

## **Stress-Reducing and Sleep-Promoting Strategies**

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This is the ninth part in a series addressing the most common health concerns as we age. Previous parts have discussed cardiovascular health, weight loss, blood sugar, cognitive function, gastrointestinal health, maintaining strong bones and joints and detoxification. In this installment, I will discuss stress reduction and the importance of sleep, two crucial parts of any healthy aging regimen.

Extensive research has found a link between chronic stress and measurements of poor health, leading to reduced longevity. It is well established that chronic stress is a risk factor for cardiovascular disease, poor immune function and depression.<sup>1-2</sup>

Psychological stress shortens longevity by modulating the rate of cellular aging. Psychological stress is significantly associated with higher oxidative stress (free radical damage) as well as lower telomerase activity and shorter telomere length. Telomeres are DNA–protein complexes that cap chromosomal ends, promoting chromosomal stability. During each cell division, the telomere is unable to fully replicate, leading to telomere shortening. With enough replications, this ultimately leads to cell death. Telomerase is a cellular enzyme that protects telomeres. The fact that stress lowers telomerase activity indicates that chronic stress increases telomere shortening and thus cellular aging. Premenopausal women with the highest perceived stress levels have telomeres shorter on average by the equivalent of at least one decade of additional aging compared to low-stress women.<sup>2</sup>

Researchers also have demonstrated a relationship between stress hormones and oxidative stress. Glucocorticoids, the primary adrenal hormones secreted during stress, increase oxidative stress damage to neurons, in part by decreasing antioxidant enzymes.<sup>3-4</sup> In women, self-reported distress is related to greater oxidative DNA damage.<sup>5</sup> Furthermore, in cells cultured in vitro, oxidative stress shortens telomeres.<sup>6</sup>

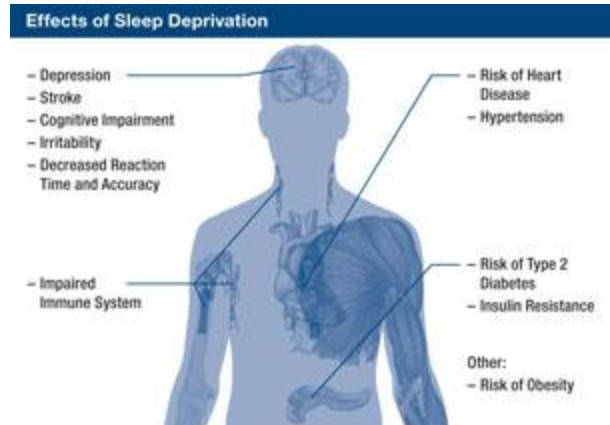
The role of stress in aging has been demonstrated in humans. Despite the fact that centenarians are prone to chronic stress due to a progressive loss of self-sufficiency, more than half of centenarians involved in one study showed an emotional tendency to react with a low anxiety-intensity to stressful conditions. The researchers theorized that the centenarians' good physical condition may be explained by a positive character-disposition and by strong adaptability to the adversities of life.<sup>7</sup>

Another way stress impacts our health is by disrupting sleep. In fact, insomnia and stress are interconnected in that the cardiovascular symptoms that occur with anxiety are partly accounted for by insomnia.<sup>8</sup>

## Sleep Deprivation

An estimated 50 to 70 million Americans chronically suffer from sleep disorders.<sup>9</sup> The long-term effects of sleep deprivation and sleep disorders have been associated with an increased risk of hypertension, diabetes, obesity, depression, heart attack, stroke and decreased immunity.<sup>9-10</sup> These adverse health effects may be due to the fact sleep loss causes an inflammatory response.<sup>10</sup>

The significant decrease in average sleep duration in the last 50 years coincides with the increased obesity prevalence. Evidence indicates that sleep loss may be a risk factor for obesity and type 2 diabetes. The increased risk of obesity is possibly linked to sleep loss's effect on appetite-controlling and energy-expenditure-controlling hormones, such as leptin and ghrelin. Unbalanced leptin and ghrelin levels correlate with increases in subjective hunger when individuals are sleep restricted rather than well rested.<sup>11</sup>



