As a neuroscientist, I am often asked to talk to students about how to take care of their brains. Students sometimes listen skeptically, expecting familiar advice: Don’t do drugs. Wear a helmet. Limit your screen time. Those are all good suggestions, but it’s helpful to understand a little bit about how your brain works, what’s special about it at this time in your life, and what you can do not only to protect it, but to enhance its performance.

A Brain in Progress
One of the most amazing things about our brains is that they constantly evolve and change (a phenomenon known as neuroplasticity), allowing us to learn new things and grow. But did you know that the behaviors you engage in actually change your brain? In fact, between the ages of 8 and 21 (give or take a year or two), the area of your brain undergoing the most changes, the neocortex, is important for behaviors...
that allow you to learn and remember things. This makes your adolescent and teenage years a particularly good time to be in school. The rate and degree of your brain maturation are dependent on how many new things you encounter, and although these changes will continue throughout your life, they are more pronounced during the teenage years.

In addition, the area of your brain known as the prefrontal cortex—which is important for impulse control and moderating risk-taking behaviors—is not fully developed in the adolescent and teenage brain. Did you ever wonder why some teenagers do really stupid things—like “taking a dare” that they know could get them hurt or even killed? Because their prefrontal cortex has not matured, some kids are not capable of making sound decisions in impulsive situations.

**Eat. Sleep. Relax!**

Given that your brain is so “crazy busy” during this time in your life, what can you do to take care of it? The most important thing to remember is moderation—the key to most things in life. Too much of anything—food, water, exercise, studying, video games, you name it—is not good for your brain. Excess actually produces stress, which in small doses is good, as it focuses you and prepares you for the task at hand. But too much stress impedes the ability of your brain to change, and can lead to problems like depression, addiction, or even psychosis.

So get yourself organized. Stay on top of your classes so you don’t end up studying too much right before an exam, or spending an all-nighter writing that paper. And when you are feeling stressed, do something about it. One of the best stress relievers is exercise, whether it’s going for a walk or a run, playing sports, swimming, dancing, or yoga. Playing video games, hanging out with your friends, and watching movies or TV are also stress relievers—as long as you remember the moderation rule. So even if you have a big exam coming up, remember to take some time out from studying. You will be surprised how much better you will be able to perform.

Of course, taking care of your basic biological needs is also an important part of taking care of your brain. Getting enough sleep and eating properly are probably the two most important things for a healthy brain, yet they are often the first things compromised when people are faced with stressful work or school situations. The thing is, if these needs were tended to first, it would help you perform even better!

During sleep is when your brain stores what you have learned. While you don’t learn during sleep, your brain needs that down time to store what you have learned so it can be retrieved later. After a night of studying, the best thing to do is sleep. That way, the information that you put in your brain will be available when you need it. Sleep also restores your immune function, which helps to keep stress levels in check. So sleep a little, recharge, and let your nervous system chill out a little bit. And make time to eat. The brain does not store energy; you need to eat regularly to keep your blood sugar levels steady so the brain has the energy it needs to work properly (and to do all that changing).

**What Not to Do**

One of the most disturbing trends making news is the use of “performance-enhancing” drugs by students who do not need them. These drugs, normally prescribed for people with conditions like ADHD, have been abused by students who don’t have ADHD and are looking for a competitive edge over their peers. The students who take them say they have better focus and are able to stay awake longer, but that “quick fix” is actually doing way more harm than good.

These drugs work by changing the circuits in the brain that affect attention—meaning that they change your brain. Permanently. While these changes may not be harmful to those with ADHD, who truly have problems with these circuits, it will cause long-term problems for those without it. If your brain was functioning just fine prior to taking the drugs, once the changes in your brain are made, your brain will not be able to function as well without the drugs. These drugs are also not specific for the attentional circuits in your brain; they affect the parts of your brain that control mood, heart rate, blood pressure, and thermoregulation. And because some of these medications work in ways similar to speed or cocaine, addiction is a very real danger. Still, some students are willing to take these risks, thinking if they can do well on their AP exams and the SAT, get into a good college, and get a good job, it will all be okay—all the while hiding or denying the fact that they are performance-enhancing drug addicts.

So, what can you do to enhance brain function without drugs? Challenge your brain. That does not necessarily mean studying all the time. Memory and strategy games, word puzzles, playing musical instruments, reading or watching a good mystery, and yes, even video games (in moderation) are all excellent ways to keep your brain sharp. Life is a marathon, not a sprint, and taking care of your body and your brain will help you live long enough to enjoy the results of your hard work. Take care of your brain—so it can take care of you!

**Dr. Linda Gorman** is a teaching professor of psychological and brain sciences and the director of undergraduate studies in the neuroscience program at Johns Hopkins University. Her research interests include neuroplasticity, psychopharmacology, and brain injury.

Dr. Gorman is the founder of Making Neuroscience Fun, a community service project dedicated to introducing the wonders of science in general and the nervous system in particular to students in pre-K through eighth grade.