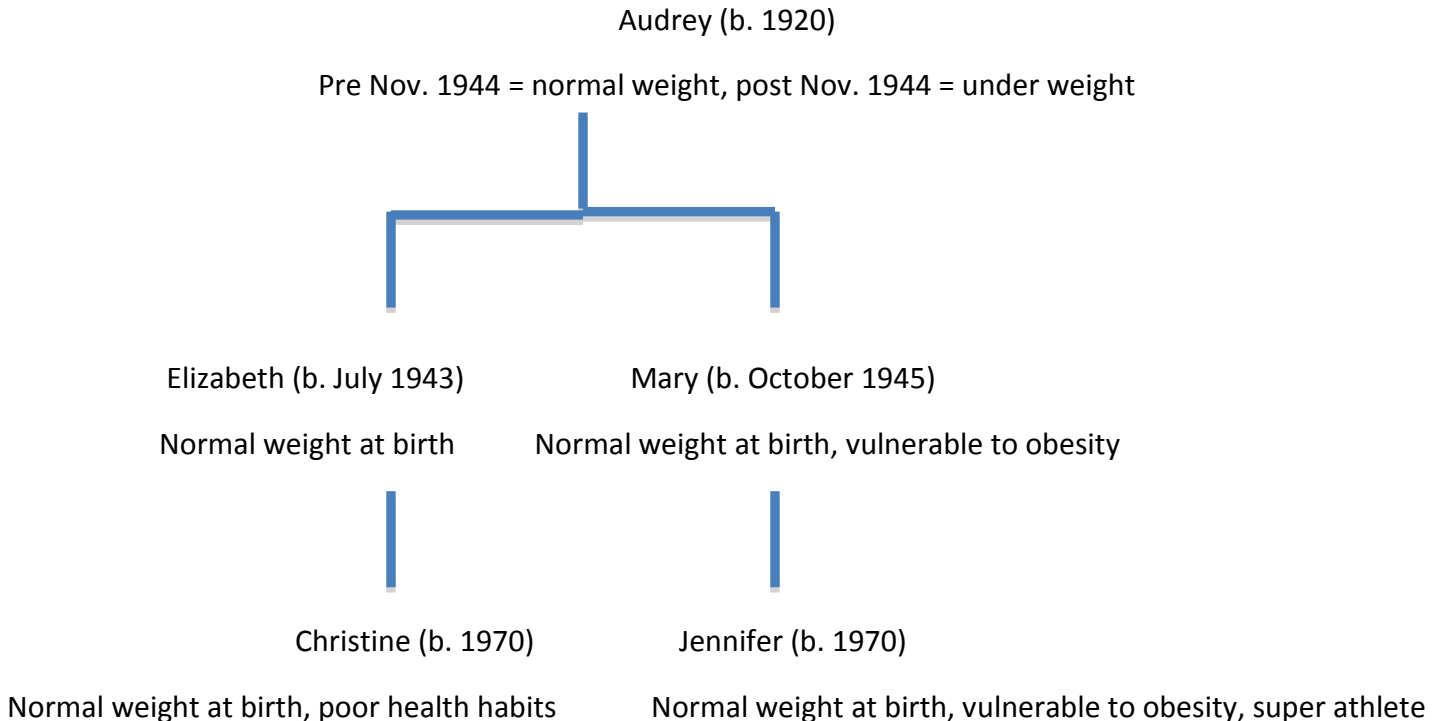


The Dutch Hunger Winter

The following is a fictional story based on the Dutch Hunger Winter and the resulting trans-generational epigenetic study. The Dutch Hunger Winter transpired during the end of World War II, November 1944 to the spring of 1945, under Nazi controlled Netherlands.

Characters:



The Story

I remember the day so clearly. I was upstairs trying to get ready for school. My mother was at the bottom of the stairs, yelling at me to hurry up or I'd miss the bus. Our dog was barking wildly in the backyard, chasing shadows of the spring. I stood before my mirror, a heap of clothes and shoes lingering behind me. Nothing, and I mean nothing, in my closet fit, looked right, cute, appropriate, anything. I sucked in my gut and pleaded my way into a size 16 pair of jeans. My gut sank.

