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American Heart Month

Each year, about 650,000 Americans die from heart diseases. American Heart Month is an attempt to raise awareness about heart diseases, such as strokes and heart failure. Ways to maintain cardiovascular health, such as getting 7-8 hours of sleep, be physically active, and reduce sodium intake, are also highlighted.¹

Low Vision Awareness Month

Recognized by the National Eye Institute, Low Vision Awareness Month is in place to help people learn more about low vision, sensory or communication disorders, assistive devices, and rehab services.²

Teen Dating Violence Awareness Month

One out of every ten adolescents report experiencing dating violence in their relationships. In order to promote safe, healthy relationships, Teen Dating Violence Awareness Month helps people learn more about warning signs, positive connections, and how to receive help, such as contacting the National Dating Abuse Helpline at 1-866-331-9474 or 77054 with the text "loveis".³

Sources

1. Know the Difference: Cardiovascular Disease, Heart Disease, Coronary Heart Disease. National Heart, Lung, and Blood Institute. Published October 2021.


For many of us, especially boarding students, choosing to attend Choate was a major decision in our lives — placing our entire social life and well-being on the line for a rigorous education. Starting at ground zero surrounded by total strangers upon arrival was a daunting experience during my freshman year. As someone who is slightly socially awkward and highly averse to confrontation, I find interacting and connecting with different people challenging at times. However, with some luck, I was able to stumble upon a group of freshmen that I immediately connected with.

Yet, despite striking gold with a solid friend group, I knew that I couldn’t always go with the group’s flow. Instead, I needed to control my own social experience at Choate.

Being an antisocial person, I don’t enjoy loud gatherings, chit chat, or large crowds. In my personal experience, I have handled these preferences by maintaining awareness of my surroundings and figuring out which situations I enjoyed and didn’t enjoy before participating in them. To navigate the social scene, you have to respect the importance and value of alone time. Finding that balance of being socially satisfied with others and spiritually satisfied with yourself is key to enjoying your time at Choate.

With varying degrees of social endurance, a “balance” looks different for each Choate student. You may feel an urge to get up and leave your room and be social, or you may feel a desire to stay inside and do your own thing. Either way, it’s totally fine. Be comfortable with who you are and where your decisions lead you.

At the same time, when you feel ready, think about leaning into what might not be entirely comfortable for you because it could turn out to be a massively rewarding experience.

We all need time to share and enjoy our life with others, but, for antisocial people, how do we go about this?

My best advice would be to lean into your interests. Join a club, find a sport, or audition for an ensemble. Emotions are infectious; therefore, people want to be surrounded by happy people. A good place to start forming constructive, positive relationships will be in spaces where you share a common passion or interest. When you are in those spaces, enjoy them. Savor them. Be fully present in them. When you feel yourself drifting to your device or starting to daydream, give yourself some space.

Make sure that you are getting some value or enjoyment out of your interactions, and remind yourself that you aren’t obligated to do anything. Discomfort can be good, but balance is key. Just know that there is no shame in doing your own thing at times because that may be the only way to be at peace alone. Don’t feel apologetic for being antisocial. Spending time for yourself is just as valuable as any other social interaction.
On November 24, 2021, reports of a new variant of the coronavirus reached the World Health Organization (WHO). First isolated in specimens from South Africa and Botswana on November 14 and November 11, respectively, the Omicron variant was designated as a variant of concern by the WHO. The U.S. followed suit, classifying it as a concern on December 1 despite considering the Delta variant as the foremost domestic COVID-19 threat.

Variants of the SARS-CoV-2 virus emerge as mutations occur in hosts with varying rates of transmission and degrees of virulence. For example, the Delta strain was notable for its augmented transmission rate and potential for causing breakthrough cases in vaccinated people. Some variants eventually die out, but it is unknown at the moment whether the Omicron variant will persist. Center for Disease Control (CDC) experts in the U.S. estimate that the Omicron variant will likely be more contagious than the original virus, but it is unknown how it compares to the Delta variant. The CDC surmises that regardless of vaccination status, individuals infected with the Omicron variant are likely to still be contagious. Furthermore, the CDC warns about the possibility of asymptomatic carriers.

As of early December 2021, 36 US states have one or more reported Omicron cases, and that number is expected to increase due to a current lack of known treatment options.