In fact, just one sleepless night can cause insulin resistance, a predisposing factor to type-2 diabetes. Insulin resistance occurs when the pancreas becomes less sensitive to insulin, causing the body to produce greater and greater levels until eventually it is no longer able to recognize insulin's blood-sugar-balancing signals. In a new study, the researchers measured insulin sensitivity in nine healthy people after a night of normal sleep (about eight hours) and after a night of four hours of sleep. The researchers found that only one night of sleep deprivation caused a reduction in insulin sensitivity.<sup>12</sup>

"Sleep duration has shortened considerably in western societies in the past decade and simultaneously, there has been an increase in the prevalence of insulin resistance and type 2 diabetes," lead author Dr. Esther Donga said in a news release from The Endocrine Society. "The co-occurring rises in shortened sleep and diabetes prevalence may not be a coincidence. Our findings show a short night of sleep has more profound effects on metabolic regulation than previously appreciated."

Increased age also can have a dramatic effect on sleep patterns. Postmenopausal women, in the absence of hormone therapy, take longer to fall asleep than younger women and experience decreased deep sleep.<sup>13</sup>

Sleep apnea is another important cause of sleep deprivation. I addressed this concern in the July 2010 Vitamin Research News in the article titled, Sleep Apnea: The Surprising Culprit Behind a Host of Health Concerns," which can be found on the website.

## Nutritional Stress Support

I find that three of the most helpful ways to protect the body against the damaging effects of stress are AdaptaPhase® I, Cortisol Control and Allay™. Prior to supplementing with these products, I have my patients take a Salivary Hormone Test (Adrenal Function Panel) to determine morning, afternoon, evening and night cortisol levels.

AdaptaPhase I contains adaptogens, botanicals that help protect the adrenal glands from the damaging effects of stress. Psychological stress activates the hypothalamus-pituitary-adrenal axis, causing increased cortisol levels. Although this stress response is important for survival during acute stressors, prolonged stress response activation may lead to adrenal exhaustion in which cortisol levels drop to insufficient levels resulting in fatigue or illness. The adaptogenic herbs Astragalus (*Astragalus membranaceus*), *Withania somnifera* (ashwagandha), *Eleutherococcus senticosus*, Schisandra (*Schisandra chinensis*) and *Aralia manchurica* (Manchurian Thorn Tree), all found in AdaptaPhase I, can increase low levels of adrenal hormones or decrease elevated levels.<sup>14-18</sup>

After occasional stress followed by rest and relaxation, our bodies can usually adapt. Cortisol levels drop back to normal. The typical modern American lifestyle, however, is filled with chronic stress, with inadequate nutrition, rest, relaxation and sleep, leading to chronic excessive cortisol levels.

I have my patients with high cortisol levels (as determined by the Adrenal Function Panel) supplement with Relora® (a proprietary blend of patented extracts of *Magnolia* and *Phellodendron*) and Sensoril® (a patented extract of ashwagandha), both found in Cortisol Control. In one study of 50 stressed people, 200 mg of Relora three times per day for two weeks controlled stress-induced symptoms, such as depression, anxiety, irritability, emotional ups and downs, concentration difficulties and restlessness in 82 percent of the subjects.<sup>19</sup> Sensoril works with Relora to protect the body from stress. Sensoril is standardized to contain the proper amounts of glycowithanolides, Withaferin-A and oligosaccharides that research has shown promotes optimal anti-stress activity and prevents the adrenal gland enlargement that occurs after stress in animal studies.<sup>20</sup>

