Low Level Laser Therapy (LLLT)

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**Effects of LLLT on Humans:**
- Increases vascular circulation by increasing the formation of new capillaries, which are additional blood vessels that replace damaged ones.
- Stimulates the production of collagen. Collagen is the essential protein used to repair damaged tissue and is replaced red blood.
- Stimulates the release of adenosine triphosphate (ATP), ATP is the major carrier of energy to all cells.
- Accelerates the healing process (when used on acute injuries).
- This means that both parts of adenosine (sodium and protein) can be extracted at a much faster rate in return giving:
  - Increased RNA and DNA synthesis. This helps damaged cells to be replaced more quickly.
  - Reduces the viscosity of serum tissue. These can assist in reducing the immune therapy.
- Stimulates fibroblastic activity which aids in the repair process.
- Stimulate autophosphate release. Autophosphatase causes cardiac initiation, vasodilation, gastronomic peristaltic and other parasympathetic effects.

**Mitochondria** are organelles in cells the size of bacteria with their membranes containing proteins (outer membrane contains porins).

**REDH oxidation** involves the transfer of electrons or group of nutrients:

- NADH: Nicotinamide Adenine Dinucleotide
- NADPH: Nicotinamide-Adenine Dinucleotide Phosphate

ATP: Adenosine Triphosphate is the most important storage form of chemical energy.

**Spectra of:**
- DNA (\textsuperscript{a})
- RNA (\textsuperscript{b})
- Plasma Membrane (\textsuperscript{c})
- Absorption Spectra for H\textsubscript{2}O, Cells for the Same Spectral Region from Red to NIR

\[ \Delta \nu = \text{length of longitudinal coherence} \]
\[ \Delta \zeta = \text{size of spatial (lateral) coherence} \]
\[ D = \text{Diameter of light beam} \]
\[ D_0 = \text{Diameter of non-coherent light source} \]
\[ \theta = \text{Beam divergence} \]
\[ A\nu = \text{Beam spectral width} \]