visceral weight gain and makes it more difficult to lose weight, especially when there is little physical activity.

**Cardiovascular Disease, Insulin Resistance and Stress**

Obesity, particularly excess visceral fat, is a well-documented risk factor for cardiovascular disease and mortality. In addition, rising insulin and cortisol both elevate blood pressure and increase triglycerides and LDL (the bad) cholesterol while lowering HDL (the good) cholesterol, resulting in fat deposits in the arteries. A variety of psychological factors associated with stress also adversely affect heart health.

**Metabolic Syndrome and Stress**

As you can see, prolonged stress can significantly contribute to the development of metabolic syndrome through HPA axis hormonal alterations. When the HPA axis is working overtime because of continuing stress, elevated cortisol, glucose and insulin levels can eventually lead to insulin resistance, visceral weight gain, high blood pressure and increased arterial fat – the primary elements of metabolic syndrome. 21st century stress is a particularly detrimental catalyst because it rarely results in increased physical activity but often in snacking on foods that drive up blood sugar.

**Prevention and Recovery**

The three keys to metabolic balance are: 1) maintaining a healthy weight, 2) managing stress, and 3) exercising regularly. Together they provide the best long-term solutions to moderating blood pressure and blood sugar, promoting normal fat and carbohydrate metabolism, and maintaining a healthy cardiovascular system.

**Dietary Guidelines for Weight Management**

Have small regular meals and chew well.

**Eat:**
- Low carb (low glycemic), unrefined foods
- Oils high in Omega 3
- White meat, fish, legumes, nuts and seeds
- Plenty of vegetables (5-6 servings a day)
- High potassium foods (most seeds, vegetables and fruit)

**Avoid:**
- Caffeine (stimulates cortisol)
- Sugar and refined carbs (stimulates insulin)
- Partially hydrogenated oils (disrupts healthy fat metabolism)

**Reduce:**
- Calories, fat and sodium

**Lifestyle Tips for Stress Management**

- Eliminate as many sources of stress as you can
- Limit contact with energy robbers (people, environments and activities that leave you feeling drained)
- See the stressors you can’t get rid of in a more positive light
- Laugh more
- Make time to just relax (even if it’s only for 10 minutes a day)
- Practice some simple breathing and meditation techniques daily
- Don’t do anything else while eating (TV, work, texting)
- Prioritize
- Learn to say no

**Exercise for Weight & Stress Management**

Exercising 30-40 minutes a day helps normalize cortisol, insulin and blood sugar, and reduces belly fat.

**Combine:**
- aerobic (vigorous walking, jogging, swimming, dancing, Zumba)
- anaerobic (weights, isotonic, Pilates)
- flexibility (yoga, stretching, tai chi)

**Dietary Supplements for Stress & Metabolic Balance**

Having the right kind of supplemental support in addition to following the dietary, lifestyle and exercise guidelines described can significantly enhance your ability to handle stress and maintain metabolic balance.

These supplements should:
- promote balanced HPA axis function and blood sugar metabolism
- replenish the nutrients used up by stress
- support adrenal function
- provide extra vitamin C and antioxidants
- supply fish oil high in Omega 3

For more information, visit the original website resource for adrenal fatigue adrenalfatigue.org
Metabolic Syndrome

Wide waist (apple shaped)?
Protruding abdomen and stubborn belly fat?
High blood pressure?
Erratic or high blood sugar?
High triglycerides & Low Density Lipoproteins (LDL)?

Three or more of these occurring together can be a sign of metabolic syndrome (also known as syndrome X, insulin resistance syndrome and pre-diabetes). Linked to a higher risk for developing type 2 diabetes and cardiovascular disease, metabolic syndrome is a progressive disorder that affects approximately 7% of 20-29 year-olds and 44% of 60-69 year-olds in the US.

Symptoms of Metabolic Syndrome

- Body Mass Index (BMI) >30 kg/m²
- and/or
- Large waist circumference (central obesity)
  - Women ≥ 35”, Men ≥ 40”
- and
- 2 or more of the following, or treatment for:
  - Elevated blood pressure (≥130/85 mmHg)
  - Elevated fasting blood sugar
    - ≥100 mg/dL, with insulin resistance
    - or type 2 diabetes
  - Reduced HDL (“good”) cholesterol
    - Women <50 mg/dL, Men <40 mg/dL
  - Elevated Triglycerides (≥150 mg/dL)

Causes of Metabolic Syndrome

In addition to aging and genetic predisposition, many factors, such as daily consumption of foods high in sugar and fat combined with lack of exercise, can contribute to the development of metabolic syndrome. The pervasive stress of modern life is a powerful common denominator that, when added to these unhealthy lifestyles, accelerates their adverse effects on health and greatly increases the likelihood they will result in metabolic syndrome.

