**Cancer Cells**

<http://ed.ted.com/lessons/how-do-cancer-cells-behave-differently-from-healthy-ones-george-zaidan#watch>

We all start life as a single cell, but **about how many cells** are in an adult human body?

**-100 Trillion**

What is a **DNA mutation**?

**-Change (typo) in the DNA of a cell**

There are some checkpoints (example: G2 phase) that prevent cells from moving through the cell cycle improperly (dividing too quickly, or dividing even when mutated). **What happens when a cell “sneaks past” these fail-safes**?

**-The cell can begin to divide recklessly (divides too quickly and doesn’t know when to stop)**

When is **surgery** a good option to treat cancer?

**-When the tumor (lump of cells) is small and found in one area of the body**

When is **radiation** a good option to treat cancer?

**-When the cancer cells have spread to larger areas of the body**

When is **chemotherapy** necessary to treat cancer?

**-When the cancer cells have spread to many places throughout the body that may be hard to attack with just radiation or surgery.**

Chemotherapy attacks cells that are rapidly dividing. Hair, skin, gut, and blood cells are examples of “normal” cells in our body that divide quickly.

**What happens to these cells during chemotherapy?**

**-They are also accidentally killed**

What are some unfortunate **side effects** to chemotherapy?

**-hair loss, skin rashes, nausea, vomiting, fatigue, weight loss, pain**

Ultimately, chemotherapy helps to treat cancer by trying to eliminate rapidly dividing cells. What must be true in order for the cancer to be **completely eliminated?**

**-Every single “rogue” cancer cell must be killed (otherwise the cycle would start over again)**