

CHAPTER 33

BIRTH CONTROL PILLS + CHEST PAIN= SERIOUS PROBLEM (till proven otherwise!)

What If: Your Chest Pain is from an Uncommon Cause (Blood Clot in your Lung)

Medical Name: Pulmonary Embolism

What most likely happened:

You are a female college student on birth control pills, and last weekend you survived an eight-hour-long, miserable middle-seat-squeezed-between-two-sleeping-humans flight back from studying abroad. Now your chest feels tight, your heart won't stop racing, and as you walk to class, you start coughing and can't seem to catch your breath. Your legs may seem completely normal, or one of your calves may appear swollen, tender or red.

NOTE: If you are a female college student who takes birth control pills (or a transgender person taking female hormone therapy), and you call your campus clinic saying you are having ANY type of chest pain or shortness of breath, you will likely be asked to come straight in to be examined. While your chest pain or shortness of breath is far more likely to be coming from your chest muscles, GI tract (heartburn) or asthma, our job is to be sure you are not having the serious, much less common problem of a blood clot in your lungs. These clots can form in the lungs but more typically they quietly form in the calves and travel to the lungs.

What's going on?

Several common risk factors increase your chance of forming leg clots (deep vein thromboses) that can then migrate to the lungs to wreak havoc (pulmonary embolism):

- Estrogen (manufactured in your body or taken as a prescription medicine)
- Prolonged sitting
 - Primarily trips > 4 hours where you cannot get up and move around like a cramped plane flight; however, around midterms or finals, we see this from sitting in front of a computer or at a desk studying all day
- Smoking
- Recent surgery
- Pregnancy
- Being Overweight

College students frequently combine many of these risk factors, especially smoking, birth control use and prolonged sitting.

How common are blood clots? And are they only from “the Pill”?

Let's get perspective from these annual estimates:

How many women are likely to get a blood clot based on hormonal status:

- 1-5 women out of 10,000 healthy, non-pregnant women
- **3-9 women out of 10,000** healthy, non-pregnant women taking oral contraceptive pills
 - **Roughly 3-fold increased risk by taking “the pill”**
- 5-20 women out of 10,000 healthy PREGNANT women during pregnancy

- Usually referenced as a 10-fold increased risk from pregnancy
- 40-65 women out of 10,000 healthy women in the first three months AFTER pregnancy
 - Highest risk group is post-partum, meaning after giving birth

Treatment:

The first step is diagnosis, but know that the answers are often more grey than black and white.

- Blood test: D-Dimer is a test that if low or negative, can reassure us that there is no clot. An elevated D-Dimer does not confirm presence of a clot, but it does mean we need further investigation, including some type of imaging.
 - Many campus clinics can check D-dimers, but then must transfer the student to an emergency room for the next level of diagnostic tests
- Duplex ultrasound: non-invasive test to look for clots in leg or arm veins
- Additional imaging at hospitals may include chest scans or dyes injected into veins

Once a blood clot is confirmed in your leg, arm or lung, the treatment will be blood thinners (which may be given via IV, injection, or in pill form, with type, treatment length and follow all dependent upon the size and location of your clot, as well as the rest of your medical history.)

Head to your doctor if:

- You feel short of breath or are breathing too fast (more than 20 breaths/minute)
- Your heart is racing for no reason
- You have unexplained chest pain
- You have unexplained arm or leg pain, redness or swelling

Worst-case scenario:

Blood clots, especially those that travel to the lung, are potentially LETHAL. Common? Thankfully not. But they are SERIOUS, so we never want to miss one.

Prevention:

- STOP SMOKING (or don't start!)
 - What about vaping? Few quality studies yet purely on vaping, but obviously vaping has high concentrations of NICOTINE, which DOES increase your risk of clots, heart attacks and strokes. Don't vape.
 - What about POT? Do we really need to go here? Again, not legal long enough for excellent studies but we know pot has negative cardiovascular effects. Lots of reasons to avoid pot, so add this to the list.
- If you are in an all-day study session at a computer, set an alarm for short breaks every 1-2 hours, and get up to walk for 5 minutes.
- Before a long flight, take an aspirin (it's blood-thinning ability prevents clot formation) and consider compression travel socks. During the flight, make sure to get up and walk in

the aisle (head to the bathroom) every couple of hours.

TIPS:

- **Chest pain or Shortness of Breath + Birth Control Pills = Potentially Serious Problem (Until Proven Otherwise!)** *We'd rather see a thousand students with symptoms that do NOT have a pulmonary embolism than miss one person who HAS this problem.*
- *Pregnancy* increases your risk of developing a blood clot by a factor of 10 (occurring in 1/1000 pregnancies, and more commonly than that in the first 12 weeks after giving birth), while *birth control pills* increase your risk by a factor of 2-6. **Take home message: For a nonsmoking, otherwise healthy, sexually active young woman, fear of clots should not cause you to avoid taking the pill.** Also, there are other non-hormonal choices of contraception if you have other risk factors.
- The increased risk of clotting is also true for Nuvaring (the vaginal form of birth control) as well as Orthoevra (the birth control patch)- it's the estrogen, not the delivery method.