

Molly Listen

Writ 1133

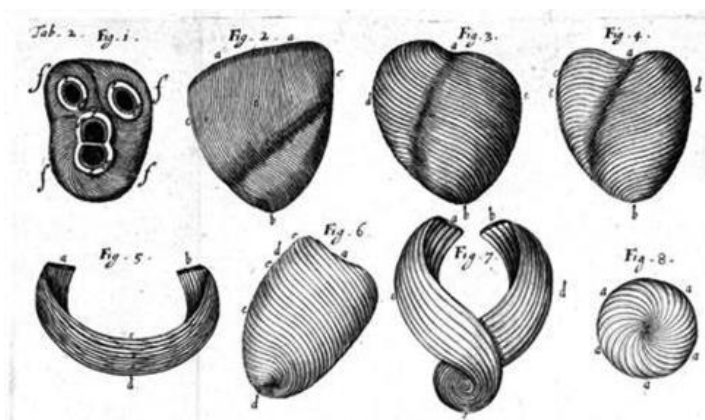
Heart to Heart

1. When you say the Pledge of Allegiance, you put your right hand over your heart. Maybe you'll visit the Big Apple and get a shirt that says "I © New York." If you fall in love, you might feel your heart flutter. You might buy your loved one a heart-shaped candy box on Valentine's day. You could move away, and absence might make your heart grow fonder, or you could be left heartbroken. Your best friend might ask you to have a heart-to-heart, or tell you that you have a heart of gold. Chances are, you've played a game of cards, maybe even a game of "Hearts" where one of the worst cards is the Queen of Hearts. If you go on a run, you might feel your heart rate increase. Or maybe you've sung all the lyrics to "Achy Breaky Heart" or "Don't Go Breaking My Heart." But what's in a heart?
2. Anatomically, the heart is an organ that is made up of muscles, veins, and arteries. According to the *National Heart, Lung, and Blood Institute*, the heart is defined as the muscular organ that pumps blood to your body. The Institute states, "Your heart is at the center of your circulatory system. As an organ, the heart looks something like a pear or a pinecone, but it is typically only featured this way in anatomy sketches and medical journals. When learning about the different parts and functions of the heart, I watched [this fun little video](#) which helps to illustrate the process. Of course, most everyone is familiar with what a heart is, because everybody has a heart (organ).
3. Symbolically, the heart icon is depicted as having two rounded mounds on top with a point at the bottom. It is usually red or pink and is featured on Valentine's day cards, social media, and in popular culture. Take for example these [colorful candy hearts](#), filled with expressions of love and affection.



4. Although we recognize these two shapes as being drastically different now, the anatomic and symbolic heart shapes used to bear some striking similarities. Take for example physician [Richard Lower's sketches of the heart](#) from 1669, as featured in *Clinical Anatomy*. Although these are anatomical sketches, Figure 4 doesn't look a whole lot different from a heart that might be seen on a Valentine's Day card. However, humans'

understanding of the heart's function, anatomically and in popular culture, has changed drastically over time.



