

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

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# OBJECTIVES

## INTRODUCTION TO EMBRYOLOGY

1. **Developmental periods**
2. **Embryological terminology**
3. **Clinical Applications**

# WHAT IS EMBRYOLOGY ?

A developmental process from a **single cell** to a baby in **9 months (birth)** is called **embryology**.



**No end to  
development**

**Infant**

# DEVELOPMENTAL PERIODS

## 1. Prenatal (before birth)

- **3 to 8 week:** Most visible advances occur during the third to eighth weeks of embryonic development.
- **9 to birth:** During fetal period the rate of body growth increases

## 2. Postnatal (after birth) periods

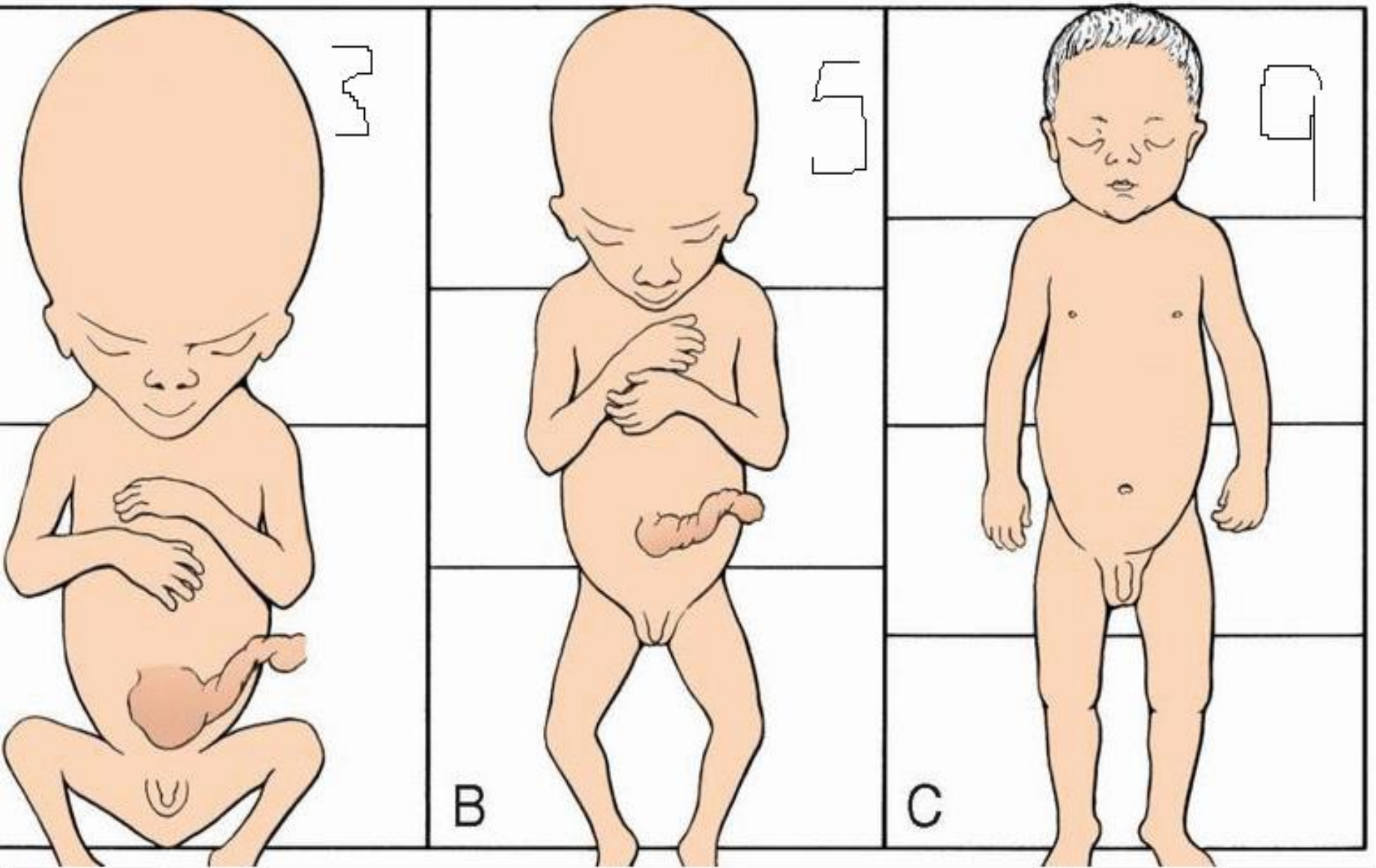


**8-week-old embryo**

3Month

5 Month

Birth



**Infant** ..... Less than one year

**Childhood**.....13 month-----puberty

**Puberty**-----Secondary sexual character

13 years -----16 years

**Adolescence**-----from puberty to adult

11 year to 19 years

**Adult:** 18 and 21 years. Ossification and growth are virtually completed during early adulthood (21 to 25 years).

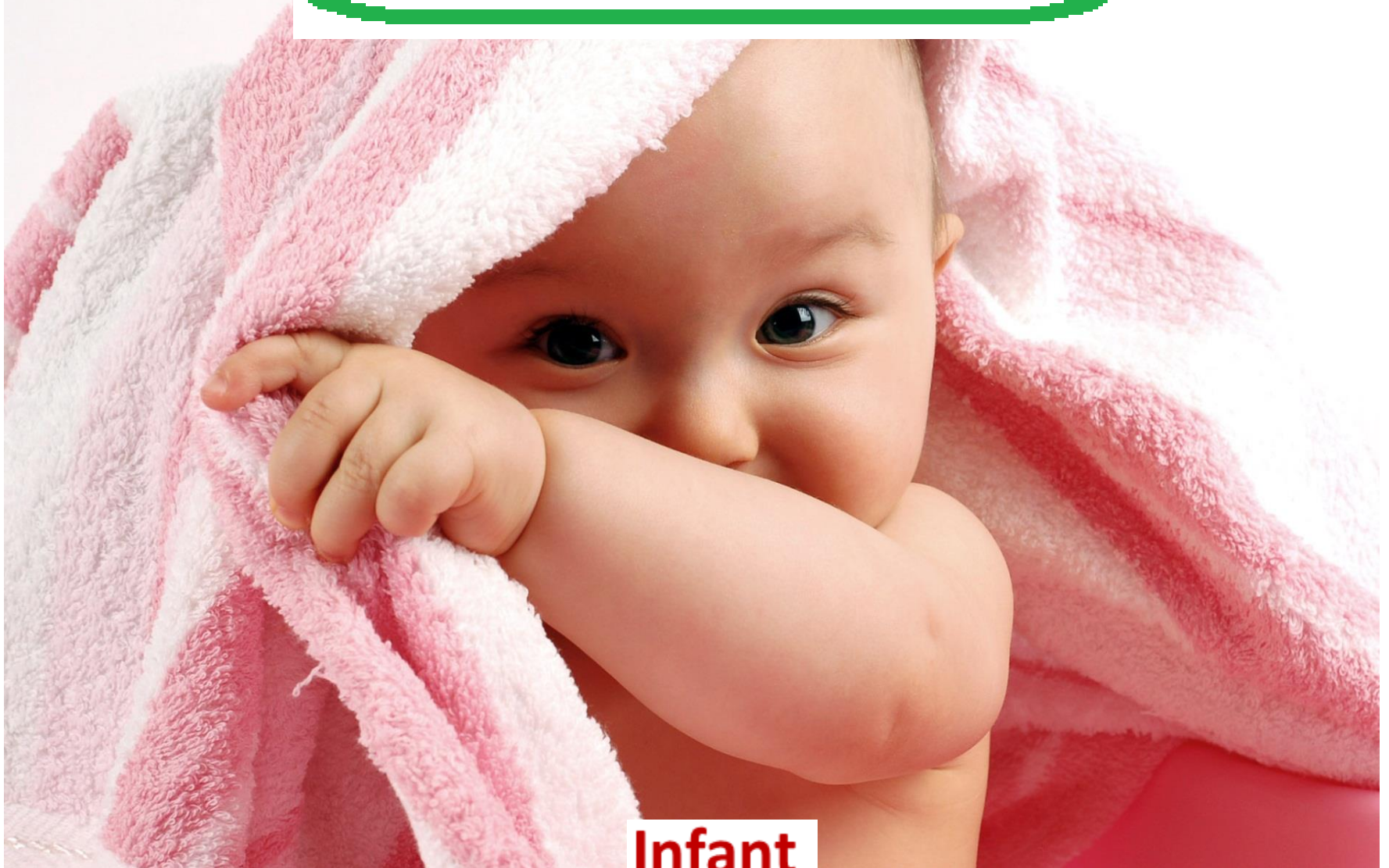


# TERMINOLOGY

- Oocyte,
- Sperm ,
- Zygote,
- Cleavage,
- Morula,
- Blastocyst ,
- Implantation,
- Gastrula
- Neurulation
- Conceptus
- Primordium ,

