What are the short-term effects of stress on my body?
- When you are feeling stressed, whether the stress is caused by a p-set, a fight with a friend, or a lion chasing you across the plains, your body responds the same by signaling the fight or flight response. Your body releases cortisol, epinephrine, and norepinephrine which result in the following effects on your body:
  - Your heart rate and stroke volume increase, sending oxygen and glucose-rich blood to the major muscles in your arms and legs. Simultaneously, your capillaries close increasing your blood pressure so you can sustain a surface wound without bleeding to death. Your eyes dilate so your vision improves.
- All bodily functions NOT needed for the impending “struggle” are shut down: digestion stops, sexual function stops, your immune system is suppressed, etc. Your body will shut down all processes except those needed to deal with a clear and present danger.

Does this stress have long-term effects on my body?
- Too many stress responses each day lead to: heart disease, high blood pressure, immune system disorders, digestive disorders, high blood sugar, migraine headaches, insomnia, depression, anxiety, and sexual dysfunction.
- Every time your body triggers the fight or flight response for situations that are not truly life-threatening you are experiencing a false alarm. Scientists estimate that we experience over 50 “false alarms” per day where our body produces a stress response even when there is no immediate physical threat.
- When stress hormones remain active in the brain for extended periods of time, they can injure and even kill cells in the hippocampus (the area of your brain needed for memory and learning) because glucose has been diverted to your body’s large muscles.

What activity reverses the effects of stress on my body?
- The relaxation response is the opposite biological response to the stress response.
- Relaxation improves your metabolism, digestion, sleep, immune function, and creativity.
- Everything that is turned off during the stress response gets turned back on during relaxation.

How can I decrease my stress? Practice mindfulness and relaxation!
Mindfulness is the calm awareness of your thoughts and perceptions; the practice of being in the moment.
1. Call (617) 253-CALM (2 minutes) you will hear a two minute recording of MIT health educator Zan Barry speaking calming words.
2. Listen to MITOasis, MITOasis2, or download the relaxation exercises (4-15 minutes): http://medweb.mit.edu/wellness/resources/
3. Drink more water (30 seconds): this prevents stress-related dehydration
4. Pack breakfast with protein and a whole grains to eat during your morning class (5 minutes): String cheese and Triscuits; yogurt and Kashi GoLean cereal; cottage cheese and mini-wheats; whole grain bagel with turkey or natural peanut butter. This provides a steady glucose supply that will enhance concentration and curb stress eating.
5. Practice 1-to-2 breathing (1 minute): inhale for a count of 3, exhale for a count of 6
6. Practice walking meditation (1 minute): count the number of steps you take as you inhale and the number of steps you take as you exhale. Try to lengthen the exhale.
7. Practice mental meditation (1 minute): as you inhale, think “I am” and as you exhale think “at peace”; or choose another relaxing phrase.
8. Think of an image of calm strength (1 minute): a tree, a mountain, a face, a flower – whatever springs to mind. Say to yourself: “I am that; no separation”
9. Think of a memory, place or person that always puts a smile on your face (1 minute).
10. Whatever you are doing right now, do it mindfully – take a moment to notice the temperature of the air on your skin, the feeling of your chair underneath you, the ambient sounds in the room.

Additional exercises to practice mindfulness:

- **Traditional Mindfulness Meditation:** this is often a meditation sitting of some length. A meditation sitting can be challenging and it helps to start off with a short amount of time (3-5 min). In a sitting, you’ll want an anchor to help ground yourself. This could be noticing an aspect of the breath, a sensation in the body (e.g., hands, feet on the floor, etc.), a mantra, counting, etc. With any meditation practice it is important to normalize that your mind will wander and to be compassionate towards yourself. Start with 3-5 minutes and gradually increase the length of your meditation sittings.

- **Visualization Exercises:** Imagine a relaxing place in exquisite detail (the smells, sounds, sights, etc.).

- **Body Oriented Exercises:** body scan, passive muscle relaxation, progressive muscle relaxation, yoga, etc.

- **Active Exercise:** Walking meditation, doing an activity with mindful awareness (playing piano, knitting, karate, yoga, household chore, etc.).

- **Sensory Awareness Exercises:** using one or more senses to fully take in an object (mindful eating, taking a shower, putting on hand lotion, etc.).

- **The Pause:** Take a moment to stop, breathe, center oneself, and recognize the intention of this moment.

**“Mini” Relaxation Exercises**

Mini relaxation exercises are focused breathing techniques which immediately help reduce anxiety and tension. You can do them with your eyes open or closed; you can do them any place, at any time. The only time minis don’t work is when you forget to do them. So, go do a mini…

Ways to “do a mini”…

- Switch to diaphragmatic, breathing into your belly and inhaling through your nose and exhaling through your mouth. Your stomach will rise about an inch as you breathe in, and fall about an inch as you breathe out. The first few times you practice diaphragmatic breathing lie on your back to help increase your awareness of your breathing pattern. Remember, it is impossible to breathe diaphragmatically if you are holding your stomach in, so relax your stomach muscles.

**Mini Version 1**

- Count very slowly to yourself from ten down to zero, one number for each breath. Thus, with the first diaphragmatic breath, you say “ten” to yourself; with the next breath, you say “nine”, etc. If you start feeling light-headed or dizzy, slow down the counting. When you get to “zero”, see how you are feeling. If you are feeling better, great! If not, try counting down from 10 again.

**Mini Version 2**

- As you inhale, count very slowly up to four, as you exhale, count slowly back down to one. Thus, as you inhale you say to yourself, “one, two, three, four,” as you exhale, you say to yourself “four, three, two, one.” Do this several times.

**Mini Version 3**

- After each inhalation, pause for a few second holding your breath; after you exhale, pause again for a few seconds. Do this for several breaths.

Good times to “do a mini”…

- When you’re overwhelmed by what you need to accomplish… while waiting in line or waiting for a bus… when someone says something that bothers you… while stuck in traffic… when put on “hold” during an important phone call… in your doctor’s waiting room… at all red light… waiting for a phone call… when in the dentist’s chair… when in pain…

**Resources:**

*The Relaxation Response* (2000), Herbert Benson, M.D.

*The End of Stress As We Know It* (2002), Bruce McEwen.