5. You know those people who are obsessed with horses? Or people that love kids? I've always been that way with hearts. When I was younger, me and my best friend at the time wore a matching Halloween costume. Each of us was half of a heart that said "best friends" on it, with a jagged line down the middle. Eventually, the two of us drifted apart and so did each side of the metaphorical broken heart.
6. In an article featured in *The American Journal of Cardiology*, cardiologist Joseph K. Perloff states, "Since the dawn of cultural history, the pulsating heart has been magical – an organ that beats in our chest with a steady rhythm." While Perloff is obviously referring to the heart's anatomical function, the heart has also transformed into a prevalent icon in popular culture. A prime example of this is in the scene of *Indiana Jones and the Temple of Doom*, when [a man is shown getting his beating heart ripped out of his chest](#). The way the skin heals itself, and the way the heart continues to beat outside of the body are both pretty magical, and I'm pretty sure Perloff would agree.
7. Of course, the heart has come to symbolize far more than an anatomical structure intertwined with arteries and veins in the modern day. When I think of hearts, I am reminded of songs that reference hearts, love, and romance. To prove this theory, I conducted some content analysis. I examined "Billboard's Top 100" list, every week and month of the year from the first week of January 6, 1996 to the week of May 7, 2016.
8. I first recorded every single song in the past two decades that referenced "Heart" in the title. I found 79 separate songs (WOW!). For songs that had "Heart" in the title, I recorded each time hearts were represented anatomically (i.e. heart beat, heart attack, bleeding etc.), emotionally (i.e. love, sadness, metaphors involving hearts, etc.), if they contained elements of both emotion and anatomy, or neither. After analyzing the data, out of the 79 total songs, 36 of them (about 46%) included strictly "emotional" elements, 2 songs (2.5%) included strictly "anatomical" elements, 37 songs (roughly 47%) included both "emotional" and "anatomical" elements, and 4 songs (5%) included neither "emotional" or "anatomical" elements.

9. While this content analysis strongly suggests that hearts are used as a symbol of love and romance in the modern day, I found this exercise to be most useful at diversifying my musical knowledge. Some of my personal favorite songs are “My Heart Will Go On” by Celine Dion (1998), “Heartbreaker” by Mariah Carey Featuring Jay-Z (1999), and “Heartless” by Kanye West (2008). If you would like a truly horrific example of how hearts are used in popular culture, I encourage you to watch Lindsay Lohan’s [“Confessions Of A Broken Heart \(Daughter to Father\)”](#) and yes this actually exists.
10. However, songs aren’t the only instance where songs are used in popular culture. After testing in the summer of 2015, Twitter replaced “favorites,” denoted by the yellow star symbol with “likes,” represented by a red heart icon. According to an article on *The Verge*, “likes and hearts have become a kind of universal currency of the social web, from Facebook to Tumblr to Instagram.” [Another article, on Adweek](#) reveals that the company said it thought the old button (star icon) was too confusing. Hearts are becoming the universal way that people express that they “like” or “love” something. Take Twitter’s announcement tweet for example:



11. I have signed my name with a tiny heart symbol at the end for as long as I can remember. When I was in first grade, I remember going through a particularly rebellious period where I dotted every single one of my “i’s” with hearts. But today, my driver’s license features a heart next to my signature and a red heart that signifies that I am an organ donor. It looks a lot like the little Twitter heart symbol.
12. Even the iPhone emoji keyboard includes twenty-seven separate emotions that feature the heart shape. And I use almost all of them on a very frequent basis. Mom gets a heart, Dad gets a heart, brother gets a heart, and friends get a heart. Neighbor? Coworker? Stranger? Maybe just a yellow heart.
13. However, the use of the heart symbol as an indication of love and approval is not new. The article on *History.com* reaffirms, “Since the human heart has long been associated with emotion and pleasure, the shape was eventually co-opted as a symbol of romance and medieval courtly love.” The heart was thought to be connected to emotion, feeling, and

love, so it makes sense that it started being depicted as a love symbol in art, even hundred of years ago.

14. Former neurosurgeon and author of *The Shape of the Heart*, Pierre Vinken claims that the first illustration of a heart outside of anatomical literature occurred as late as the 13th century in a French manuscript entitled *Roman de la poire*, which translates to *Romance of the Pear*. In the image, a suitor is pictured kneeling before a lady and offering her a heart. However, the shape of the heart is not the traditional heart-shape that covers Valentine's Day memorabilia; the heart in *Roman de la poire* resembles a pine cone, a shape that closely resembles the shape of the heart in anatomical literature. The *Roman de la poire* provides one of the earliest connections between the anatomical heart shape and the modern symbolism of the heart.



