Listen to your heart: Researchers discover a physiological indicator of vulnerability to temptation

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We've all had our moments of weakness when trying to control ourselves; eating that donut on your diet, losing your temper with your kids, becoming upset when you're doing your best not to. It isn't like we plan on these lapses in judgment. It's more like they just sort of happen.

There is scientific evidence that explains this phenomenon of everyday life. Self regulation, our strength to inhibit impulses, make decisions, persist at difficult tasks, and control emotions can be spent just like a muscle that has been lifting heavy weights. When we spend our strength on one task (trying to control your emotion around a petulant boss), there is less to spend on others (avoiding the Ben & Jerry's when we get home).

The funny thing about being vulnerable to saying, eating, or doing the wrong thing is that humans are typically unaware that they are in a moment of weakness, unlike the strain and fatigue we feel in our muscles after a workout. Fortunately, new research conducted by University of Kentucky psychologists Suzanne Segerstrom and Lise Solberg Nes suggest that there may be a biological indicator to tell us when we are working hard at resisting temptation and consequently when we are vulnerable to doing things contrary to our intentions.

A measure of cardiac regulation called "heart rate variability" (HRV) appears to be linked to self regulation according to the article published

in the March issue of *Psychological Science*.

The authors conducted a two-part study in order to test their hypothesis. In the first, participants were instructed to fast for three hours in order to take part in what they believed was a "physiology of food preference" experiment. Participants' HRV was monitored while they were presented with a tray of cookies, candy and….carrots. Temptation, in this case, was indicated by giving into the tastier but decidedly less healthy snack of cookies and candy.

HRV as it turns out was considerably higher when people were working to resist temptation (eating carrots rather than cookies and chocolate) than when they were not, suggesting that HRV was mirroring the self regulation taking place.

In part two of the experiment, after resisting or giving into temptation, the authors had the participants attempt to complete difficult anagrams, some of which were impossible to solve. The authors measured how long participants persevered at the anagrams and as predicted, those who had exerted high self regulation by resisting sweets were more likely to give up earlier on the task.

Moreover, the people who had higher levels of HRV by nature, regardless of giving into temptation, were likely to endure longer at the anagram task.

HRV was not singled out as an indicator on a lark. Segerstrom and Solberg Nes noted that the brain structures involved in self regulation overlap considerably with the structures that control HRV which suggested that HRV would accurately reflect self regulation.

So, will we be wearing a cardiac monitor in the near future to gauge whether we are vulnerable in our self regulating abilities? It's doubtful,

say the authors. However, when considering special populations with more serious consequences of self regulatory failure (say, alcoholics) HRV feedback could be helpful to determine when those critical relapses in regulation will happen.

Source: Association for Psychological Science

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