

# Cell Division & Early Embryonic Development

# Cell Division

# Chromosomes in Body Cells

## Somatic/body cell

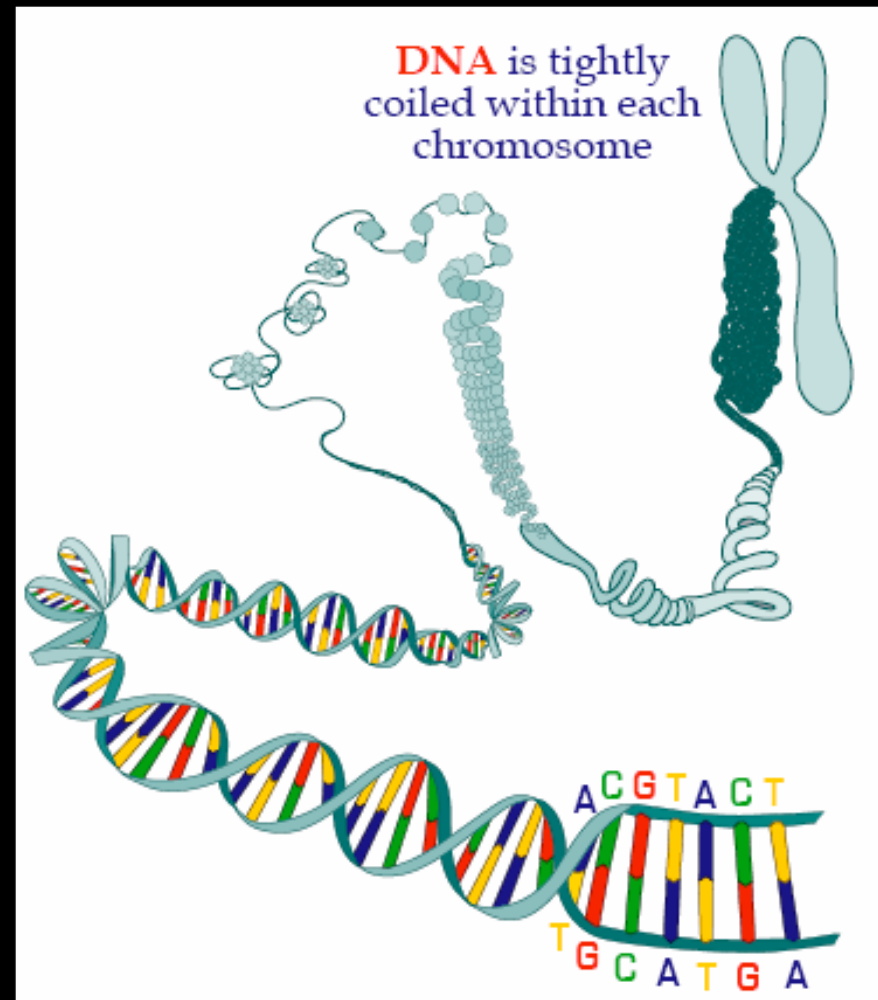
(ex. skin, nerve, muscle cell)

Chromosomes per cell=  
**46 (in humans)**

## Diploid cell (2n)-

full number of  
chromosomes:

23 from each parent



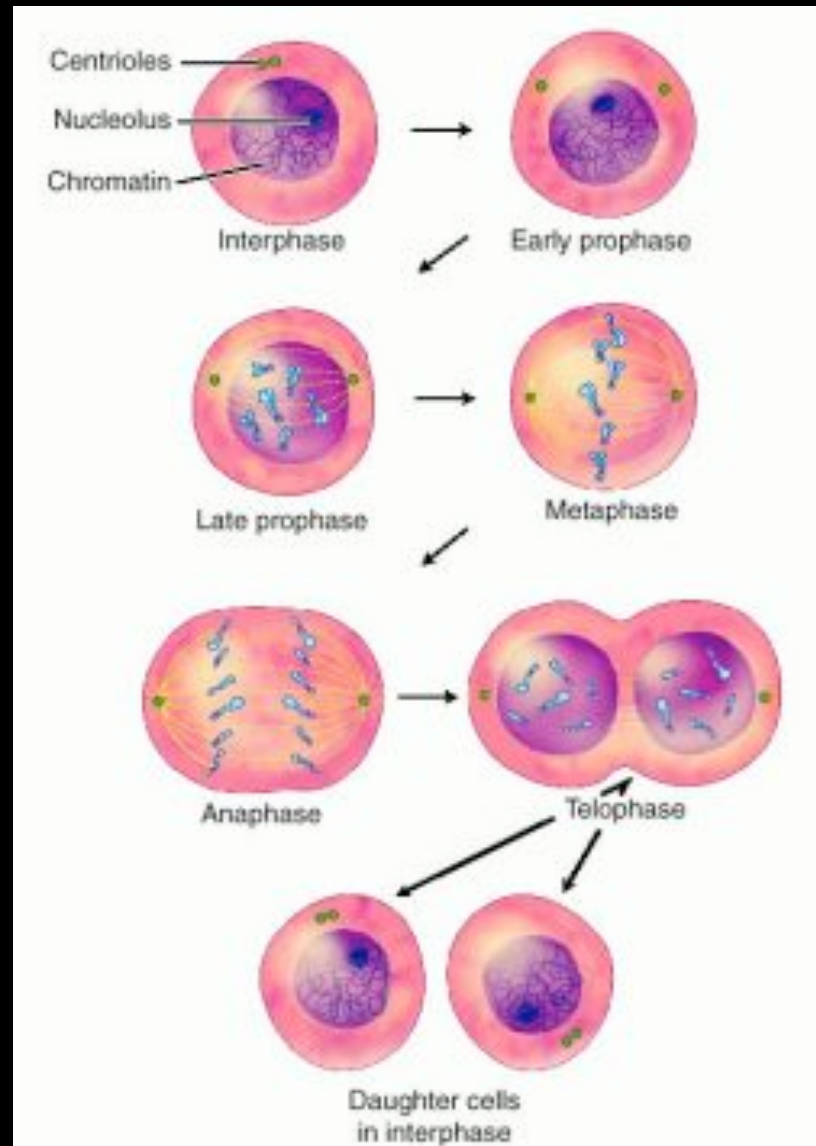
# Mitosis Review

## Mitosis-

simple cell division in which a cell replicates its chromosomes and evenly distributes each set into two

## Cytokinesis-

the division of the cytoplasm; happens after chromosomes separate



# Mitosis & Cytokinesis

[Video: Cell Division & Cytokinesis](#)

Mitosis:

Start: one  $2n$  cell



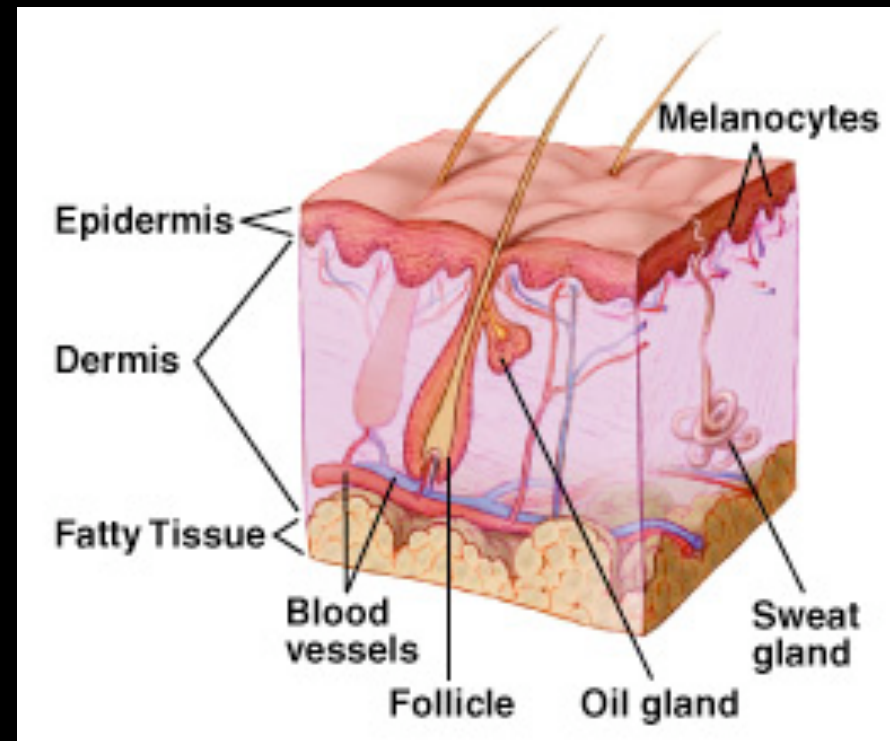
chromosomes are duplicated and divided



Ends: two  $2n$  cells

# Purpose for Mitosis-Growth & Repair

- Cells in high wear areas reproduce continuously  
Skin, intestinal lining
- Some cells divide slowly-liver
- Some cells partially or fully lose the ability to divide-muscle, neurons



# Chromosomes in Sex Cells

## Sex cell=Gamete

(ex. sperm & egg)

Chromosomes per cell=

**23 (in humans)**

## Haploid cell (n)-

Half the diploid number of  
chromosomes

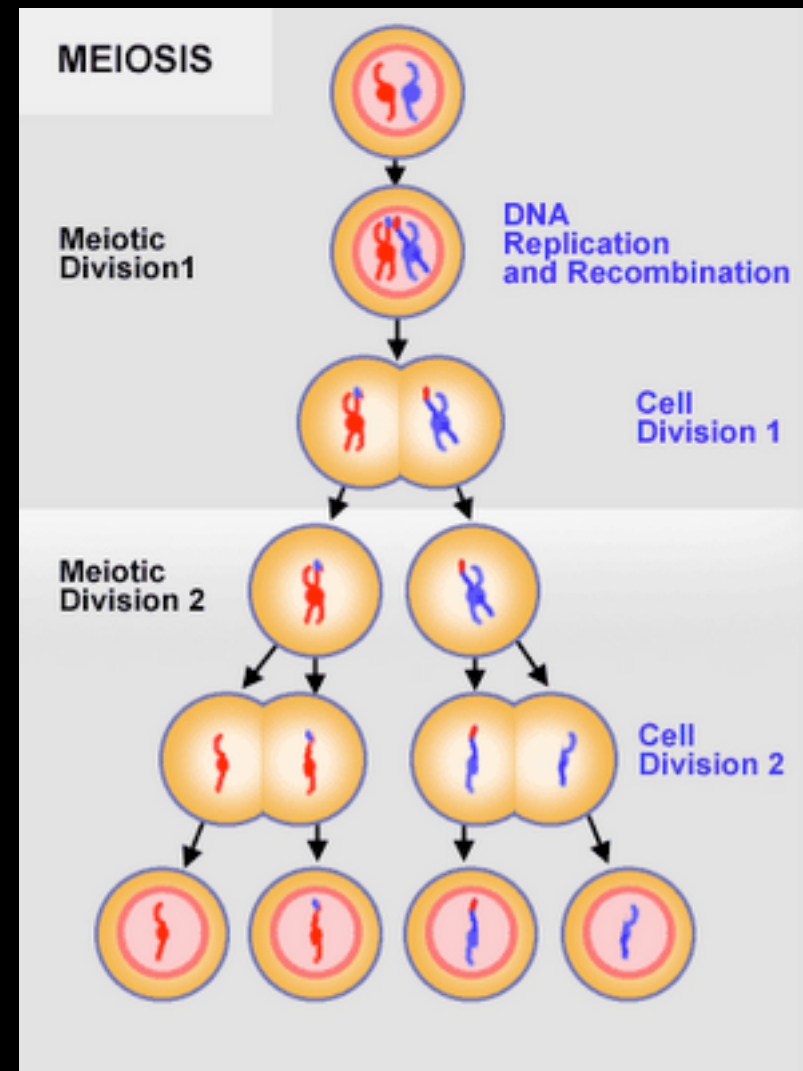
Purpose: to create a diploid  
cell after fertilization



# Meiosis

Meiosis:

Cell division in which the chromosomes are replicated and the cell divides twice producing four haploid cells.

