# Human Reproduction Notes

## Why Reproduce?

In order to ensure the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**of the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** and the continuation of life in general by producing **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

## Asexual vs Sexual Reproduction

**Remember:**

* **Asexual reproduction:**
	+ Can produce offspring **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** needing a **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
	+ Offspring are **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** to parents
* **Sexual reproduction:**
	+ Requires **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**from a **\_\_\_\_\_\_\_\_\_\_\_\_\_**and a **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
	+ Offspring **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**with each parent but are **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**to either one

## Stages of Human Development

1) male and female **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (sperm and egg) come together (**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**) to form the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

2) the zygote eventually develops into an **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (2 weeks)

3) After 9-10 weeks the embryo develops into a **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

4) The child is born (**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**)

5) The infant will **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** into a toddler and child

6) the child will become an **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** and start to undergo **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

7) **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**is reached

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**



## Puberty

* **What is puberty?**
	+ It is the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**that involves the changes that **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** the human body to **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* **When does it start?**
	+ Usually between the ages of about **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
	+ The start is marked by the increase in production of **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

***Hormones***

* We often talk about hormones only in relation to puberty and sexual reproduction but there are **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**of hormones.
	+ Hormones are **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**that are released by glands into the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** and will **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**in particular organs or tissues
* They are also responsible for regulating:
	+ **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
	+ **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
	+ **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**, etc
* **Triggering puberty:**
	+ Puberty is triggered by the production of 2 hormones from the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**:
		- **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (FSH)
		- **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (LH)
	+ LH and FSH stimulate:
		- **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**in females
		- Production of **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** and **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (sex hormones) in females
		- Production of **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** in males
		- Production of **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** in males



* The release of these **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (estrogen, progesterone and testosterone) initiates a number of **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**and **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| ***Primary vs Secondary Sexual Characteristics***Sexual characteristics are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ which indicate an individual’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ sexual characteristics are the sexual characteristics that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ sexual characteristics are the ones that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (usually during \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
	+ *Ex:* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
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### Puberty in Females

**Primary Sexual Characteristics**

* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**begins
* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Secondary Sexual Characteristics**

* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** and **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**appears
* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**develop
* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (wider hips)
* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**accumulate on **\_\_\_\_\_\_\_\_\_\_\_\_\_** and **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**primarily

### Puberty in Males

**Primary Sexual Characteristics**

* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Secondary Sexual Characteristics**

* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**, **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** and **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**appears (“hairiness generally increases” p.143)
* Larynx enlarges causing the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* Skeletal **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**– put on muscle
* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
	+ Helps with growth spurts!

# Male Reproductive System



### Spermatogenesis

* The release of **\_\_\_\_\_\_\_\_\_\_** during puberty starts the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** process
* Cells inside the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (inside the testicles) called **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**undergo **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** to produce **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
	+ The cells that produce the spermatozoa are constantly being **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** and spermatogenesis is **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
		- This means a male can produce about **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**per day

### Erection and Ejaculation

* **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** occurs as a result of **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
	+ The tissues around the penis **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** with **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* After formation, sperm are pushed into the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**where they are **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
	+ When the erect penis is **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**, this causes the sperm to be pushed **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
	+ They accumulate in a bulge of the urethra along with different **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
		- The mix of sperm and seminal fluids is called **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* Following the stimulation of the penis, sperm are **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** through the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** in a process called **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
	+ The **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** is also the passageway used for **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
	+ To ensure that urine and sperm don’t mix there are **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** that **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**of both substances

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| **FYI*** Need erection to ejaculate, but do NOT need to ejaculate if an erection occurs.
* There are approximately 350 million sperm/ejaculation.
* Sperm can live in a woman for **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
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## Female Reproductive System

 

## Oogenesis

* By the time a girl reaches **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**she has around **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**\_\_\_\_ (cells capable of becoming ova)
	+ These oocytes will undergo **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** in order to produce the **\_\_\_\_\_\_\_\_\_\_\_**
		- Similar to the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** in the male that undergo meiosis to produce the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
		- Unlike sperm, ova are **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**being produced; a woman only gets **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (she is born with them)
* Usually, only **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**will mature into an **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  and be released into the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**to be fertilized
	+ If more are released, this is how you get fraternal twins, triplets, etc.



## The Ovarian Cycle

1) **\_\_\_\_\_\_\_\_\_\_\_** is secreted by the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**and stimulates the growth of an **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**around the oocyte

2) the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** starts to release more and more **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

3) **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** levels cause the pituitary to release **\_\_\_\_\_\_\_\_** along with **\_\_\_\_\_\_\_\_**which triggers the follicle to rupture and **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

4) The follicle then turns into the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**and releases **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** that will stop the release of more FSH and LH, and cause the uterine lining (**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**) to **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

5a) if the ovum is **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**, and the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**from the uterus and is expelled through **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

5b) if the ovum is **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** (fertilized ovum) will **\_\_\_\_\_\_\_\_\_\_\_\_\_** itself in the uterine wall and the corpus luteum will continue to produce progesterone until the placenta is fully formed

## The Menstrual Cycle

* The **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**is trigged as a result of the ovarian cycle and **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* The menstrual cycle has **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**:
	+ The **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**: period of **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** due to the expulsion of the endometrium and the unfertilized ovum
	+ The **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**: the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** begins to the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**, **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** levels increase due to new ovarian follicle
	+ The **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**: endometrium continues to thicken, **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**levels increase from the corpus luteum

An ovum lives about

12-24 hours

A sperm lives about

24-72 hours

# Assisted Reproductive Technologies (ARTs)

## Infertility

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a child after 12 months of sexual relations \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ *To be eligible for ART in many places, a couple is considered to be infertile if they have not been able to conceive a child after 2 years of trying*
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_consists of all the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_used to help a woman become pregnant

## Benefits of ARTs

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_are able to have children
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_are able to have children

## Concerns of ARTs

* Risk of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Very \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_for couple or government
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ increase the risk of ovarian cancer
* Many \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and procedures
* 3% increase in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Frozen embryos need to eventually be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Risk of embryos being selected purely for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (ex. gender, eye colour)

## Types of ARTs

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| **Ovarian Stimulation** |
| **How does it work?**Uses medication to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(female takes hormones in the form of needles or pills) which stimulate the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_released each month | **When is it used?**Used when \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or for women who \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| **Artificial Insemination** |
| **How does it work?**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from a male, then washed and analyzed. It is then \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_on the day of ovulationUsually combined with Ovarian stimulation | **When is it used?**Used when the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_because female’s cervical mucus kills sperm (too acidic) or when the males’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (number) or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  |

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| **In Vitro Fertilization** |
| **How does it work?**The ovum is fertilized in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (outside the woman’s body)After 2-8 days of growth in the lab, \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to continue development until birth | **When is it used?**Used when the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_ \_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or other methods have not worked |
| **Steps**1) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_– the woman produces multiple mature ova which is collected2) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and washing of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_3) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_– ova and sperm placed together in a test tube where fertilization occurs4) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_– after 2-7 days the most developed embryos are transferred to the uterus (usually 2-4 at a time). Un-transferred embryos can be frozen to be used later |
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| **Fertilization Through Micro Injection** |
| **How does it work?**Uses the same steps as In Vitro Fertilization BUT the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  | **When is it used?**Used when there is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_or fertilization poses a problem or other methods have not worked. |