With cases of Omicron growing fastest in South Africa, Britain, and other European countries, more available data is emerging. Hoping that the strain does not manifest into a more severe illness, many health officials hold a positive outlook. The CDC has determined that roughly 3% of all currently sequencing COVID testing kits are of the Omicron variant (as of early December 2021). Regardless of the potential for breakthrough cases, the government maintains their stance that vaccination is the best way to stay safe.
Pfizer has released experimental data for its new antiviral pill, Paxlovid, claiming that it can reduce the odds of death or hospitalization by nearly 90%. U.S. President Joe Biden, encouraged by Pfizer’s new pill, asserts that it is yet “another potential powerful tool in our fight against the virus, including the Omicron variant.”

Although domestic Omicron cases are still relatively low, the WHO Director-General Tedros Adhanom Ghebreyesus states that, “Omicron is spreading at a rate we have not seen with any previous variant. We’re concerned that people are dismissing Omicron as mild.” Ghebreyesus warned, “Even if Omicron does cause less severe disease, the sheer number of cases could once again overwhelm unprepared health systems.”

The Omicron variant is likely to cause a resurgence in domestic COVID restrictions, regardless of its apparently lower severity rates, resulting in 29% fewer hospitalizations. Many are worried that the potential for significant numbers of breakthrough cases may render the current vaccines obsolete, putting additional pressure on the already strained healthcare system by calling for more booster shots. Given the scarcity of current cases in the U.S., Dr. Fauci has said that “we’re just going to have to see when it comes [to] the United States.” Although he predicts Omicron will be “dominant in the United States,” he is confident that communities are more prepared to combat the variant than ever before.

The current prognosis is that despite the fact that Omicron will likely cause less severe symptoms, the variant’s spread in the U.S. is inevitable. Although the worrying aspect of the Omicron strain is the uncertainty surrounding it, confidence must be placed on governments and health officials. While odd instances of potential fatal cases with two strains being simultaneously present, or comorbidities, are being found in South Africa, the likelihood of that occurring in healthy, young vaccinated people is low. Overall, the situation remains murky. Whether or not Choate will decide to respond with online classes or an extended break is still up in the air, and those decisions will most likely come down to the case number in the new year. With the clock ticking down on when the expected surge of Omicron cases in the US will occur, all we can do is wait and observe as we abide by formally tested measures — masking, social distancing, and keeping good hygiene — to do our part in flattening the curve.

Sources

Revealing the Truths of Recycling

By Chloe Chan ’23 and Yoyo Zhang ’24

Recycling, the reprocessing of used materials to generate new products, is a crucial practice in urbanized areas due to the increasing scarcity and cost of natural resources. There are two main types of recycling: internal and external. Internal recycling is the reuse of manufacturing waste, most commonly practiced in the metal industry where ends and trimmings are melted and recast into new products. External recycling, on the other hand, gears toward the recollection of worn-out or obsolete materials, such as linen, newspapers, and aluminum cans. While internal recycling circles back to the original factory, external recycling directs the material toward a new source.

Currently a $200 billion industry in the U.S., recycling has undoubtedly become a part of civil life. The rising awareness of sustainability has led to standardized recycling practices on a large scale. From buy-back centers to curbside collection sites, many options are open for citizens to turn in old or used materials instead of disposing them into landfills. Recycling brings a range of economic and environmental benefits, including generating valuable exports, conserving finite natural resources, and reducing pollution from manufacturing new products. Daily supplies, such as cardboard boxes, plastic bottles, newspapers, aluminum cans, and glassware are all encouraged to be recycled after use in order to protect the environment.

However, in recent years, the topic of plastic recycling has become increasingly controversial. Unlike other types of recyclables, plastic often involves a more complicated process given the variations in the material structure. A 2017 study in Science Advances reported that more than 90% of plastic waste is dumped or incinerated simply because there is no cheap way to repurpose it. The cost of recycling surged when China, a previous prominent buyer of recycled waste from the U.S., closed their doors to imported waste in 2018. As a solution, the U.S. began exporting most of its waste to Thailand, Indonesia, and Malaysia, where waste management has become a big issue. Since the process of recycling and breaking down plastic has become more costly and bothersome, simply producing new plastic is considered to be cheaper and more convenient due to the plastic industry boom. Therefore, it is hard to economically justify recycling such inexpensive plastic at high costs. In fact, according to Roland Geyer, professor of industrial ecology at the University of California, Santa Barbara, only about 20% of the 8.3 billion tons of virgin plastic has been recycled. This is an overestimation, however, considering the many marketing and accounting ploys that have been undertaken by companies.