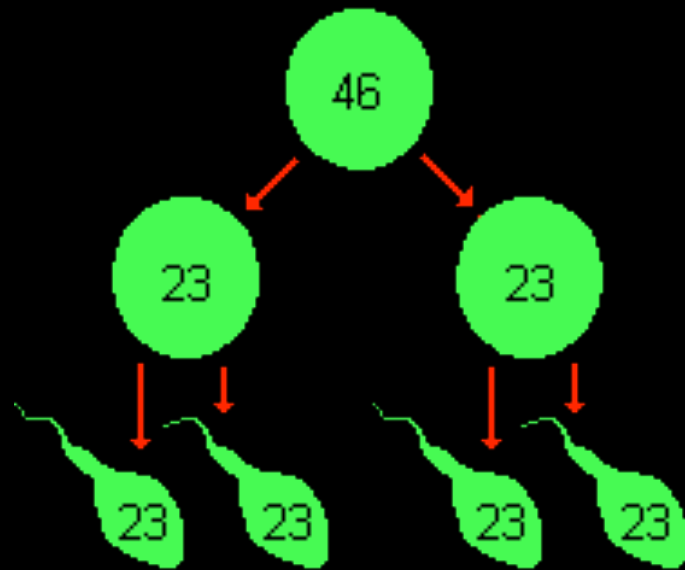


# Meiosis: Males vs. Females

Males

Starts: puberty

Ends: death

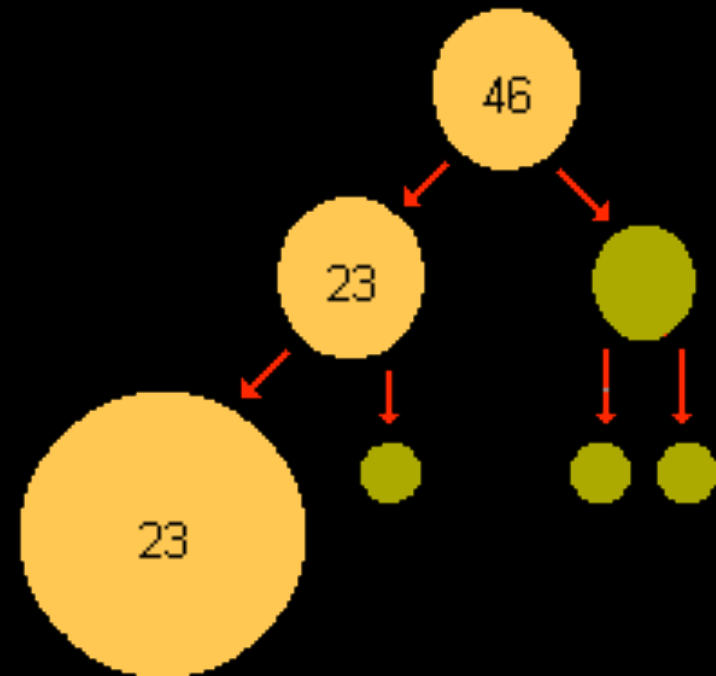


