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#5: For fertilization to happen, the sperm and the ovum must be healthy and on time. Various different factors can affect this requisite. Temperate must be adequate, and the environment near the fallopian tube has to be “near perfect”. Interestingly enough, the male scrotum has a built-in “thermostat” -aka Tunica Dartos- which retracts when exposed to frigid temperatures and relaxes once the ideal temperature is reached again (approximately 93 Fahrenheit). Ultimately, this is a mechanism built into the body to ensure the protection and proper functioning of the men’s sperm- therefore keeping the reproductive chances of the human species at a good place (Men produce about 12 trillion sperm in a lifetime!). In conception, the ovum is released during ovulation (characterized by elevations in body temperature and pain), in which women’s muscular contractions “help” the high-speed penis-ejected sperm reach the cervix, which drops and acts like an elevator; takes the sperm zygotes for the ride of their lives.

#3: The process of sperm production is affected by various factors. First, a father’s sperm begins life (spermatogenesis) 70 days earlier in 1 of the testes. These are connected to the penis via the vas deferens, which snakes over the top of the bladder, then the seminal vesicles (small “pouches” located behind a man’s bladder; produce seminal fluid), the prostate gland, then into a single ejaculatory duct which directly comes out through the urethra, a small slit in the glans of the penis. Even if this sperm manages to come out, it’s worth nothing if it isn’t healthy. If a

man's scrotum is exposed to very high temperatures for prolonged periods of time, those can affect the quality of the sperm produced, causing most to die once they "attempt to make a run for it" in the very acidic vagina. They are "born" deformed, which affects their swimming (yes, they literally swim lol) pattern, causing for effective fertilization to be MUCH harder.

#2: The female reproductive organs are a very fascinating part of the human body.

- The Vulva: Filled with external neural connections, it is very sensitive to touch- which serves as a response to sexual arousal.
- Mons Pubis: This is the fatty tissue covering the female pubic bone, which is covered with hair after puberty is reached in a female.
- Labia MAJORA/minora: They exist one inside the other, below the mons pubis. They are the opening leading into the vagina. They are homologous (closely related to) the male scrotum. It protects the urethra and vaginal canal when "non-entertained".
- Clitoris: Just below the mons pubis, it is closely related to the head of the penis. With an average size of 1x ½ inches, which varies in different people - it is curiously something that the human male seems to significantly struggle to find during sexual intercourse. When one does "find it" though, they might be happy to know that it is PACKED with neural receptors, making it highly sensitive to any stimuli- which increases the chance for orgasm in the woman.
- The Introitus, AKA vaginal opening: Connects external genitalia with internal genitalia. It also allows for sexual intercourse and birth.
- Perineum: Extends to the anal opening. May be cut to prevent tearing during delivery through a process called Episiotomy; something done so that larger babies can be

naturally delivered. Has become quite common as the average birth weight of babies has increased through our most recent generations.

- Cervix: Allows for sperm to swim through it to get to Fallopian Tubes for baby-making. Contains something called “cervical mucus”, which helps sperm swim by releasing “anti-acid” mucus.
- Vagina: The inside stays moist to support “friendly bacteria”. Maintains an acidic environment using lymphocytes (little soldiers sent by the lymphatic system to fight infections) to prevent things like a possible urinary infection. Unfortunately, sperm is also considered a “stranger” in the vagina.
- Uterus: 2x3 inch pear-shaped organ. Located above the cervix, it can stretch like the vagina for the sake of birth. Fortunately for the ladies out there, it shrinks back after birth.
- Fallopian Tubes: The “highway” for sperm to get to the ovum (egg).
- Ovaries: Two exist in every woman, and they are almond-shaped. Part of the endocrine system (“Hormonal” system; helps produce sex hormones like estrogen and progesterone), it is charged with the storage and protection of ova (using follicles). They also are responsible to turn immature ova into mature ova.

Ova production, also known as Oogenesis, starts when a female fetus is still inside her mother’s womb. By the 5th month of gestation, these little ladies already have around 7 million of them! Thai number although impressive, degenerates to about 400,000 when the little lady has turned into an annoying lady (teenager/puberty).

- Breasts AKA Mammary glands: The dream and nutrition of every man at one point in their life, these respond to hormonal changes of the ovulatory cycle and pregnancy-notably increasing in size and sensitivity. Just like any body part, they come in different

shapes and sizes- which does not undermine the quantity or the quality of the milk that they are able to produce. The way they produce this ultra-rich-in-nutrients serum is because of the Pituitary gland (part of the endocrine system) - which secretes a hormone called prolactin, responsible for initiating AND maintaining milk production throughout birth and up to (normally) 2 years after.

#10: -Down Syndrome: Down syndrome is a genetic condition that affects a person's physical and cognitive development. It is caused by the presence of an extra copy of chromosome 21, which leads to distinctive phenotypical changes such as almond-shaped eyes, a flat facial profile, and a shorter stature. Individuals with Down syndrome may also experience a range of cognitive challenges, including delays in speech and language development, intellectual disability and difficulties with memory and learning. They may also have a higher risk of certain health conditions, such as heart, gastrointestinal, hearing and vision impairments.

-Cystic Fibrosis: Cystic Fibrosis (CF) is a genetic disease that mainly affects the respiratory system, while also seriously impacting the body's digestive and reproductive systems. It is caused by a mutation in a gene that results in a faulty protein responsible for regulating salt and water transport in and out of cells. This leads to the excessive build up of mucus in the lungs, pancreas, and other organs, which can cause a range of health problems. In the lungs, the mucus clogs the airways, making it difficult to breathe and increasing the risk of infections. Over time, this can lead to lung damage and respiratory failure. In the pancreas, the mucus can block the release of digestive enzymes, leading to malnutrition and other digestive problems. CF is a

progressive and complex disease, and individuals with CF require ongoing medical care and support throughout their lives.

-Hemophilia: Hemophilia is a rare genetic bleeding disorder that affects the blood's ability to clot properly. People with hemophilia may experience prolonged bleeding after an injury or surgery, and may also experience spontaneous bleeding into joints and muscles. This can lead to chronic pain, joint damage, and disability if left untreated. In severe cases, internal bleeding can be life-threatening. Much of European royalty had this disorder due to their excessive intermarriage in the past.

#11: The ultimate goal of genetic counseling is to empower individuals and families to make informed decisions about their healthcare, reproductive options, and lifestyle choices. Genetic counseling can also help to identify potential risks for other family members, such as siblings or children, and provide guidance for managing and preventing future health concerns. By doing a simple test, one can identify multiple genetic traits in one’s genome, which could certainly be beneficial. Clear ethical issues are bound to happen from the moment this becomes something to do out of one’s mere convenience, or control. When, for example- somebody decides that they will only marry someone that will give them a child with certain traits which are purely aesthetic (oh wait, people already do that without any genetic counseling).