How Stress Effects Our Brain and Hunger

Our lifestyles are much different today than 10,000 years ago. Our hunter and gather ancestors had to worry about famine, droughts and brutal deaths by predators. They also had both time to relax and unwind and to be active to forage for food. Today, none of this really applies. The only predators that we need to worry about are locked up in a cage in a zoo and food is found at supermarkets that are always open and easily accessible via automobile. But, this does not mean that our stress levels are lower than those of our ancestors; in fact I believe stress levels are probably higher because it is so chronic today, and is it a coincidence that our rate of obesity is also much higher? Let’s look closer at this.

On a day to day basis we deal with stressful things such as shortened sleep periods, traffic, bosses and coworkers, family and relationship issues, worries about money, health, health of family members, etc. Our stress response has not had the time to adapt to this list of constant and chronic environmental stressors. Recognizing when these stressors are affecting us and finding ways to manage these stressors are keys to our health and well-being. Also, not adding stressors such as overtraining, eating gut irritating foods and overeating are also key components to maintaining a positive quality of life.

Environmental stressors cause a reaction in our bodies. Inflammatory chemicals are released and this can be deleterious to our health. Inflammatory chemicals suppress our body’s ability to defend itself from outside pathogens. They can also cross the gut-brain barrier and influence infectious, auto-immune, and allergic diseases (Elenkov, 1999). One big culprits of this is the inflammatory cytokine interleukin-6 (IL-6).

IL-6 actually interferes with the liver and causes a build-up of the glycoprotein, fibrogen in the blood. This increases the thickness of our blood. Along with this we get an increase in serum amyloid A, a group of proteins associated with our HDL in our blood. This increase in serum amyloid A leads to a decrease of HDL in our blood. The increased thickness of blood and the decreased HDL can lead to vascular breakdown, but that is a story for another day. The IL-6 can also interact with our hypothalamic-pituitary-adrenal axis and this can lead to insulin resistance and obesity (Yudkin, 1999).

Our hypothalamus is the part of our brain that controls our hunger response. Leptin, and to a lesser extent, and insulin are controlled from this section of the brain. Inflammatory chemicals can cross into the hypothalamus and induce leptin and insulin resistance, which then can lead to weight gain. One major cause of this is overeating. Our cells have an energy limit that is preset. Anything more or less can be detrimental to our
bodies. When excess food intake is introduced to our bodies we react via cellular inflammation. This inflammation causes a down regulation of leptin and insulin receptors. Both leptin and insulin are important in weight control. Leptin tells our brain how much body fat we need to store and insulin stores the body fat in response to what leptin tells our brains. When the down regulation of receptors occurs our hypothalamus goes into a protective, starvation mode and increases our appetite and decreases our willingness to exercise. This leads to weight gain, which then leads to increased leptin in the blood, which leads to more weight gain. Eventually we reach obesity (Wisse, 2009).

Food selection becomes another critical component as well as balancing the omega 6:omega 3 ratio. Certain foods can actually shut off our body’s way of telling ourselves we are full. They elicit a response from dopamine and serotonin and this makes us feel good. They also elicit a response from cannabinoids that make us crave these foods. This can lead to overeating which causes the inflammatory response mentioned previously. This is why, in most cases, I question “everything in moderation” as a successful tactic.

Finding ways to manage our everyday stress and eating a diet consisting of real food is how we can start to heal our bodies. What are “REAL” foods you ask? Well, simply, they are foods you can pick, grow and raise. They are naturally low in starchy carbohydrates, sugars and they are not processed. Eating like this even just 80% of the time will help mitigate the inflammatory stress response that can lead to so many negative health outcomes. Studies have been done on some alternative health therapies and inflammation. Behavioral therapy, hypnosis, mediation, yoga, walking, and acupuncture have all been shown to have anti-inflammatory effects. If weight loss is your goal it is imperative that you handle your stress, and the inflammation that comes with it. If you don’t, you may just be wasting your time and effort on diet and exercise. May you all look, feel and perform your best. Cheers!

This months Wellness Recipe:
Chocolate Avocado Pudding

Ingredients
2 avocados
4 tbsp maple syrup
4 tbsp cacao powder
1/3 cup unsweetened almond milk
1/4 tsp cardamom
1/4 tsp dry ginger
1/4 tsp vanilla essence
1 tbsp shredded coconut as topping
1 tbsp broken pistachios/ pecans/ almonds/ walnuts as topping

Preparation
Only takes a few minutes so if you are really busy you can get right back to your to do lists and conquering the world ASAP! Cut your ripe avocados in half, scoop out the pits and scrape the avocado flesh into your blender. Add all the other ingredients minus the toppings and blend. Sprinkle on toppings of your choice. Voila!

Servings
Depends who you’re talking to…if you love this you may be able to enjoy the whole recipe yourself however there is enough to share with a friend.

References:
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Amber is primarily working as a Personal Trainer (National Strength and Conditioning Association certified) and Group Fitness Instructor at Creekside Fitness and Wellness Center in Boardman. She develops custom exercise programs for clients with a variety of fitness goals and needs (e.g., breast reconstructive surgery, post pregnancy, knees replacement and obesity). In addition, she works part-time as a (i) certified Speed and Agility Trainer training middle school to college-aged athletes, (ii) a television news (WKBN-Youngtown) and local ESPN radio Health and Fitness Consultant, and (iii) a Fitness Academy instructor, where she educates middle school aged children on the importance of making healthy food choices as part of an active lifestyle. Lastly, she has a Masters in Exercise Physiology and Adult Wellness from the University of Akron. Amber’s has a strong passion to continue to use her graduate education and professional experiences to specializing in the organization of wellness programs and activities for people to achieve their best mental and physical health possible.