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Females

Starts: before birth

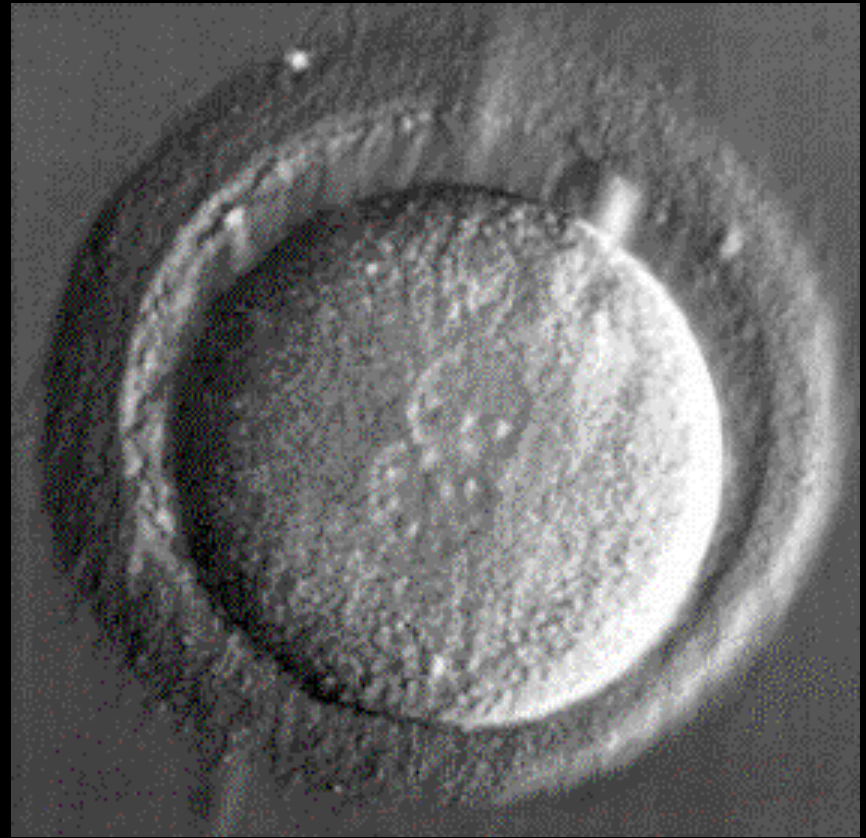
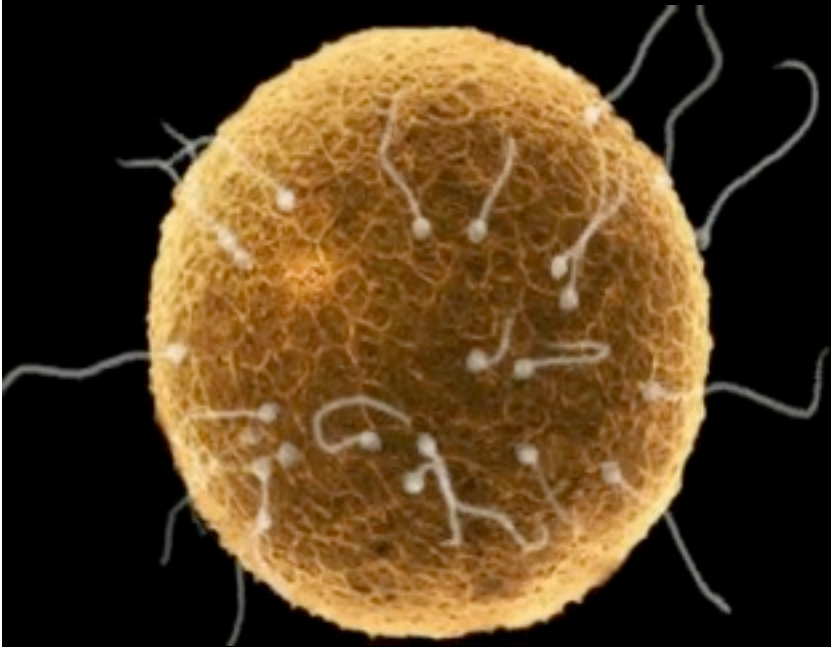
Ends: Menopause



