

Chapter 3

I Hit My Head— Do I Have a Concussion?

What If: I Hit My Head. Do I Have a Concussion?

Medical Name: Mild Traumatic Brain Injury (Mild TBI)

What most likely happened:

Scenario A: Playing intramural “noncontact” sports when a high-speed ball or another player directly hits your head, knocking your body to the ground and possibly knocking you briefly unconscious. Symptoms may begin immediately or a few hours after the injury.

Scenario B: Rental E-Scooter accidents. Same song, different verse—this time with your head hitting the pavement, a car, or a wall rather than a ball or person hitting you.

Scenario C: Party scene, doing shots . . . and that’s all you remember. You wake up with a wicked headache, confusion, and possibly a bump on your head or scrapes and bruises on your hands/arms/legs that suggest you took a fall. This version typically includes backstory as friends text asking if you recovered from your fall or from “blacking out” last night.

What's going on?

A concussion is often described as a “brain bruise” that occurs from either a physical blow directly to the head or injuries elsewhere that transmit that force to the head, causing a **functional**—*not structural*—injury to the brain. The brain circuits are “shaken,” but no bleeding or direct tissue damage occurs. Therefore, CT and MRI scans **cannot** determine whether you have a concussion. These scans may occasionally be used to look for additional injuries or complications, but they neither confirm nor deny the presence of a concussion, so do not automatically assume you will need one.

Concussions may create numerous temporary neurologic changes, most commonly:

- Headache
- Mood changes (anxiety, depression, irritability)
- Sleep disturbance (too much or too little)
- Nausea and/or vomiting
- Balance issues
- Light and/or noise sensitivity
- Difficulty focusing or “brain fogginess”

Treatment:

The answer is **complete brain rest** for twenty-four to forty-eight hours, then start low, go slow as you return to activities.

Brain Rest means: no screens, no texting, no reading, no listening to lectures. You need a quiet, darkened room where you can comfortably sleep. *The sooner and more completely you comply with complete brain rest, the sooner your brain will heal and you can return to activities.*

Note that **full academic return without worsening symptoms** should happen before you start back on exercise, sports, jobs, or clubs.

Basic Concussion Rehab

Each step should be twenty-four hours. Go back a step if symptoms worsen.

- **Step 1:** Complete cognitive rest for twenty-four to forty-eight hours.
- **Step 2:** Light routine physical activities (cooking, light house work) and trial of thirty-minute segments of cognitive tasks, such as reading/studying. When you are able to tolerate forty-five minutes of academic effort without worsening symptoms, you may return to class. (No work, no extracurricular, no sports yet.)
- **Step 3:** Full return to academics without worsening symptoms (headache, nausea, fatigue)
- **Step 4:** Light, nonimpact aerobic exercise (walking, exercise bike)
- **Step 5:** Moderate activity (treadmill, elliptical)
- **Step 6:** Return to work (low- or no-impact jobs) and nonphysical extracurriculars (meetings, etc.)
- **Step 7:** Sport-specific drills
- **Step 8:** Sport practice: noncontact
- **Step 9:** Sport practice with contact
- **Step 10:** Return to playing sports and full life activities

When to head to your doctor:

As a college student, if you have a head injury significant enough to lose consciousness or have any concussive symptoms, *please get checked out*. At a minimum, concussion inventory scales will give your doctor a baseline to reassess you if your symptoms persist. Professors are far more understanding when they see documentation that a doctor has placed you on short-term “complete brain rest” so you cannot prepare for a test, versus telling them the day of the exam that you couldn’t study the last few days because you think you might have a concussion.

Worst-case scenario:

Concussions, by definition, are temporary neurologic changes, so the good news is that symptoms should resolve. Unfortunately, two “worst-case” scenarios exist:

- **Subdural Hematoma:** This potentially lethal injury comes from the brain being forcibly sloshed forward and backward rapidly,

tearing tiny bridging veins above the brain and under the skull. Because bleeding is extremely slow, symptoms evolve over many days or even a couple of weeks. Instead of symptoms slowly improving, in this case symptoms show up and steadily worsen. If you feel basically okay after a significant head injury but then later in the week become confused or develop nausea, weakness, seizures, or a steadily worsening headache, now is the time for that CT scan to rule out this bleeding problem.