"Jennifer, honey, you need to hurry it up," my mother said, as she entered my room. She paused, leaned against the wall, and let her heavy breathing return to normal. Her eyes met mine, like she was holding a mirror up. "You don't want to miss your cousin Christine getting crowned as prom queen."

My heart sank at hearing Christine's name. She was beautiful, popular, head cheerleader, and, yes, dated the captain of the football team. She was known for her generosity – always willing to share the chips or candy she carried around. Why wasn't I more like my cousin, I was often asked. Unfortunately for me, I could take up two seats on an airplane, had no athletic abilities, had personally talked to a total of two guys – when they had asked for directions, and went to the same school as my cousin.

My mother held out a stack of leather-bound books. "I found some of your grandmother's diaries down in the basement. I thought they could be a nice addition to your family history project."

I took them from her, wiping away the dust and cobwebs, and opened the top one. On the inside was an inscription to my Grandma Audrey dated August 1942. Over the next two days I read my grandmother's story from being a twenty-two year old in 1942 through the birth of her grandchildren in 1970. It was a story that changed my life, made me understand why I was who I was.

My grandmother was born in Amsterdam, capital of the Netherlands, in 1920. The sepia pictures dotting her journals showed my grandmother to be a stylish and elegant woman with a delicately lovely bone structure. Absolutely gorgeous. A pang of jealousy touched me as I thought of the genes my cousin Christine must have inherited from our grandmother.

As the years passed, the clouds of World War II began to darken her diary entries. However, even as she wrote of the war newsreels she watched before viewing Hollywood movies, she talked about her growing family, including the birth of my Aunt Elizabeth in the summer of 1943. Life was not easy but my grandmother was able to provide all that any child would want – plenty of food, toys, and a warm bed at night.

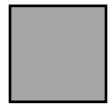
All that changed for my mother and her home country in the fall of 1944. The Dutch Hunger Winter lasted from November 1944 to late spring of 1945. A bitterly cold winter and a German blockade led to a catastrophic drop in the availability of food to the Dutch population. The normal daily intake became 500 calories, less than a third of what it used to be. My grandmother would wander the streets in search of food such as grass and tulip bulbs. Her family no longer had any furniture since they had burned everything in order to stay warm. During this time more than 20,000 people died. And then, after the food supplies were restored, my mother was born.

According to my grandmother, my mother was a normal-sized, happy baby. She was a miracle beyond all miracles. As a child, alongside her older sister, she ran through the streets with the other neighborhood children, jumped rope, and played hopscotch. Unlike my aunt, by the time my mother was a teenager, she was being teased for her weight. She had blown up like Violet Beauregarde of Charlie and the Chocolate Factory. My mother and I had led parallel lives. I thought about my normal sized cousin as I read curiously about my aunt, who had apparently been a ballet star during her formative years and remained healthy throughout her life. The last diary entry, in the back of the smallest book wrapped with a leather cord, described the day of my birth. I too was a normal-sized, happy baby.

Decades later, as I rounded the last corner my five-mile run, I flashed back to that day. The day when my mother had given me the gift of family history and when I learned that a famine my grandmother endured had shaped my own body. It turned out that the famine happened early in my mother's development and that, incredibly, had influenced which of *my* genes were turned on and off – including those that regulate how *my* body uses and stores energy. But now I know that it's not just my genes, but also my environment and my choices that make all the difference. Unlike my cousin, whose poor eating habits caught up to her as she cried into her plus size wedding dress, many years of a healthy lifestyle – long runs, whole foods, low stress, lots of sleep, tons of water - have brought me to this point where I now see in the mirror the healthy woman my grandmother had once been. My grandmother would have been proud.

The Dutch Hunger Story – An Epigenetic Tale of Fate & Choice

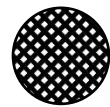
As you listen to the Dutch Hunger Story use the following symbols to help you mark the pedigree chart.



