

The Stuff of Urban Legends

Dana Wu Wassmer
Cosumnes River College

An apple a day keeps the doctor away. That is what I grew up hearing. However, throughout my educational experience, adages like this were never discussed. Over time, more proverbs would surface as old wives' tales or urban legends. The proliferation of information on the Internet has made it even more difficult to distinguish fact from fiction. With the presidential campaign now over, I thought it a good time to focus on the truth of some of these legends.

An apple a day keeps the doctor away

Is it true? What is it about an apple that supposedly promotes health? After a thorough review of nutrition literature, I concluded that, yes, an apple can be helpful. More specifically, the apple peel is most beneficial. Two researchers from the Department of Food Science and Institute of Comparative and Environmental Toxicology at Cornell University conducted a study to analyze the phytochemicals in apples. Apples contain flavonoids and phenolic compounds that can promote health because of their antioxidant and antiproliferative properties. These compounds can potentially inhibit the development of breast and liver cancer, by limiting the tendency for the cancer cells to multiply. The Dietary Guidelines for Americans also promote the consumption of fruits. Studies have shown that people who eat a generous amount of fruits and vegetables have a lower risk of chronic diseases such as stroke, cardiovascular disease, Type II diabetes, and certain cancers. The Guideline recommends 4 ½ cups of fruits and vegetables per day for the average adult. The Guideline also encourages an intake of a variety of different fruits and vegetables. Certainly, an apple is only one of many different fruits to choose from. You may not have to eat an apple everyday, but this concept of having an apple a day is a good reminder to eat at least one serving of fruit every day.

It will take seven years to digest the chewing gum you swallowed

This one is right up there with Santa Claus and the Easter Bunny. I have to admit, I used this one on my children when they were young to discourage them from swallowing their gum. So many mothers before me had used it; it came out of my own mouth quite naturally. It didn't matter that it goes against my knowledge of how the human body functions. It was easier to use this excuse to a three year old than to explain the elaborate process of the human digestive system. The reality is that gum will not stay in the digestive tract for years. When swallowed, the gum substance goes through the same digestive process as any of the foods we consume. It will enter the stomach and continue down the intestinal tract. The gum substance is indigestible and will be excreted with fecal matter. You could be wondering, if that is the case (that gum ultimately is excreted) then what is the harm of swallowing gum? Unfortunately, there have been cases where young children swallowed five to seven pieces of gum per day. This behavior led to chronic constipation and a "taffy-like trail" of fecal matter. As inelegant as this image is, swallowing an occasional piece of gum is harmless. However, children should not get into the habit of swallowing it. Although there is no truth to the adage that gum stays in the gastrointestinal tract for seven years,

swallowing an excessive amount of gum is on a regular basis, can lead to the risk of bowel impaction and constipation.

Swallowing a watermelon seed will cause a watermelon to grow in your tummy

To date, there has not been a documented birth of a watermelon from any orifices of a human being. Any seed that is swallowed will pass through the digestive tract and be excreted. A seed needs sunlight and water in order to germinate and grow. Last time I checked, the intestinal tract is not a place where the sun shines. The outer shell of a seed is indigestible by the human digestive system. In many cases, when seeds are consumed by animals they can then be deposited in a different location when the seed is expelled. This feature ensures cross-pollination, germination, and perpetuation of the plant. Swallowing a modest amount of seeds throughout a lifetime is harmless. However, there is always the possibility that some of the seeds may be lodged in the appendix or diverticula (pouches that form in the colon as a result of excessive straining during bowel movements) and cause an inflammation and infection. Thus, the consumption of excessive amount of seeds *can* be harmful (but it is unlikely). It is impossible to grow a fruit within the human body merely by swallowing its seed. Yet, as a mother, I appreciate the motherly tone to this saying.

Eating sugar causes diabetes

Diabetes is a complicated disease. There are two types of diabetes. Type I diabetes is the result of a defective pancreas resulting in an inability to produce enough insulin to keep the blood sugar (glucose) in check. Insulin's main function is to remove the glucose (that comes from the foods we eat, especially carbohydrates) out of the blood stream and deliver it to individual cells so it can be used as energy. Then, there is Type II diabetes. Type II is usually brought on as a result of weight gain or obesity. In this situation, the body cell no longer recognizes insulin made by the pancreas. Thus, the blood glucose cannot be delivered to the cell to be used for energy. Once diabetes is diagnosed, the intake of carbohydrates, including sugars, needs to be monitored and managed. I can see where the association between sugar and diabetes comes from. However, sugar and the consumption of sugar is not the cause of diabetes. Sugary foods like cakes, cookies, pastries, etc. are high in calories and can promote weight gain when consumed in excess. It is important to remember that weight gain is the result of eating too many calories—regardless of the source of the calories. With weight gain, the risk for Type II diabetes goes up. Thus, an ineffective pancreas or the inability for the body cell to recognize insulin is the cause of diabetes, not sugar.