- **Repeat concussions** clearly have a detrimental effect on memory and mood, and research continues to evaluate the impact on cognition and long-term neurodegenerative diseases such as Alzheimer's and Chronic Traumatic Encephalopathy (CTE). Take-home message: the more concussions, the worse the outcome.

Prevention:

- **Helmets**—if you are riding a bike, motorcycle, or scooter, protect your brain!
- **Limit alcohol**—if you do drink, choose beer or wine, **not shots**.
- **Think!** You *know* standing on that wobbly chair or stool to hang posters or strings of lights is risky . . . but it's too much hassle to get a ladder, so you do it anyway. Or your phone or watch buzzes with a text while you're biking, scootering, or driving, and you reflexively "must" answer. Don't do it!!

TIPS:

- The biggest mistake college students make is **not actually resting** their brain. Taking a full day completely off studying, class, work, extracurricular activities, *and screens* will get you back to speed much faster than trying to cut back but continue your work load.
- **Concussion is a clinical diagnosis.** Most head injuries do **not** require a CT scan.
- **No driving** until cleared by your physician; your balance and reaction times are affected more than you realize.

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- Bright lights frequently trigger headaches with concussions, so **wear sunglasses** if outside or in a brightly lit room.
- ***If you have a concussion, avoid ALCOHOL and any mind-altering substance (marijuana); using these substances while your “brain bruise” is healing is like repeatedly hitting a recovering bruise on your arm.***

Chapter 10

Smoking, Vaping, and What You Might Not Know about Pot

What If: I Start Smoking, Vaping, or Using Pot?

Obviously, you know smoking is bad for you, and you likely grew up thinking cigarettes are disgusting . . . yet now you're vaping. Or maybe you've progressed beyond e-cigs to traditional cigarettes, which you know cause multiple cancers, heart attacks, and strokes. Side note: smoking anything (including vaping) also causes bad breath, stained teeth, and weakened, damaged tooth enamel that increases gum disease, tooth decay, and cavities. So, what made you start smoking? Odds are high the answer is JUUL. Nearly one-third (30.7 percent) of teens who use e-cigs will start smoking traditional cigarettes within six months.

Nicotine

No, nicotine alone doesn't cause cancer, but *nicotine doesn't travel alone*. Traditional cigarettes contain over sixty known carcinogens, and e-cigs combine nicotine with metals like nickel, cadmium, and chromium plus volatile organic compounds and flavorings that directly cause acute and chronic lung inflammatory disease. No question that vaping is bad for your

despite knowing it is harming you) is the result. A meta-analysis showed 40 percent can quit cocaine, 18 percent can quit alcohol, but only 8 percent can quit smoking.

- E-cigs randomly explode, mostly while charging (80 percent of the time), but 20 percent of the time this happens in someone's pants, hand, or mouth.
- Some people JUUL to “sober up” after drinking. News flash: stimulants like caffeine and nicotine don't “undo” sedatives like alcohol or pot, *they simply make you a more awake and agitated intoxicated person*. Your reflexes and reaction times are still impaired. Please do NOT drive.
- Nicotine addiction is **expensive**: \$4/JUUL pod or \$6/pack of cigs will quickly deplete your bank account.

Marijuana

Recreational marijuana is legal in many states, and frankly, it's readily available for those seeking it in every state, on virtually every campus. An estimated 5 percent of college students use pot daily, and 38 percent of college students admit to using pot sometime within the last year. Interestingly, however, while 85 percent of students believe their peers are using pot (within the last month), only 18 percent indicated that they had indeed used pot in that time frame. Point is—*not everyone is smoking weed*. Also, consider the following:

- **If you didn't grow it, you don't know what's in it.** Frequently, when people have a “bad trip” with consequences that send them to the ER or our urgent care, they believe they “only” smoked pot, yet their drug screens show not only marijuana, but unexpected other drugs (like LSD or fentanyl). Drug dealers continually search for ways to cheaply make their pot stronger, more hallucinogenic—and they don't mind adding in a pinch of formaldehyde, acid, or other dangerous chemicals to do so. Additionally, since pot is sold by the gram/ounce, some add

sand and glass particles to increase the weight, which increases irritation and damage to your lungs. **Buyer beware.**