21ST Century Stress and Your Body

The complex 21st century stress overload from economic, environmental, social and psychological factors can rarely be resolved by physical action. However, because human physiology has not changed much in the past 100,000 years, your stress response system is designed for the kind of physical threats to survival experienced by early man that required a physical “fight or flight” reaction. Every stress you experience, whether it’s a sleepless night or an overdue bill, triggers a chain reaction that prepares you to physically respond to the stressor. This chain reaction, regulated through the hypothalamic-pituitary-adrenal (HPA) axis, begins with a message from the hypothalamus in your brain and results in the secretion of stress hormones from the adrenal glands that prepare every part of your body for fight or flight. In order to accomplish this, these adrenal hormones are able to affect every cell and system in your body.

The Effects of Your Stress Response

To prepare you for action, your stress response temporarily:

- Increases heart rate and blood pressure to enhance blood flow to your muscles
- Raises blood sugar and insulin levels to get more glucose into the cells for energy
- Heightens alertness and mental focus
- Slows down digestion by decreasing stomach acid, digestive enzymes, peristalsis and nutrient absorption
- Shifts energy and nutritional resources away from tissue building and repair
- Reduces immune activity
- Lowers libido

Without physical action in response to stress, these HPA axis-regulated adjustments can disrupt optimal physiological and metabolic balance over time, as well as lower stress tolerance. Also, individuals vary in their reactivity to stress and some people have a hypersensitive HPA axis that more readily and frequently raises levels of stress hormones. Considering the pervasive effects of stress on your body, it is easy to see how frequent or prolonged 21st century stress can have a detrimental impact on your health over time, especially on your cardiovascular system, blood sugar balance, sleep cycles, immune system and digestive tract.

Stress, Cortisol and Insulin Resistance

The adrenal stress hormone cortisol is the primary instigator of the physiological changes that occur with stress, and in the process it interacts with other hormones like insulin. Cortisol and insulin work together to increase energy but have opposite effects on blood sugar. Cortisol raises blood sugar by triggering the conversion of stored energy (glycogen) into glucose (blood sugar). Glucose is the source of energy used by most cells in the body. Insulin helps move the glucose from the blood stream into the cells, thus lowering blood sugar. When cortisol goes up (as it does during stress), blood sugar goes up; and when blood sugar goes up, insulin does too. However, when insulin is high too often or for too long, the cells develop insulin resistance. This means they become less sensitive to the effects of insulin in order to protect themselves from the harmful effects of too much glucose. With less glucose getting into the cells, the resulting elevated blood sugar triggers increased insulin, further aggravating insulin resistance. In addition, less glucose in the cells triggers hunger, which often translates into cravings for carbohydrates. Both a diet high in refined carbohydrates and the elevated cortisol levels from frequent stress can produce a vicious cycle of insulin resistance. When chronic stress and poor diet combine with a sedentary lifestyle, they become an irresistible force driving the body, over time, towards metabolic syndrome and a variety of related health problems, including cardiovascular disease and diabetes.

Weight Gain, Insulin Resistance and Stress

A prolonged cycle of stress and insulin resistance usually leads to weight gain, particularly belly fat. Although the reasons are not fully understood why this weight tends to accumulate in the chest and abdomen (visceral fat), several physiological mechanisms conspire to create this spare tire. Rising cortisol from stress increases blood sugar and causes hunger which may lead to overeating. Both cortisol and insulin play complex roles in storing any excess energy (like blood glucose) as visceral fat to meet future needs. Compared to other fat cells, deep abdominal fat cells have greater blood flow, more cortisol receptors and higher levels of an enzyme that increase cortisol’s fat-storing activity within these cells. All of these factors contribute to further belly fat accumulation. In addition, rising insulin inhibits fat burning hormones, like growth hormone, and signals the body not to release any stored fat. This chain reaction both encourages...