Topic 6 –Abnormal Meiosis - Nondisjunction and Karyotypes

Non-disjunction

http://glencoe.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::550::400::/sites/dl/free/0078757134/383925/Chapter11_NGS_VisualizingNondisjunction_10_10_06.swf::Visualizing%20Nondisjunction

http://www.sumanasinc.com/webcontent/animations/content/mistakesmeiosis/mistakesmeiosis.swf

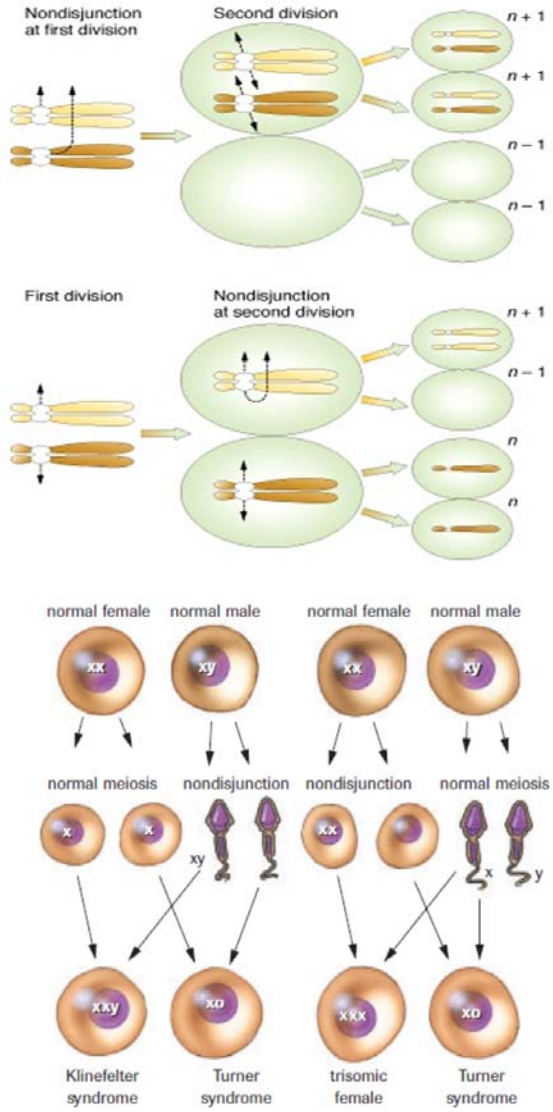
- The failure of chromosomes to separate during meiosis is called **nondisjunction**

- Occurs during **anaphase I or anaphase II**

- Result in gametes that have too many or too few chromosomes

- **Monosomy** – cell is missing one chromosome of a homologous pair

- **Trisomy** – gain of an extra chromosome



http://en.wikipedia.org/wiki/Monosomy

Mistakes in Meiosis

Go to animation

Syndromes caused by Nondisjunction

- Down syndrome or trisomy 21
- Trisomy 18 or Edwards Syndrome
- Klinefelter's syndrome or XXY syndrome
- Patau syndrome, also known as trisomy 13
- Turner syndrome – females with only one X chromosome
- XYY syndrome – males get and extra Y chromosome
- Triple X syndrome

Karyotypes

- One tool for detecting the results of abnormal meiosis is a chart of the chromosomes called a karyotype.
  - karyotype chart a picture of chromosomes arranged in homologous pairs
- all the pairs of chromosomes are aligned at their centromeres in decreasing size order