15. I bet the artist thought he was super fancy and metaphorical in his illustration. "I offer you my sad pear shaped organ as a token of my love to you." Ahhhh romance.
16. Today, the suitor might instead offer his lover a heart of gold. Or in this case, a heart of platinum. The Tiffany & Co. Soleste® Heart Engagement Ring features a 2.5 carat diamond in the shape of a heart, surrounded by small bead-set diamonds and platinum. And it only costs \$60,500.
17. I also wear several pieces of heart jewelry. My favorite is a tiny gold ring that says "Love" on it. Except, instead of a circle shape, the "o" is shaped like a heart.
18. Another popular heart ring is the ["Claddagh Ring."](#) which features a Celtic design and a heart shape. If you wear it on your right hand, pointed out, you're single. If you wear it on your right hand pointed towards you, you're in a relationship. If you wear it on your left

hand pointed out, you're engaged, and if you wear it on your left hand facing towards you, you're married. In this case, the orientation of the heart symbol indicates whether or not your heart is "open" or "closed."



Single

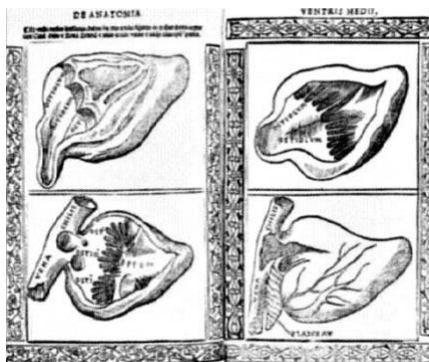


Not Single

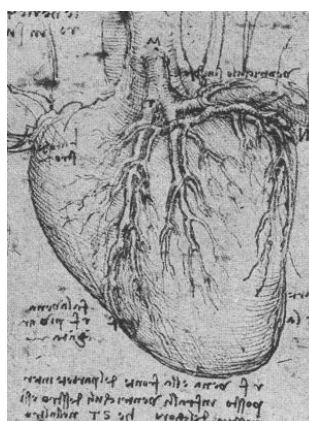
19. But of course, humans aren't the only living things with hearts. As described in Brian Doyle's "Joyas Volardores," mammals and birds have hearts with four chambers. Reptiles and turtles have hearts with three chambers. Fish have hearts with two chambers. Insects and mollusks have hearts with one chamber. Worms have hearts with one chamber, although they may have as many as eleven single-chambered hearts. Unicellular bacteria have no hearts at all; but even they have fluid eternally in motion, washing from one side of the cell to the other, swirling and whirling. Poor bacteria, maybe we should tell the bacteria to "have a heart," although they probably wouldn't hear us, because bacteria don't have ears either. Life must suck when you're bacteria.
20. Maybe bacteria should get together with the Tin Man from *The Wizard of Oz*. They could totally bond over not having a heart. Maybe they could even sing the lyrics to "If I only Had a Heart" together:

*When a man's an empty kettle he should be on his meddle
And yet I'm torn apart.
Just because I'm presumin' that I could be kind-a-human,
If I only had a heart.
I'd be tender - I'd be gentle and awful sentimental
Regarding Love and Art.*

21. And if you're not convinced about where the heart shape came from yet, an article on *History.com* also explores the origin of the heart symbol. It hypothesizes that the modern-day symbol evolved when artists and scientists attempted to draw representations of ancient medical texts. Galen, an Ancient Greek physician, surgeon, and philosopher, and Aristotle, a famous philosopher and scientist, described the human heart as having three chambers with a small dent in the middle. In the 14th century, the Italian physicist Guido da Vigevano created anatomical heart drawings that resembled the shape described by Aristotle. Although, the human heart actually has four chambers, not three. And most of the drawings influenced by Aristotle's findings resemble the sad pear shape (like in *Roman de la poire*) closer than an actual human organ. Here is a picture of a few of Aristotle's sketches from around 384 B.C. that are featured in *Clinical Anatomy*.



22. Fast forward a few hundred years later from the sad pear sketches, and here is an example of Leonardo da Vinci's understanding of the heart. This sketch is from around 1400 A.D. and is featured in the "History of cardiac anatomy: A comprehensive review from the Egyptians to today." Leonardo da Vinci was the first to describe the four main chambers of the human heart as we know them today.