The infeasibility of recycling plastic is known since the birth of plastic. A report as early as 1973 shows that recycling plastic produces a much lower quality product. Nevertheless, “recycling” is still used as a form of advertisement in the plastic industry. When the abundance of plastic trash had brought plastic products a negative reputation in the late 1980s, the plastic industry had put out “feel-good” projects — sorting machines, recycling centers, etc. — that made no substantial advancements in turning used plastic into new items. These projects, however,
presented consumers the misconception that most plastic items are eventually recycled.

This misconception was further reinforced when triangular symbols were mandated to appear on all plastics. Originally meant to help consumers separate recyclable and non-recyclable plastics, these symbols seemed to do the exact opposite — to the regular consumer, it may just seem as if all plastics were recyclable. In addition, the plastic separation process during recycling became even more burdensome with the contamination of all sorts of non-recyclable plastics.

Though plastic recycling may have its caveats, it is still important to recognize recycling other types of materials. Using products to their full potential helps conserve energy and limit the negative impacts of extracting new material. At Choate, the Sustainability Team promotes recycling practices in the daily lives of students to help build a more eco-friendly campus. Choate adopts the single-stream recycling method, which collects all types of recyclables together to be taken to a Materials Recovery Facility (MRF). The simple process of placing recyclables into any blue bin on campus makes it convenient for everyone to engage in the process. Conservation Proctors (C-Proctors) further help educate people and provide the incentive to support the cause by organizing school-wide events such as the Dorm Recycling Challenge, Thrifty Boars, and Earth Day activities.

Even with this amount of exposure, recycling can still be a hassle for some due to the time it might take to manually sort or clean the material. C-Proctor Lauren Hsu ’24 notes that “[recycling] is more about the effort than the knowledge.” As one unriined container can contaminate a whole bin, taking the time to correctly prepare the material is crucial. Students are equally encouraged to reduce and reuse, in addition to recycling. Especially with complex materials like plastic, carrying a water bottle instead of drinking from plastic cups, using paper or metal straws instead of plastic ones, and shopping with a tote instead of buying a plastic bag are all effective methods to limit waste. As Head C-Proctor Claire Fu ’22 puts it, “I would much rather see that bottle end up as part of a plastic chair than disintegrating somewhere in the ocean for a fish to consume.”

Sources

Americans spend over $12 billion annually on multivitamins and mineral supplements.¹ Despite the popularity, there is a constant debate on whether it is worthwhile to spend money on vitamin pills. Vitamins and minerals are micronutrients that are essential to maintain and execute life functions. Since human bodies do not generate these micronutrients, people receive them through ingesting certain foods.²

Some people believe that taking vitamin pills provides the same benefits as consuming nourishments like fruits, vegetables, whole grains, and healthy proteins and fats.² Others, however, assert that vitamin pills have no impact on their health and therefore should not be taken in place of healthy diet options.

Amidst this dispute, studies have shown that vitamin pills do not have the advantages that companies often advertise.¹ Annals of Internal Medicine notes that 29 clinical trials that the U.S. Preventive Services Task Force regulated did not find proof that multivitamin and mineral supplements prevent cognitive decline or chronic diseases.³ In an editorial of the journal, Johns Hopkins researchers discussed a twelve-year longitudinal study that tracked the intellectual performances and multivitamin use of 5,947 men. This study revealed that the multivitamins did not decrease their chances of mental decline such as delayed thinking or memory loss.¹ Another study Johns Hopkins researchers reviewed in this editorial, which involved 450,000 test subjects, discovered that multivitamins did not lower the probability for heart disease or cancer.¹ Since vitamin pills do not yield the expected health benefits, they may not be worth the expenses.

Not only do vitamin pills lack health advantages, but clinical trials across tens of thousands of people have also found that excessive amounts of beta-carotene, vitamin E, and vitamin A could potentially raise death rates.³ Dr. Edgar Miller, a professor of medicine and epidemiology at Johns Hopkins University, claims that although various studies do not support that supplements bring health advantages, “people continue to take [them], now at record rates.”³ The U.S. supplement industry continues to expand. In 2021, yearly sales hit $28 billion.³ Dr. Miller expresses that people may continue taking vitamin pills because they tell themselves that their diet lacks essential nutrients.³ Nonetheless, this mindset does not change the fact that vitamin pills may not be worth the cost due to the lack of health benefits they bring and the potential danger associated with them. According Dr. Larry Appel, director of the Hopkins Welch Center for Prevention, Epidemiology and Clinical Research, “Pills are not a shortcut to better health and the prevention of chronic diseases.” Instead, he advises maintaining a healthy diet that involves reducing saturated fat, trans fat, sodium, and sugar.¹

Sources

Many people have heard of celiac disease or may even know a person who has it, but not many know what it is and why or how a person develops the condition. Celiac Disease is an autoimmune and digestive disorder of the small intestine, also known as celiac sprue or gluten-sensitive enteropathy. It is a multisystem disorder, meaning it affects several organs beyond the small intestine and causes symptoms, such as gas, bloating, diarrhea, anemia, and growth issues. Those diagnosed with celiac disease are unable to eat gluten because it would damage their small intestine.

