, Martin EP, et al. "Positive psychology progress: empirical validation of interventions." *American psychologist*60.5 (2005): 410.
- Sheldon, K. M., & Lyubomirsky, S. How to increase and sustain positive emotion: The effects of expressing gratitude and visualizing best possible selves. Journal of Positive Psychology, 1, 73–82. (2006).
- VanKim, Nicole A., and Toben F. Nelson. "Vigorous physical activity, mental health, perceived stress, and socializing among college students." *American Journal of Health Promotion* 28.1 (2013): 7-15.

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