- **Regular pot use impairs short-term memory, judgment, motivation, and learning** . . . not brilliant for college success. Studies show frequent pot users have lower GPAs, skip class more, and take longer to graduate. Perhaps more impactful information is that, at the end of the day, regular cannabis users ultimately make less money—they have a “lower lifetime earning potential.”
- **This is not “your parent’s pot”!** THC (tetrahydro cannabidiol) is what makes you “high.” In the 1970s, the THC concentration in marijuana averaged 2 to 4 percent, but stronger sells better, and so today’s THC concentrations exceed 15 percent.
- **What about “casual” use? One in six teens (17 percent) and one in eleven adults (9 percent) won’t be able to keep it “casual,” because they will become dependent on marijuana.** Brains younger than age twenty-five are massively remodeling, which makes them more susceptible to addiction. Our brains continually improve and reshape by adding white matter to speed communication and “pruning” away the less effective connections . . . until age twenty-five. The final area to develop is our prefrontal cortex—the site of executive functions like decision making, impulse control, understanding consequences, and problem solving. Marijuana use (as well as heavy alcohol use or prolonged daily video gaming) disrupts and impairs this process, preventing your brain from reaching its maximum potential.
- **Federal law states: “recreational and medical use of marijuana is illegal.”**
 - In states that have legalized pot, it’s *still illegal for anyone under the age of twenty-one to buy, have, or use marijuana.*
 - It’s a **felony** for anyone to give, share, or sell marijuana with anyone under the age of twenty-one.
- You’ve probably heard of “marijuana munchies,” but did you know pot can also produce intense vomiting? **Cannabinoid Hyperemesis Syndrome** typically occurs in heavy users (those

smoking several times/day), and oddly, the vomiting is relieved by hot showers (but recurs once out of the shower). Treatment involves IV fluids, antinausea medications, and . . . permanently stopping marijuana.

- **“Pot helps my anxiety.”** In an isolated situation, this may be true (although note it can also exacerbate anxiety, add irritability and/or paranoia, or cause a panic attack). Regularly escaping anxiety with mind-altering substances rather than learning healthy coping skills (talking with others, exercise, meditation, music, art) stunts your psychological maturation in addition to the marijuana messing with your prefrontal cortex and final brain development. Ultimately, studies and clinical experience show that using pot (or alcohol) to calm your nerves is at best a temporary solution that ultimately yields worse outcomes for anxiety and depression.
- **Internships & Jobs.** Major companies often drug test their employees, *including summer interns*. How long does marijuana stay in your system? Depends how much you smoke, how often, and your weight—specifically your fat concentration, because marijuana is stored in fat. A nonsmoker who smokes one joint may have a positive urine test for a few days; a “casual” weekend user tests positive for about a week; a daily pot smoker may test positive on a urine test for over a month. *Hair sample testing, however, may remain positive for up to three months.* Nothing ruins graduation weekend like flunking a drug test and losing that dream job you worked so hard to achieve.
 - **Quitting** may be much harder than you expect, especially if you’ve become a daily user. Seek help from your counseling center early (January of your senior year, not April).
 - **Don’t count on a urine drug screen.** All those products you see advertised to “clean” your urine may sometimes help cheat a urine test, but nothing will “clean” your hair.

Chapter 34

Food Poisoning? Nausea, Vomiting, and Diarrhea

What If: I Get Food Poisoning?

Medical Name: Gastroenteritis

What most likely happened:

You felt fine all day, then a few hours after dinner, your stomach didn't feel quite right. Later while attempting to study, your uneasy gut erupted into full-blown nausea and vomiting that came in waves that kept you up for the rest of the night, worsened by progressively intense abdominal cramping and diarrhea. By morning, you are weak, lightheaded, seeing spots when you try to stand up, and every time you try to sip on water or Gatorade, it comes right back up.

What's going on?

Is this food poisoning or a stomach virus? *Does it matter?* Honestly, for your individual treatment, probably **not**. The cause is usually irrelevant, *because the primary treatment is rehydration, rest, and time*. Antibiotics are **rarely** required for nausea/vomiting/diarrhea illnesses, even when the cause is food poisoning.

For community health reasons, we try to identify clusters of outbreaks and their common source—so yes, we will ask where you’ve been eating the past day or two. If we see numerous students within a short time frame who all report eating the same type of food or dining location, it’s time to investigate. However, the onset of symptoms after eating contaminated food varies tremendously, making it challenging to figure out the cause for each individual.