Gluten is a protein found in grains, such as wheat, barley, and rye, and it triggers an immune response in the small intestine of those who have celiac disease. The body attacks the villi, or small hairs that line the intestine. Over time, this leads to damages to the small intestine and prevents nutrients from being absorbed, a disorder also known as malabsorption. Malabsorption can disrupt the growth of children and cause other symptoms, such as short stature or delayed puberty.

There are a multitude of other health conditions that accompany the disorder, including malnutrition, osteoporosis, infertility, and in rare cases, cancer of the intestines.

Although there is no cure for celiac disease, there are a number of diet and lifestyle changes that can alleviate the condition. The biggest change someone with celiac disease can make is adapting to a gluten-free diet. This means cutting out pasta, most grains, cereals, or any processed foods because those items contain wheat, barley, and other variations of gluten. Despite missing these foods in their daily lives, the individual is still able to eat a well-rounded diet with foods such as fish, meat, vegetables, fruits, dairy, etc. It is important to be cautious of foods with corn or rice in the grocery store because those items may be contaminated with gluten. Oats, which are a great substitute for gluten products, should also be carefully checked to make sure they have not been contaminated. Additionally, when reading a nutrition label, one should keep on the lookout for einkorn, emmer, spelt, kamut, wheat starch, wheat bran, wheat germ, cracked wheat, and hydrolyzed wheat protein, which are other terms for gluten that may be a part of the food item. Although living a gluten-free lifestyle may be difficult, it is necessary in order to manage celiac disease and maintain the health of the intestine.

Sources
It is not uncommon for students to tackle a second, third, or even fourth language at Choate, especially with dozens of course offerings focused on different languages and cultures around the world. In fact, an estimated 60 million people speak two or more languages within the U.S. alone. With so many people speaking multiple languages, studies into how the brain processes, shares, combines, and expresses non-English words have increased.

In particular, research into code-switching — the shifting from one language to another within a conversation or sentence — has recently made progress in understanding bilingualism. A new study by linguist Sarah Frances Phillips, a graduate student at New York University (NYU), and Liina Pylkkänen, a NYU professor, found that switching between multiple languages was a natural and normal occurrence. "Earlier studies have examined how our brains can interpret an infinite number of expressions within a single language," observed Phillips. 

"This research shows that bilingual brains can, with striking ease, interpret complex expressions containing words from different languages." According to the team of NYU neuroscientists, the brain does not actually detect that another language is being spoken during language switching for those who speak multiple languages. This phenomenon allows bilingual speakers to smoothly transition between languages and understand more than one language at a time.

Using English/Korean bilingual volunteers, the NYU team measured the neural activity of test subjects who were shown a series of word combinations and pictures on a computer and had to match the pictures to the words. For some participants, the words came from a single language (either English or Korean), but for others, both languages were used. With the aid of a technique called magnetoencephalography (MEG), the team found that bilinguals in the
study interpreted multi-language words similarly to the way they did single-language words. Specifically, even when combining different languages, bilingual speakers engage the same brain region monolingual individuals use to string words in a sentence — the brain’s left anterior temporal lobe, which combines individual words into more complex meanings. As Phillips explains: “languages may differ in what sounds they use and how they organize words to form sentences. However, all languages involve the process of combining words to express complex thoughts”.

In their article “Bilingualism in the Early Years: What the Science Says,” Krista Byers-Heinlein and Casey Lew-Williams provide further insight into the logistics of bilingualism: “If a bilingual child does not know or cannot quickly retrieve the appropriate word in one language, she might borrow the word from the other language. Rather than being a sign of confusion, code mixing can be seen as a path of least resistance: a sign of bilingual children’s ingenuity.” The two continue: “while bilingual children typically know fewer words in each of their languages than do monolingual learners of those languages, this apparent difference disappears when you calculate bilingual children’s ‘conceptual vocabulary’ across both languages. That is, if you add together known words in each language and make sure you don’t double-count cross-language synonyms (e.g., dog and perro), then bilingual children know approximately the same number of words as monolingual children.”