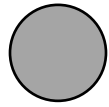
= Normal Male



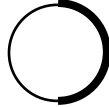
= Malnourished Female



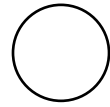
= Vulnerable to obesity due to malnourishment in utero



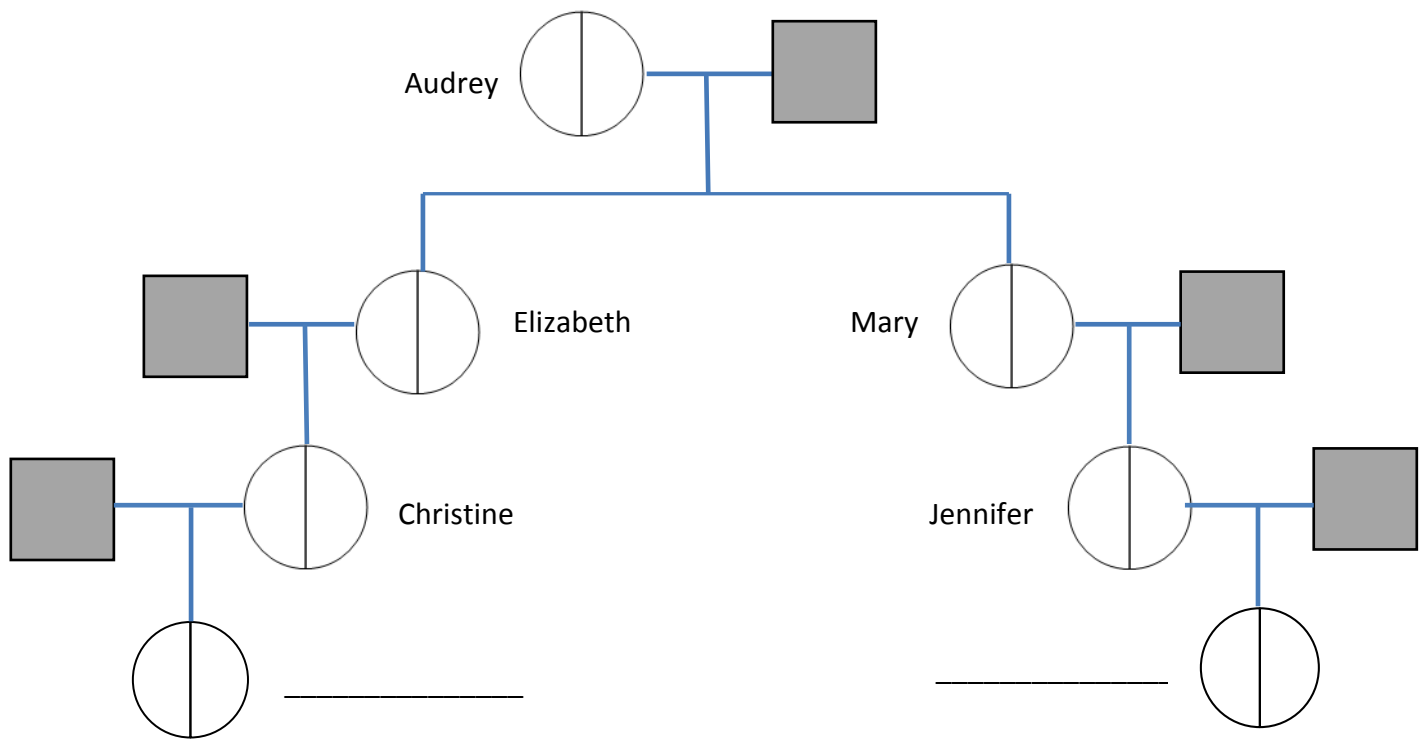
= Healthy Female



= Obese Female



= Unknown



Biography of baby _____

(to be copied onto the back of the pedigree chart)

Essential Understandings

- Epigenetics control how genes are expressed and how they are turned on or off.
- When a mom is malnourished during the second half of pregnancy her baby girl will have a higher risk of becoming obese.
- You can reduce the risk of obesity through life choices such as diet and exercise. However, the vulnerability of obesity is passed on to your daughters if you, or your mother, was obese during pregnancy.
- You can create vulnerability to obesity in yourself and your future children through poor nutrition or starvation.