23. In an excerpt from *Anthropology and Medicine journal*, Martin Kemp, a famous art historian, published a paper based on ethnographic fieldwork in England. In his research, he addresses the relationship between the experience of psychosocial distress, and the sociocultural constraints on language and experience. Some patients used a "sinking heart" to express their experiences of distress through the body. Sinking heart is used to express loss of social or emotional control. This is one example in which the word "heart" is commonly used in sayings, idioms, and phrases in everyday language.
24. One of my favorite of these sayings is "bless your heart." This is a phrase my grandma has used since I was a child. Of course, it's not actually used as a sign of sympathy. Usually my grandma will say something like "she had a breakout on her face, bless her heart." *Urban Dictionary* defines the term as, "used by people of the southern United States particularly near the Gulf of Mexico to express to someone that they are an idiot without saying such harsh words." Nonetheless, dozens of other [common phrases and sayings involve the heart](#). A few others are: "from the bottom of my heart", "half-hearted", "change of heart", and "absence makes the heart grow fonder."

25. But I don't mean to hate on my grandma. She once spent an entire year collecting heart-shaped rocks and stones at her and my grandpa's ranch in Wyoming. She put them all in a heart-shaped box and gave them to me for Christmas. That was sweet of her. And if the phrase wasn't completely useless, I might say "bless her heart."
26. For a sincerer blessing of one's heart, there are numerous references to hearts in the Bible. This is a testament to the fact that hearts have been a prevalent symbol throughout history. One example is in Ezekiel 36:26, "I will give you a new heart and put a new spirit in you; I will remove from you your heart of stone and give you a heart of flesh." In this context, the heart could be interpreted both metaphorically (heart of stone) and anatomically (heart of flesh).
27. The heart has also been used as a symbol for hundreds of years in religious literature and iconography. In fact, the Catholic Church resists other theories, and asserts that the modern heart developed for the first time in the 17th century, when [Saint Margaret Mary Aloccoque](#) had a vision of it surrounded by thorns. This symbol eventually evolved as the [Sacred Heart of Jesus](#), and has long-since been associated with love and devotion. An article by Keelin McDonell on *Slate.com* reaffirms that this theory exists, but counters it by noting that most scholars agree that the heart shape has existed much earlier than the 1600s.



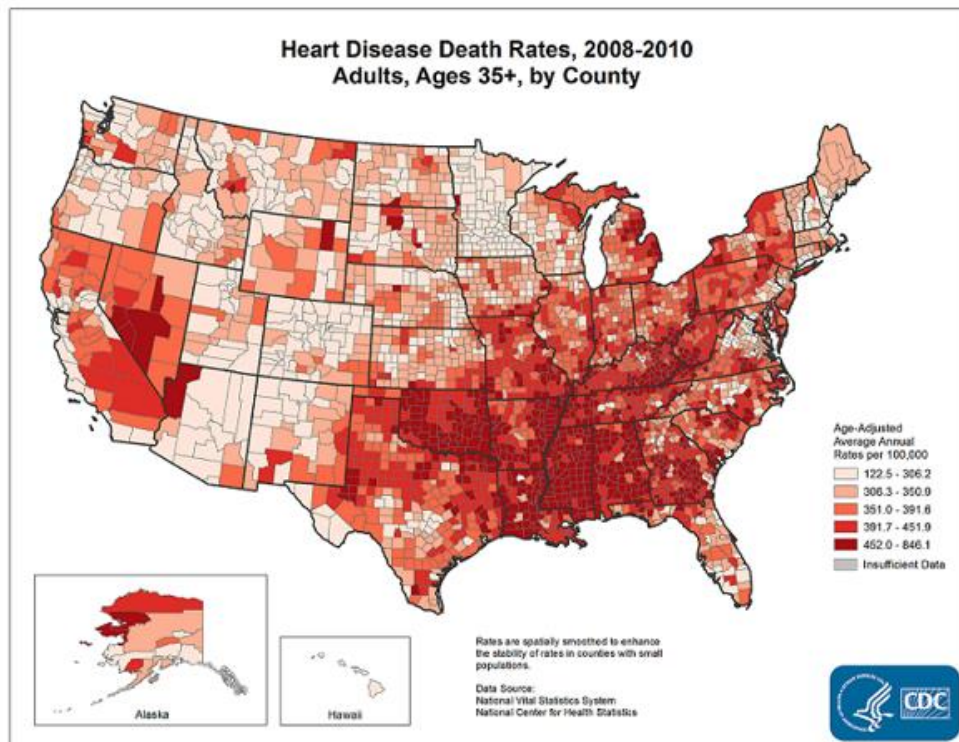
28. Although not in the biblical sense, cardiologists can provide patients with an entirely new heart. In the memoir *100,000 Hearts*, pioneering surgeon Dr. Denton Cooley describes how he performed a human heart transplant in 1969 and became the first surgeon to successfully implant a totally artificial heart in a human being.
29. The operation proved that a totally artificial heart, or TAH, could be used as a bridge to cardiac transplantation. The TAH is called the "Liotta artificial heart" and it is now displayed in the Smithsonian Institution in Washington D.C. This historic procedure was only the beginning of cardiac research advancements in the coming years.