To help induce relaxation, gamma-aminobutyric acid (GABA), L-theanine, ashwagandha, valerian (*Valeriana officinalis*) and passion flower (all found in Allay) can be used together with AdaptaPhase I and Cortisol Control. In human studies, GABA has induced relaxation and reduced anxiety while improving immunity under stressful conditions.<sup>21</sup> L-Theanine increases alpha-brain wave activity, producing a relaxed, yet alert, state-of-mind.<sup>22</sup>

As mentioned above, *Withania somnifera*, also known as ashwagandha, is an adaptogen reported to have anxiety-reducing and mood-enhancing actions.<sup>23</sup> Passion flower also has an important role in reducing tenseness, restlessness and irritability with difficulty in falling asleep<sup>24</sup> while valerian exerts a regulatory effect on the autonomic nervous system and has been demonstrated to provide a tranquilizing effect.<sup>25-27</sup>

### **Promoting Restful Sleep**

To encourage restorative sleep, I usually take a two-step approach with my patients. First, I have them supplement with a combination of melatonin, 5-hydroxytryptophan (5-HTP), St. John's wort and vitamin B6 (all found in Positrol™)

Melatonin is a hormone nocturnally produced by the pineal gland in the absence of light. Melatonin supplementation improves sleep quality, the time it takes to fall asleep and reduces the number of awakenings.<sup>28</sup>

Melatonin regulates many processes besides sleep. Low melatonin levels due to sleep loss or exposure to light late at night are linked to hypertension and reduced immunity.<sup>29</sup> Melatonin also decreases the susceptibility to stress and improves mood and general well-being.<sup>29</sup> Furthermore, high

melatonin blood concentrations have been linked to reduced tumor formation.<sup>30</sup> A recent study also showed that melatonin supplementation preserved the expression of the longevity protein (sirtuin 1) in the hippocampus of sleep-deprived rats and prevented the cognitive deficits that occur in sleep-deprived animals.<sup>31</sup>

5-Hydroxytryptophan (5-HTP), the intermediate metabolite of the essential amino acid L-tryptophan (LT) in the biosynthesis of serotonin, has been used successfully as a mood enhancer, to support the health of people with chronic headaches and to promote sleep.<sup>32</sup> St. John's wort, known best for its mood-enhancing properties, also improved sleep in a double-blind, placebo-controlled study of 47 postmenopausal women.<sup>33</sup>

The second step in ensuring a good night's sleep is to supplement with the sleep-supporting botanicals Seditol® (proprietary blend of extracts of *Magnolia officinalis* bark and *Ziziphus spinosa* seed), hops (*Humulus lupulus*) strobiles extract, lemon balm (*Melissa officinalis*) leaf extract, passion flower (*Passiflora incarnata*) extract, and valerian root extract, all found in Herbal Sleep.

The Seditol blend and its principal ingredient were shown to bind to several important receptors that promote relaxation and sleep<sup>34</sup> and reduce the fatigue typically associated with poor sleep.<sup>35</sup> Hops contains compounds that promote sleep and relaxation.<sup>36</sup> Lemon balm induces sleep and shortens the time required to fall asleep, according to animal studies.<sup>37</sup> Lemon balm has also been shown to reduce the stress response and induce "calmness" while simultaneously improving mood and cognitive performance.<sup>38</sup> Valerian, in addition to its anxiety-reducing properties mentioned above, has been shown in numerous clinical trials to enhance sleep quality and reduce the time to sleep onset.<sup>39-40</sup> Passion flower's properties also extend beyond its anti-anxiety properties mentioned above to being an effective herb to support sleep.<sup>41</sup>

## Conclusion

Chronic stress and sleep deprivation can seriously impair our health and cause a wide range of health concerns. Addressing these two factors is crucial to ensuring the effectiveness of a healthy aging regimen. Supporting the adrenal glands with Adaptaphase I, lowering cortisol levels with Cortisol Control, and promoting relaxation with Allay are three ways to stop the damaging effects of stress. Herbal Sleep combined with Positrol can encourage restful sleep, giving the body the strength it needs to conquer the challenges of modern life.

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