

## **Stay Healthy, Make Social Connections**

**By Porsha Beatty**

The doctor has just walked in. He's taken a look at your chart and found hypothalamic-pituitary-adrenal activation—the portion of the brain that talks to your body about maintaining balance. In addition, there also seems to be a decrease in your body's immune system.

“What?” you ask. “I'm active,” you inform him, “I making healthy life choices, I...”

But before you continue, the doctor tells you that is not all; he continues to tell you that because your immune system is lowered, your lymphocyte sensitivity—the cells in of your immune system—has also dropped.

You're stunned. He tells you this is what often happens during perceived social isolation. You thought you were doing it all right. Occasionally, you do feel a bit down and a lack of drive for life, but really? Does perceived social isolation really cause all of this?

You may be wondering how this person could have such major health problems. According to the Annuals of the New York Academy of Sciences, perceived social isolation causes not only the above symptoms, but it can also cause resistance in blood flow leading to elevated blood pressure, increased stress response, less salubrious sleep and sedentary lifestyles. It is as strong of a health risk factor for morbidity and mortality as smoking, obesity, sedimentary lifestyle and high blood pressure. (Cacioppo et al, 2011).

No man is an island...or no man should be? A closer look at social isolation's effect on the body will convince you that no person should be an island. Evidence listed below makes it evident that social isolation is not a mere feeling of loneliness, but can have major health implications!

### *What is social isolation?*

From the networking businessman to the stay-at-home mom, we all have social interactions. To say you're alone or isolated might be an inaccurate statement. However, social isolation can be objective, which is to be by oneself. This is the logical sense of the term, however there is another kind of social isolation—perceived—which has a far more impacting effect on your health than the aforementioned. What is perceived isolation exactly? Well, it is just as it sounds. It is the perception that you are alone and is quantified by the quality not quantity of social interactions and connections (Cacioppo *et al*, 2014). There is a more common word used to describe this phenomenon: loneliness.

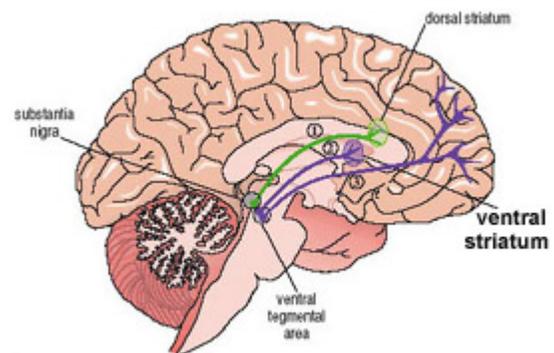
### *Effects of loneliness*

A closer look into the doctor's diagnosis will give a better understanding of what is happening. As mention above, there is an increase in the hypothalamic-pituitary-adrenal area of the brain during perceived social isolation. This is the region of the brain that talks to your body about maintaining proper balance, which is known as homeostasis. Part of the homeostasis process is regulating the immune system. Leukocytes, which are more commonly known as white bloods cells, are the cells in our body that work to fight against disease. They eat the bad cells and break them down for the body. During social isolation, especially in perceived isolation, the production of white blood cells decreases (Cacioppo, 2014). This would explain why there was a decrease in the immune system as leukocytes are part of this process. Without the sensitivity of the white blood cells, it will lead to an impartment to your immune system, leaving you more susceptible to illnesses.

In Germany, an animal model was used to see what type of health factors could be involved with perceived social isolation. Their results showed that sensitivity to glucocorticoids was lowered in the piglets. Glucocorticoids, which are more commonly known as cortisol, act as a chemical in the body that responds to inflammation and stress.

In addition, the hypothalamic-pituitary-adrenal region of the brain of the piglets, which regulates cortisol, was activated. There was also reduced cortisol resistance of the immune cells. The results showed that these effects could be moderated through social support. The key difference was that when the support came from a social partner with piglet similar in age as opposed to a maternal pig, was what helped moderate the physiological changes (Tuchscherer et al, 2014).

In addition to the aforementioned, the ventral striatum of the brain (see image), which regulates dopamine—a brain chemical that is associated with reward—also seems to be correlated with social isolation. There is weaker activation of the ventral striatum with people who spend long stints of time



without social interaction. Since the rewards pathway is weaker and not used very much, there is less reward to social interaction leading to a negative feedback loop (Cacioppo, 2014).

### *What to do with this knowledge?*

Now that we have an understanding of what perceived isolation is and the effects it has, we can use this information to make a brighter tomorrow.

One such application of the knowledge that we have uncovered is the role that social media can play in perceived isolation is serious. Twitter, Instagram and Vine all have a quality to them

that it is all about quantity and not quality of connections a person has is rewarded. Social media can breed perceived isolation. For example, you can have hundreds or even thousands of followers on Twitter, a large quantity, and yet the quality of those followers is very superficial. Having social media as an only source for connection with others could be quite detrimental to your health. To prevent having such negative effects, informing the public of these implications can help with not only daily living, but the country as a whole.

Additionally, application of this knowledge could also be used in the health care field. As a health care provider, being informed of the effects of perceived social isolation can provide better care for their patients. Doctors can educate patients on the importance of creating and keeping connections with people, not just with their phones. If the doctor is aware of the patient's tendency to lean towards social media for their standard or if there are certain symptoms that may bring the doctor to this conclusion can help bring about wholeness.

Lastly, we can use this information to know the pharmacological implications of perceived isolation. People young and old suffer with loneliness. Knowledge of perceived isolation can be used to develop a drug treatment for people suffering from chronic loneliness.

*An overall view:*

Overall, we can see that social interaction not only gives a fuller life but it is also beneficial for your health. By the lack of interacting socially, we see that it can lower your immune system, disrupt sleep patterns and is as much of a detrimental health risk as smoking. All this to say, that the evidence is quite clear, social isolation, whether objective or perceived, has major health consequences and no man should be an island.

## Resources Used:

- Cacioppo, John T, Louise C. Hawkley, Greg J. Norman, and Gary G Berntson. "Social Isolation." *Annals of the New York Academy of Sciences* 1231.1 (2011): 17-22. *PubMed*. Web. 12 Feb. 2015. <<http://dx.doi.org/10.1111/j.1749-6632.2011.06028.x>>. DO - 10.1111/j.1749-6632.2011.06028.x
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Figure adapted from:

- <http://www.world-science.net/images/ventralstriatum.jpg>