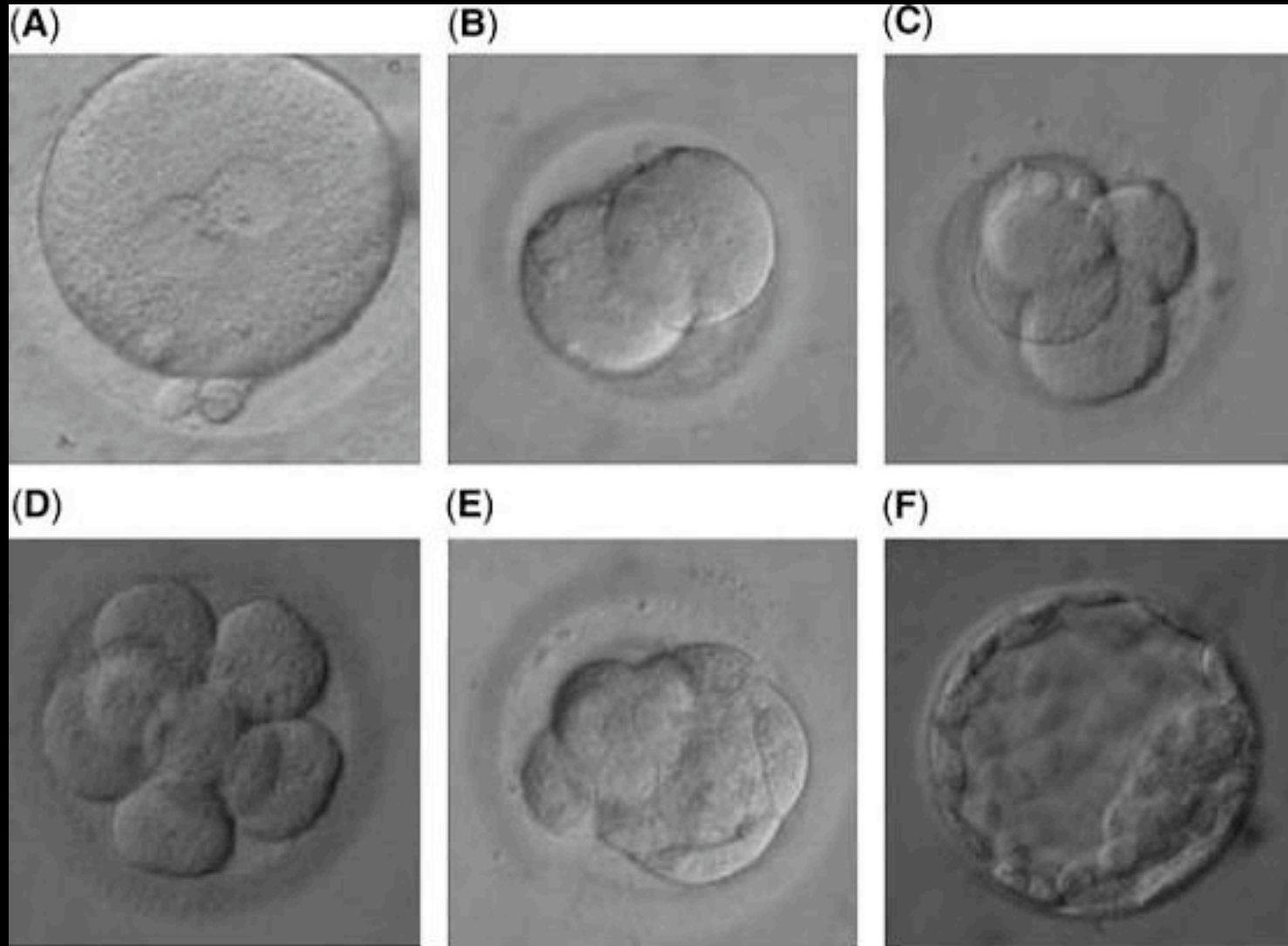
OVUM

# Embryonic Development

# Fertilization



# Early Embryonic Development



[Video-Human Embryonic  
Development](#)

[Egg-Fertilization-  
Implantation](#)