There is an oft-repeated quote attributed to the “Father of Europe”, King Charlemagne: “To have another language is to possess a second soul.” Though uttered over a thousand years ago, his words still resonate today. As Phillips and Pylkkänen’s study and Byers-Heinlein and Lew-Williams’ article show, brains of bilingual people function similarly to single language speakers while providing them with the ability to communicate with a greater portion of the population. So, we should continue placing emphasis on learning languages and understanding how the brain functions in the code-switching process.

Sources

It’s the middle of your senior season — potentially your last time playing the sport you love. So far, the year has gone great for you, filled to the brim with fun practices, good teammates, and a league-leading winning streak. Nothing could break your stride except for one small thing: an ache in your left foot. As much as it hurts, however, you avoid telling your teammates and coaches to avoid ending up on the bench; plus, everyone plays through the pain — right? However, after a few practices leading up to your most important games, that “little tweak” turned into a “sprain,” which then turned into a sharp, throbbing pain that you would blow off by leaning slightly more on the right leg. When people ask about the irregular gait, a typical response would be “I just hurt my foot a little, but I’m good to go...”

That’s the story of how you unexpectedly broke your ankle right before your championship game. Worst of all, you didn’t even know your last time on the field, in the pool, or on the ice was really your last.

Though playing with a severe injury is obviously an ill-advised decision, choosing to play with a minor one could potentially be worse. No matter their condition, many athletes are motivated to play through the pain for multiple reasons: pressure from coaches, teammates, parents; not wanting to appear weak; or even the fast-approaching end of a career. Because of these decisions to play through pain — also known as the “warrior mentality” — an alarming amount of sports injuries go undetected.

In younger age groups, a statistic found that over 42 percent of kids revealed that they had concealed an injury. Similarly, another survey showed that half of D1 collegiate athletes admitted that they felt pressure to keep playing while nursing an injury.1

However, as many reasons there are to “push through,” “set a good example,” or “keep that starting spot,” even more reasons suggest that you might be doing more harm than good. Minor injuries, like your “little tweak” eventually develop serious damage. A needle-like pain in your left shin may become a shin splint, and if not treated and cared for, then this injury may even turn into a stress fracture. The progression of a minor to severe injury can potentially bench you for life and give you no choice but to give up the team jersey. Even if the injury is not career-ending, playing with it may result in a longer recovery period. Worse, athletes often subconsciously compensate for their impairment by using the wrong muscles to perform the same motions, resulting in more body parts getting hurt.1

So, do the pros outweigh the cons when it comes to playing through sports injuries? Though external factors may urge us to say “yes,” science is clear: absolutely not.

Sources
Venom from spiders and other animals is often associated with pain and death. However, it is now being researched for its capabilities in the field of pain relief. Many medical labs across the U.S. and Canada are currently studying tarantula venom for its pain-relieving properties. Molecules found within tarantula venom can be used as a direct substitute for opioid painkillers by people who suffer from chronic pain. This is an excellent substitution as tarantula venom can prevent opioid painkiller addictions among its users. The project is part of the National Institutes of Health’s Helping to End Addiction Long-Term Initiative, which aims to end the long history of opioid addiction and create non-addictive therapy to treat pain for people suffering from chronic pain. With over 20% of individuals in the U.S. or around 50 million people suffering chronic pain, and thus experiencing decreased quality of life, it is important to find a better drug alternative.

Researchers at the University of Queensland (UQ) and University of California at San Diego have developed a new tarantula venom mini-protein to treat acute and chronic pain without causing long-term addiction. Dr. Christina Schroeder of UQ’s Institute for Molecular Bioscience said the world’s current opioid problem birthed the development of alternatives to morphine and morphine-like medicines, such as oxycodone and fentanyl.

In this particular study, the researchers didn’t collect venom from tarantulas directly. Instead, they used software to design new copies of the tarantula venom peptide using modern computational biology techniques. The modified peptide could then be produced and used for testing.

Modified venom from the Peruvian Green Velvet Tarantula could help people with chronic pain and has provided the best results among the species that have been researched. To modify the venom from these spiders, labs used computer software called Rosetta, which the University of Washington developed. This sophisticated software allows researchers to create many models of the tarantula venom peptide, which can then be synthesized and tested in labs.

Yarov-Yarovoy, an expert in computational structural modeling, explains, "Using the Rosetta software, we can take a natural peptide and then redesign it and make it into a therapeutic." He also states, "Our lead peptides already show efficiency at the level of morphine, but without the side effects of opioids.

Thanks to modern-day technology and software, we can use resources that previously seemed harmful and turn them into items used to help people.

**Sources**
