

Measuring Stress 2017

Whilst we all have individual thresholds for feeling “stressed”, most would agree it is not a comfortable feeling. Whilst it is tempting to conclude that we always “know” that we are stressed, there are a significant number of individuals who have no subjective experience of stress, yet physiologically one can demonstrate a hyper-aroused state in that person. Is this a problem?

To answer this, it’s important to look at the effects of stress on the body. An aroused state is reflected physiologically in three body systems. Firstly, hormonally, cortisol and adrenaline are released. These can cause high blood pressure, high blood sugar and cortisol has been implicated in contributing to fat deposition around one’s abdomen. Secondly the immune system can be adversely affected. The classic example is the recognised increased frequency of viral illnesses that marathon runners get after their race - even ‘good stress’ can have negative implications for the body! Whilst a strong link between cancers and chronic stress has not been established, there is emerging evidence that chronic severe stress is implicated in healing (or lack thereof) of established cancers and possibly in the onset of cancers. There is a more established link with coronary artery disease and stroke risk. This is mediated, in part at least, by the third body system, the sympathetic nervous system, which, if over activated, leads to high blood pressure, high heart rate and reduced heart rate variability. Chronic stress is linked to an increase in burden of cholesterol laden plaque inside arteries (atherosclerosis) and hence higher heart attack and stroke risk.

If stress is damaging our bodies by causing heart attacks, strokes and likely cancers, how can we best measure it? The obvious answer is that we could ask people “do they feel stressed”, or also use a standardised questionnaire - this is why we use the DASS (Depression, Anxiety, Stress Score) which does have some usefulness. However, it would be more compelling to have a test that is demonstrating physiological arousal and hence damage to the body as well.

We can also measure the effects of stress indirectly by measuring a number of blood test markers which reflect inflammation and to some extent organ damage. One model from the US has been commercially available for approximately \$300. Whilst one could measure cortisol levels in the saliva, there are technical issues in timing, collecting and handling the samples let alone the interpretation - so this is not especially “user friendly”. We can measure skin conductance but would need a commercially viable tool.

The best method I have seen is a Heart Rate Variability assessment- a fancy term for an ECG performed at rest over several minutes with complex software to determine whether you are in “sympathetic” (arousal) mode or para-sympathetic (relaxed) mode. What is impressive is that there is extensive literature on Heart Rate Variability and its robustness in measuring physiological stress, and also its predictive value in heightened future risk for heart diseases if one is in sympathetic mode. Hence, it is both measurable and predictive.

The advantage is that this testing can be performed on-site, and can be interpreted at the time of testing. Most importantly, we can intervene and teach people to manage their stress better (there is robust evidence that this works), which in turn reduces psychological illness and reduces risk of heart attack and stroke and likely other long-term illnesses.

We are introducing the Heart Rate Variability test in our practice over the next couple of months having extensively researched the technology.

It has applicability for organisations that would like to “keep a pulse” so to speak on the stress levels of their employees and also for our individual clients to see if their bodies are manifesting more stress and hence damage than they are aware of - another example of looking for health problems that are not manifesting yet, and intervening to save lives.

If you would like to have yourself tested, please contact us on:
reception@executivemedicine.com.au or phone: 02 9290 3259.