30. Having a totally artificial heart seems a lot like the Tin Man, our buddy from *The Wizard of Oz*. Instead of a real human heart, the Wizard presents him with a red, heart-shaped clock that actually ticks. This is kind of similar to the artificial hearts that Dr. Cooley installed in humans. In both cases, these “artificial hearts” serve as a replacement to the blood-pumping organs that humans have.



31. Only a few hundred years ago, before we had an advanced medical understanding of the heart, humans thought that hearts and emotion were intrinsically linked. In an academic study from *The Neuroscientist*, Charles G. Gross examines Aristotle’s views about the brain and heart. Ancient Greek philosopher, Aristotle, who studied anatomy, hypothesized “the brain is not responsible for any of the sensations at all. The correct view [is] that the seat and source of sensation is the region of the heart.” Essentially, Aristotle claimed that your heart was connected to emotion and love. Perhaps this can help explain why a lot of historical illustrations featured hearts and how they evolved to become a symbol for love.
32. We know today, thanks to people like Helen Fisher, anthropologist and human behavior researcher, that the heart has very little to do with emotion. In a study called “Romantic Love: A Mammalian Brain System for Mate Choice,” Helen Fisher explains that nonrepinephrine, a chemical released in the brain, stimulates the production of adrenaline. In the study, she says this chemical is responsible for “increased heart rate, sweating and trembling, central norepinephrine may contribute to these aspects of romantic love/courtship attraction as well.” So it turns out that your brain, not your heart, is responsible for feelings and emotions, including love and attraction.
33. I guess Aristotle was a little off. I think we should cut his outdated findings some slack though because they are literally ancient. Hundreds of years later, we recognize that the brain is widely considered the emotional hub of the human body, but the connection between the heart and emotion has outlasted Aristotle’s hypothesis. Maybe hearts were adapted as a symbol for love throughout history simply because of a misunderstanding, but regardless, they hold special significance both anatomically and symbolically today.
34. On a more serious note: Unlike the glorified heart-shaped ticker of the Tin Man, the human heart is prone to a number of diseases. In an article from *Medical News Today*, heart disease is identified as the leading cause of death for both men and women in the U.S. and is also the leading cause of death worldwide. That means that in the United States, heart disease outranked cancer, chronic lower respiratory disease, accidents, stroke, Alzheimer’s disease, diabetes, influenza and pneumonia, kidney disease, and suicide on the list of top 10 causes of death. In total, heart disease accounted for 611,105 deaths (23.53% of total deaths) in 2013. That is enough to make anyone’s heart heavy.
35. Not only do many common Americans suffer from heart disease, but in 2014, *Good Housekeeping* made a list of celebrities struggling with heart disease. Even with the money, resources, and time to avoid health issues, celebrities are not exempt from heart problems. Here is the list:

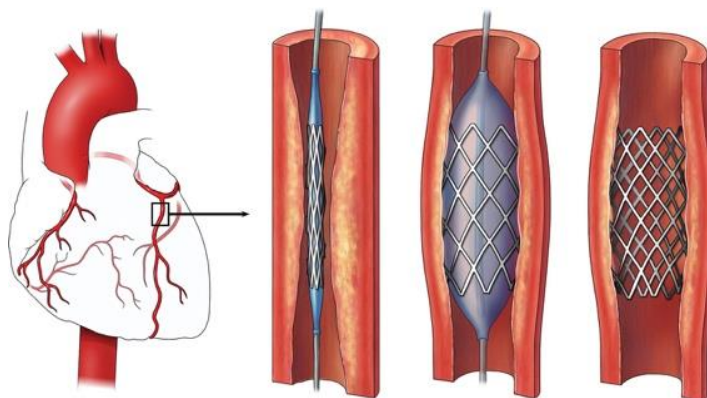
- a. Jennie Garth (*Beverly Hills 90210*)
 - b. Alex Trebek (*Jeopardy!* Host)
 - c. Shaun White (Olympic and X Games gold medalist)
 - d. Barbara Walters (former host of *The Today Show* and *The View*)
 - e. Regis Philbin (former star of *Live with Regis and Kathie Lee*)
 - f. Bill Clinton (former President of the United States)
 - g. Toni Braxton (Grammy winner)
 - h. Burt Reynolds (Actor; *Smokey and the Bandit*, *The Longest Yard*)
 - i. David Letterman (TV host and comedian; *Late Show with David Letterman*)
 - j. Kelsey Grammer (*Frasier* star)
 - k. Star Jones (Former co-host of *The View*)
36. A map of the United States from the Centers for Disease Control and Prevention illustrates death rates as a result of heart disease between 2008-2010. Comparatively, Colorado appears to be healthier (lighter in color) than many of the other states that suffer from heart disease. Perhaps this is a result of the healthy lifestyles and eating habits that most Coloradans boast, although Heart Disease can also be hereditary. The map is pictured below, with darker red areas depicting higher average annual deaths:



37. Heart to heart. In the case of my family, heart conditions pass from heart to heart, or from generation to generation. My grandpa has three heart stents, and both of my grandparents have high blood pressure, triglycerides, and cholesterol, despite living active and healthy lifestyles. In February of this year, my dad had a heart attack, and had an emergency heart stent put in. Ironically, my dad got his heart attack after attending his “Body Define Yoga”

class (yoga with weights and cardio), that he attended four times a week for an entire year up until his incident. However, I hadn't realized that heart conditions can be hereditarily-linked.

38. **Heart Attack** (sometimes called myocardial infarction or MI). As we learned before, your heart is the organ responsible for pumping blood to your body. *WebMD* provides a comprehensive description of what a heart attack is. Basically, the heart requires a constant supply of oxygen-rich blood to nourish it, and the coronary arteries provide the heart with this critical blood supply. Fatty matter, calcium, proteins, and inflammatory cells build up within the arteries and form plaque deposits that are hard on the outside and soft on the inside. When the plaque is hard, the outer shell cracks and platelets (disc-shaped particles in the blood that aid clotting) come to the area, forming blood clots around the plaque. If a blood clot blocks the artery, the heart becomes "starved" for oxygen. Death of heart muscle occurs, causing permanent damage to the heart.
39. For those of you who don't know, [a stent is a tiny wire mesh tube](#) that helps keep coronary arteries open, and reduce the chance of a heart attack. To relieve heart attack symptoms, a stent is inserted into the blocked artery and expanded to increase blood flow. The picture below illustrates a stent being put in:



40. Even after reading a description of a heart attack, I couldn't really picture what was happening. The following video provides an animated representation of what happens during a heart attack. [This video](#) helped me gain a better understanding of what actually takes place inside the body, without so many abstract medical terms.
41. When my dad had his heart attack, I was actually at home sick with the flu. He drove to get me a smoothie before driving himself to Urgent Care, without telling me anything was wrong. When he walked in to Urgent Care, he was having a heart attack right then, and they rushed him to the hospital by ambulance to perform emergency surgery to put a stent in.
42. For me, this was a wake up call. When my mom called me from the hospital, I was sure there had been some type of mistake. We had spent the entire day together, just 24 hours before his heart attack. We spent a relaxing Sunday afternoon with my family and watched the Broncos win the Super Bowl. The week before his heart attack, my dad drove to

Denver to visit me, and we went to a movie, went on a walk, and had dinner together. As I mentioned before, my dad had also been consistently going to cardio yoga several times a week. I couldn't believe that my active, young father was laying in a hospital bed. From the outside, he appeared to be 100% healthy.

43. Immediately following his stent procedure, my dad was put on a laundry-list of medications and his physical activity was severely restricted. He has been going to cardiac rehabilitation classes for the past 10 weeks, where he is hooked up to wires and monitors, and is supervised during physical activity. My mom calls him "the heart patient."



44. Of course, heart issues run in other peoples' families too. [Snow White's stepmother sent an actual huntsman to kill her stepdaughter](#). He was told to bring back her heart in a box (with a Valentine heart symbol) as proof that she was dead. Vicious. It's ok though because I'm pretty sure my dad has accepted the fact that he's not the fairest one of all, so I don't think my heart is at risk, aside from my terrible genes.

45. But let's not forget the heart's connection to love and affection. Cardiologist Joseph K. Perloff notes that, "As a universal logo of love, the heart appears everywhere from Valentine cards and candy boxes to bumper stickers and popular songs." However, after considering the number of deaths that heart-related issues are responsible for, and considering that the heart organ actually has very little to do with emotion, it seems very strange that the heart is used so widely in popular culture.

46. I really started noticing how prevalent hearts were following my dad's heart attack, which occurred on February 8th. Only a matter of days before Valentine's day, there were heart symbols *everywhere*. Even the [AED machine](#) in the lobby of my dorm, which is used to treat sudden heart conditions through defibrillation, is cutely packaged inside of a romantic heart shaped box.



47. There is a high possibility that my dad passed on his genes to me and my older brother. Considering the hereditary factors, our risk is significantly heightened for heart-related conditions later in life.
48. But as medical technology has developed, so has our understanding of the heart. Genetic advancements can now help to identify genes that cause heart attacks. In "The genetics of heart attack," M.D. Eric Topol examines the "genes that are implicated in susceptibility or cause of myocardial infarction (MI)." In the future, Topol says that advances in genomic medicine will allow for improved prevention and genetic screening to treat at-risk patients for tailored prevention. Of course, this could be incredibly beneficial for people like me and my brother to detect or prevent issues related to the heart.

49. Following my dad's heart attack, it has been difficult for me to ignore that I am my father's daughter. Last week, my dad graduated his final session of "cardiac rehabilitation" class. When he showed me his completion certificate, I noticed a rather large, red, Valentine heart in the middle of the page. Following the initial heart attack, the stent, wires, monitors, medications, and doctor's appointments, I couldn't help but chuckle that this strenuous journey was concluded by a heart symbol. But, I guess it isn't too strange, especially if you're Aristotle...
50. For me, the heart has special significance because of my connection to my dad. But, the heart means something different to everyone. Not only is it one of our most vital organs, but it is one of the most popular symbols in society. So the next time you "like" a post on social media, drive down the road and see a heart bumper sticker, visit a souvenir shop, or walk down the holiday aisle in February, think about the heart. Think about the heart when you walk briskly to your next meeting that you're already 15 minutes late to and you can feel the gentle pulsing throughout your body. And think about the heart the next time you tell someone you love them. I would like to thank you from the bottom of my heart for reading this entire paper. I heart you.



Word Count: 4,472

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