- Gestational Age
- Embryo ----- 8 week
- Fetus ..... 9 w to birth
- Trimester... 3 month
- Postnatal .. After birth
- Infancy-----1 year
- Childhood----After 1 year
- Puberty -----13y to 16 year
- Adolescence---13y to 19year
- Adulthood---18 y to 21 years

**I will forgive you  
but cant forget**

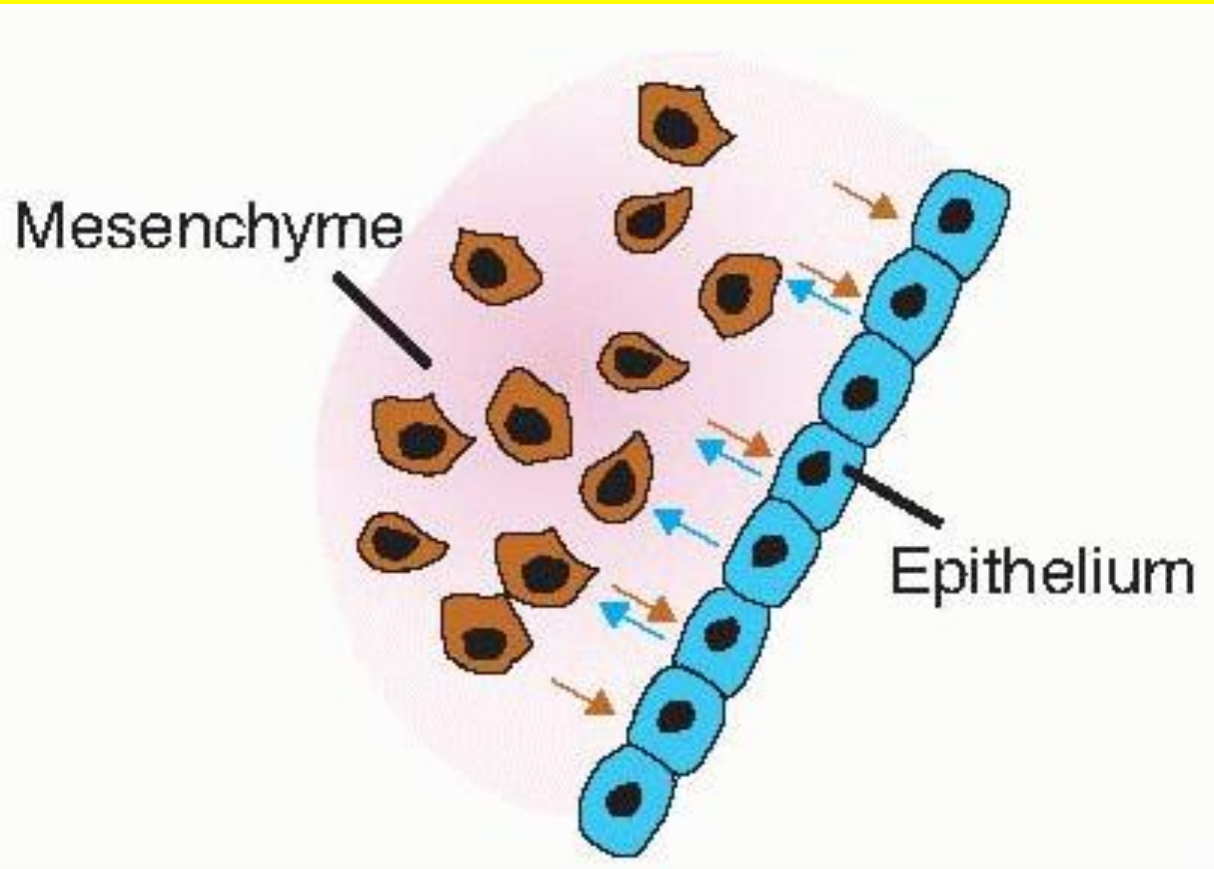


**Infant**

## **MORPHOGENESIS**

- **Localized Growth**
- **Cell Aggregation**
- **Cell Migration**
- **Folding**
- **Bending**
- **Fusion**
- **Splitting**