- If you’re vomiting **now**, the problem could be from a contaminated potato or egg salad a couple of hours ago (*Staph* poisoning—symptom onset at one to six hours), infected raw produce the day before yesterday (*norovirus*—symptoms starting in twelve to twenty-four hours), a burger last week (*E.coli* 0157:H7—symptoms begin after one to eight days), or long-forgotten oysters last month (*hepatitis A*—symptoms starting in fifteen to fifty days).
- **Viral infections** (like *norovirus*, a.k.a. cruise ship virus) remain the most common cause of food-borne illness in the United States, and this germ is crazily infectious, ripping through classrooms and dorms. If your roommate was sick yesterday and your suitemates were ill the day before, good chance it’s a *norovirus* (which may be transmitted via food, person to person, or from touching your mouth after touching an infected surface).
- **Bacterial food poisoning** in an otherwise healthy college student with mild to moderate symptoms *usually does not require antibiotics*, and in some cases, antibiotics can worsen the illness (such as with *hemorrhagic E. coli* or *non-typhoid salmonella*).
- **Giardia infection** deserves special mention because we do treat this diarrheal illness with antibiotics. The hallmark symptoms are prolonged (often more than a week) excessive gas (with abdominal cramping and very smelly farting), nausea, and greasy, floating, or watery diarrhea. *Giardia* symptoms begin a week or two after exposure, and although this parasite can be transmitted through food (by infected food handlers with poor hand-washing

hygiene), college students may be more likely infected via swimming (and accidentally ingesting contaminated water) in pools, streams, and lakes.

Ultimately, diagnosis for gastroenteritis is typically presumptive, based on your symptoms and potential exposure time line. Since most gastrointestinal illnesses resolve on their own within a day or two, additional testing is rarely recommended, and even then, stool cultures identify the source less than half of the time. By the way, “stomach flu” does not mean influenza but is simply another way to say gastroenteritis/GI bug.

Treatment:

- Rehydration, time, and rest (and, very rarely, antibiotics)
- Antinausea medication
 - Ondansetron (Zofran) most commonly prescribed

How to REHYDRATE:

- Steadily sip on water, ice chips, frozen popsicles, or a sport beverage, **without** a straw (because straws introduce air into your stomach, potentially worsening nausea/vomiting).
- Avoid excess sugar (which can actually worsen diarrhea) by diluting full-calorie sport drinks with additional water.
- Rehydration solutions (like Pedialyte) include salt, sugar, and water in varying amounts; the “home brew” is mixing ½ teaspoon salt, 6 teaspoons sugar, and 5 cups of clean water.

Don't worry about eating food right away, but when you do eat, start with small amounts and avoid dairy and fatty foods. The traditional BRAT diet (bananas, rice, applesauce, toast) is fine to start reintroducing foods, but there's no need to stick exclusively to those foods.

Avoid caffeine, nicotine, alcohol, and antihistamines (allergy medications) because you are already dehydrated, and these substances will dehydrate you further, worsening your symptoms.

Antibiotics are considered when you have:

- High or persistent fever
- Severe symptoms
- Blood in the stool
- Symptoms that last beyond a week
- Traveler's diarrhea
- A job in healthcare, childcare, or food industry

Should you stop the diarrhea?

- Definitely **not** if you see blood in your stool
- *Though not generally encouraged*, if you have purely watery stools without blood (and no fever), symptoms *may* be helped with:
 - Antimotility medications like loperamide (Imodium)
 - Antisecretory medications like bismuth subsalicylate (Pepto-Bismol)
 - Antigas medications like simethicone (Gas-X)

What about Probiotics?

Probiotic supplements (yogurt, pills, powders) with lactobacilli or saccharomyces have been shown to help infectious diarrhea resolve faster in children, but the evidence is less definitive in adults. Bottom line? *They might help, but not a strong recommendation.*

Head to your doctor if you:

- Cannot keep down fluids.
- See blood in your stool.
- Have fever (temp greater than 100.5°F).
- Have diarrhea that persists more than a few days.
- Have recently taken an antibiotic.
- Have recently traveled to another country.
- Work in childcare, healthcare, or food service industry.

Worst-case scenario:

Usually the worst-case scenario is severe dehydration that requires IV fluids to rehydrate you (which can typically be done at your university clinic).