Do not swim after eating

Good advice or just another ole wives' tale? The fear is that if you swim after eating, you might cramp up and drown. A review of the causes of drowning does not show that eating is a contributing factor. Typically, drinking is the cause of drowning. Therefore, why is this still commonly thought to be true? When you eat, to a small extent, the blood circulation is diverted to the gastrointestinal tract to aid in the absorption and transportation of nutrients just consumed. This diversion means that there is less blood supply to other areas of the body—such as the arms and legs that are used for swimming. Likewise, the diversion could occur in the stomach with exercising muscles causing stomach cramps. Either way, according to this adage, you are condemned to cramps followed by automatic drowning if you swim shortly after eating. In reality,

when you feel a cramp, you should probably slow your physical activity and float (over to the side and get out of the pool) until the cramp goes away. Thus, the risk of drowning is avoided. General recreational swimming, even after a Thanksgiving meal, has not been shown to be dangerous.

Starve a cold, feed a fever

Or is it feed a cold, starve a fever? As a nutrition expert, I will just add that starving is never the answer. By the time you experience a cold or fever, it is a good indication that you may not have eaten very well and your immune system was weakened. At this point, there are a few things you can do or eat to soothe the misery of either a cold or fever. To prevent the onset of any illness, foods rich in antioxidants (like fruits and vegetables) should be consumed on a daily basis. Antioxidants can help the cells maintain their integrity and they'll be less likely to fall prey to the first bacteria or virus they encounter. Once you get a cold or fever, it is too late. You can try to eat foods rich in antioxidants to decrease the severity of symptoms, but the reality is that you have to let the sickness run its course. It is true that your metabolism is slightly elevated when you have a fever. To prevent weight loss, you could probably eat more. Perhaps that is where the adage *feed a fever* came about. However, when you are sick, it is unlikely that you will be performing as much physical activity as you are accustomed to. Thus, your energy output would be less. This decreased energy combined with the energy burned due to an elevated body temperature will most likely cancel the other out. There is no need to either starve or feed a sick person more. A healthy diet rich in fruits, vegetables, whole grains and lean meats is encouraged.

When you are pregnant, you should eat for two

Pregnancy is the most demanding process that can occur in a human body. The idea that the woman is carrying a growing and developing fetus is truly daunting. Does this mean that the woman needs to eat enough for two to allow this miraculous event to succeed? The recommended weight gain for a woman of average weight is 25-35 pounds for the whole pregnancy. A weight gain of three and a half pounds is recommended during the first trimester and slightly less than one pound per week the rest of the pregnancy. While it is true that there is an enhanced metabolic rate during pregnancy, it is not enough to justify eating for two. Consider that the developing embryo is the size of a kidney bean the first trimester, there is not much "growing" taking place. Therefore, the suggested calorie increase is minimal. The following two trimesters are when significant growth takes place along with a rising demand for energy. Thus, the recommendation is to increase the calorie intake by 300-350 calories per day to support fetal growth. An additional 300 calories is equivalent to three glasses of (non-fat) milk. This is hardly what I would call *eating for two*. However, this slight increase in calories is sufficient to promote the appropriate weight gain needed for a healthy pregnancy.

Coffee stunts your growth

If this were the case, Americans would certainly be shrinking based on our addiction to Starbucks and other coffee drinks. Luckily, the average height for Americans continues to climb thanks to an abundance of nutritious food. In fact, there is been no study that links the consumption of coffee to a shorten stature. Caffeine has been identified as the

key ingredient in coffee that may have a harmful effect. However, caffeine was not associated with any changes in bone growth in (pre- and postmenopausal) women. Caffeine is not recommended for children for other reasons and growth is not one of them.

Gelatin will make your nails stronger

The health of your nails depends on environmental exposure and overall health. Eating Jell-O or any gelatin product will not strengthen your nails. Gelatin is made of protein. However, when consumed, the body will break down the protein into its individual components (amino acids) and the body will use the amino acids where they are needed. To illustrate this concept think of amino acids as letters in an alphabet (except there are only 20 letters in this alphabet). Proteins are words created by putting the letters together in the proper order. Let's say for example "**GELATIN**" is a protein. When we eat it, the body will break it down to individual amino acids: **G**, **E**, **L**, **A**, **T**, **I**, and **N**, then deliver each amino acid to different cells to be used to make other proteins (spell other words). The **G** can be used to make the protein, say, "**BUILDING**" and **E** can be used to make other proteins and so on. Thus, what we eat will never retain its original form or function. For instance, just because we eat more meat does not mean we will grow more muscle (if only it could be this easy). The body will break it down and use the individual components for its own purposes.

Many of the urban legends got their start from a little grain of truth. Over the years, the folklore became more believable as more and more people spread the word. "An apple a day" is a good slogan because it reminds you to eat fruits every day. Other adages can be used to promote desirable behavior in children (e.g., not swallowing gum). However, it is also wise to realize that some are completely false.

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