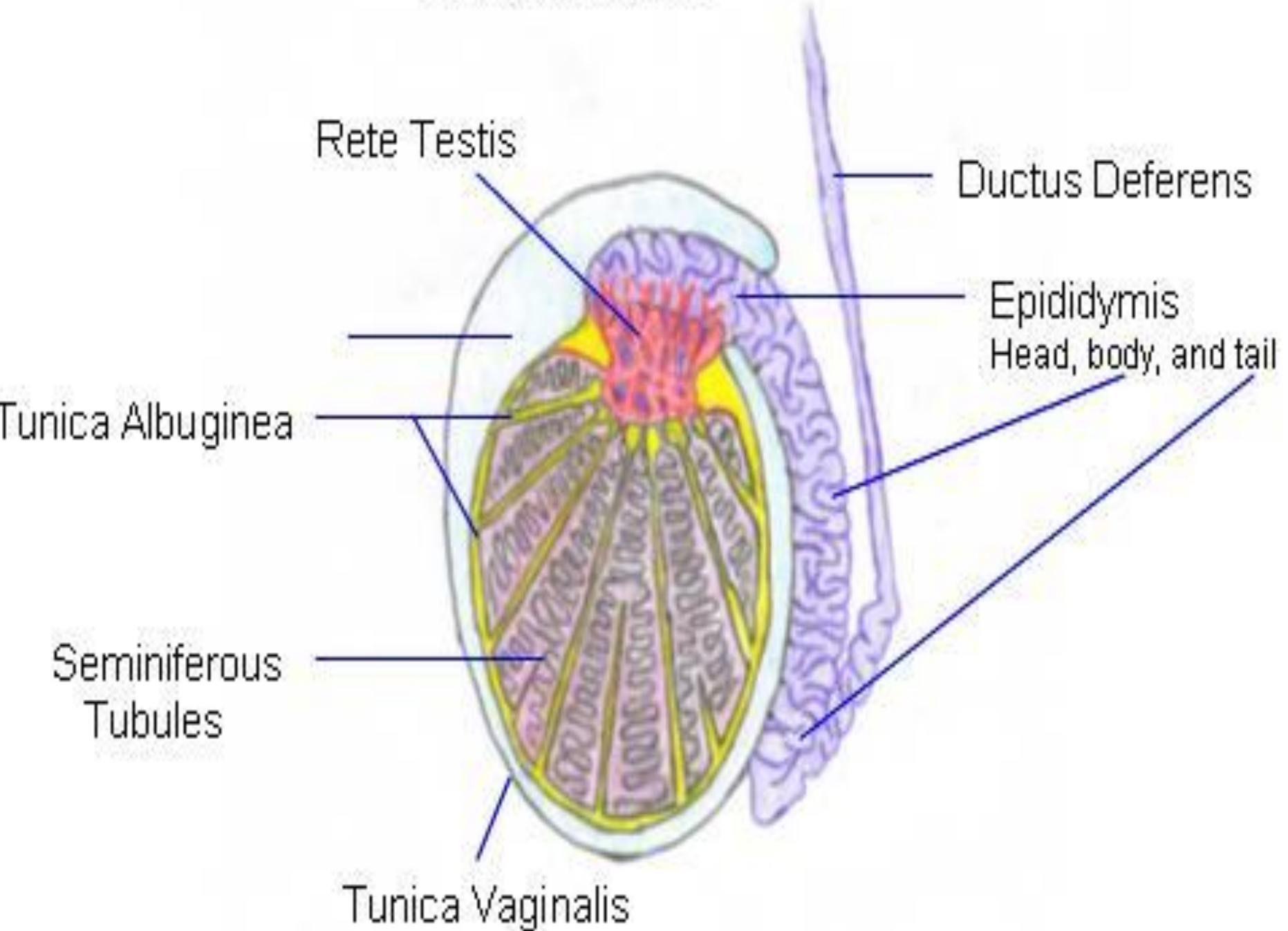
- **Induction and Organ Formation**
- Organs are formed by interactions between cells and tissues. Most often, one group of cells or **tissues** causes another set of cells **or tissues** to change their fate, a process called induction.





**Infant**

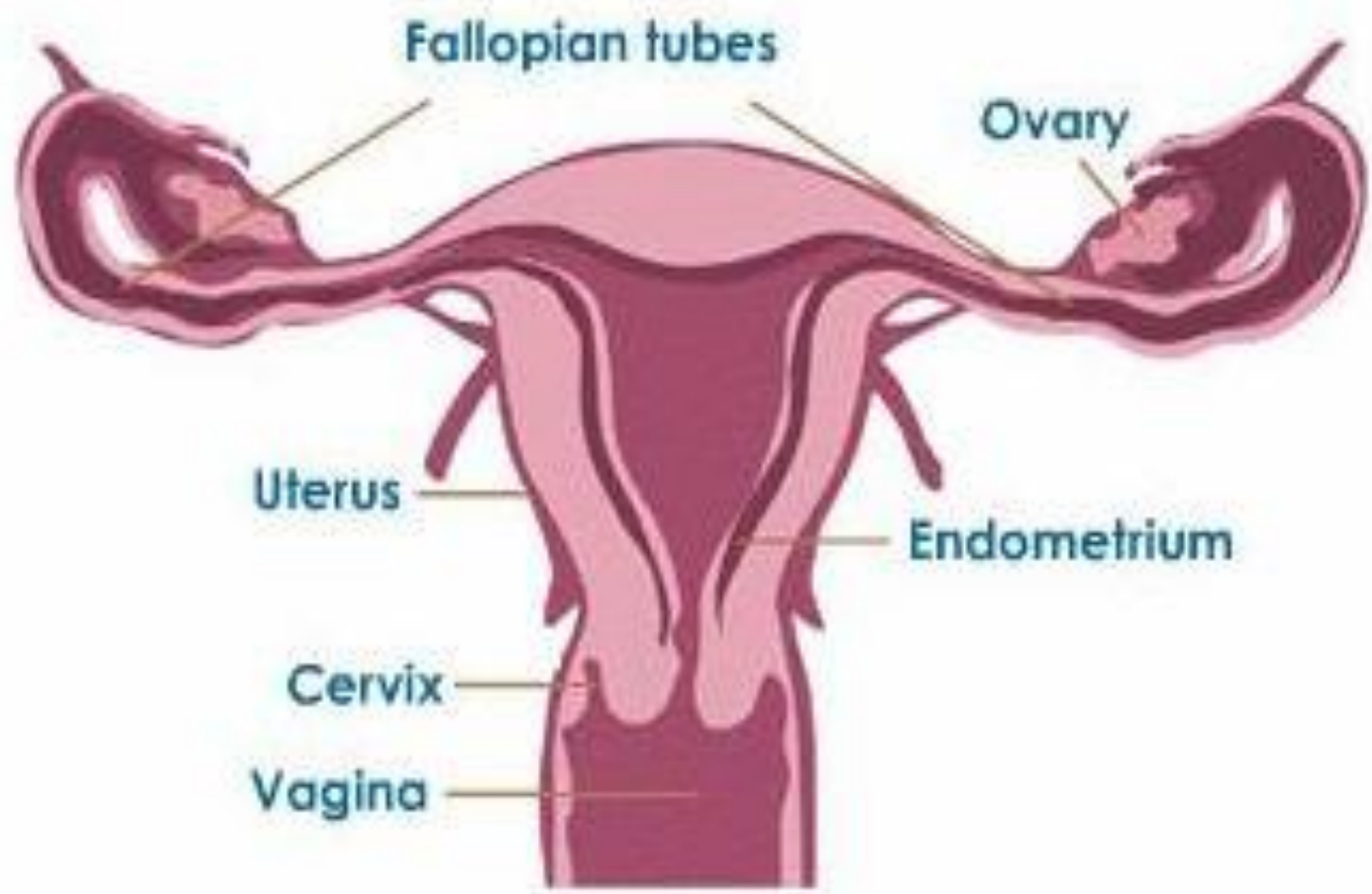
# The Male Testis



**Infant**

**Dont leave me alone**





**Female Reproductive System Seen from the Front**



**CHILDHOOD** :Is the period from 13 months until puberty



**Ernst Haeckel (1834--1919):- Reported that**



**Ontogeny recapitulates Phylogeny**



**Individual development progresses through the adult stages of the organism's ancestors.**

**Was I a whale fish**

**Never**

**Infant**



# **CLINICAL RELEVANCE**

## **1. RESEARCH AREA FOR STUDIES THE**

- **Genetic control of the development**
- **Diseases**
- **Mutations**
- **Stem cell research**

## **2. HEALTH CARE STRATEGIES LIKE**

- **prenatal diagnoses and treatments,**
- **Therapeutic procedures for infertility**
- **Mechanisms to prevent birth defects.**

What to do?

Cry, cry, cry???

**A clever mother is commonly  
required not a doctor**

**THANKS**

