Summary of Oska Pulse (*Science in a nutshell*)

In a 'nutshell' ***using a series of specially configured Electromagnetic Fields (EM), Oska Pulse is designed to assist in the regeneration of normal eukaryotic cells, speeding recovery from injury or degenerative issues, ultimately leading to pain relief.***

What is a eukaryotic cell? What are these specially configured Electromagnetic Fields?

Eukaryotic Cells and Cell Membrane:

The building blocks of all living organisms is the 'cell'. The human body is made up of some 70 to 100 trillion cells and around 200 different types. 'Eukaryotic' cells are cells containing a nucleus surrounded by a membrane and contain membrane bound organelles (*metabolic devices*). The cell membrane contains different types of openings or channels for many different purposes.

Cells compose tissue, organs and bones and consist mainly of water, collagen and minerals. Most cells renew themselves constantly. For proper function and cell renewal (division) cells need a healthy functioning metabolism.

The membrane of a healthy cell has both positive and negative charges creating a potential of -40 to -80 mV (millivolts). This is required for the exchange of potassium, sodium and calcium ions through special openings called transporter channels. Healthy cells maintain this potential through active ion movement. (*Sodium, Potassium, Calcium, Chloride and Magnesium ions*)

Physical exercise (See ***'Exercise-Electrical Energy-Oska'***) produces endogenous electrical signals that open selected transporter channels in the cell membrane but may be compromised due to physical or chemical restraints. When electrical potentials are lost or imbalanced, ion exchange is impaired and cellular metabolism is adversely affected.

By acting at the cell level, Oska Pulse produces a series of specially configured EM fields to help stabilize and reorganize the cell membrane, restoring the electrical potentials needed for optimal ion exchange.

Membrane Potentials:

Virtually all eukaryote cells (including cells from animals, plants, and fungi) maintain a transmembrane potential, usually with a negative voltage in the cell interior as compared to the cell exterior ranging from –40 mV to –80 mV.

The membrane potential has two basic functions. First, it allows a cell to function as a battery, providing power to operate a variety of "molecular devices" embedded in the membrane. Second, in electrically excitable cells such as neurons and muscle cells, it's used for transmitting signals between different parts of a cell called "Electrical Synapses" modulating the body's metabolic functions, controlling physical movement and signaling sensations such as pain and pleasure.

Electrical potential across the cell membrane:

This is an extremely complex subject and explaining it in this document is nigh impossible, so all I can do is summarize and trust you understand the basics and how it relates to Oska Pulse.

The exchange of ions such as Sodium and Potassium through the cell membrane changes the electrical potentials across the membrane. Neurons, the special cells found in the nervous system, contain protein molecules called **ion pumps.** They use metabolic energy to transport some ions inside the cell and others outside the cell to maintain a balance or equilibrium. Running the 'pump' requires energy in the form of ATP. ('*Adenosine Triphosphate' transports chemical energy within cells for metabolism*) Maintaining the resting state of the cell membrane can be quite costly to ATP production. This cost is highest when cells are placed in a negative environment such as diseased, age related degenerative issues, surgery or injury.

Oska Pulse is designed to correct the cellular environment by reproducing the missing endogenous electrical potentials (signals) assisting the regeneration process.

What EM energy or 'Driving Force' is required for this purpose?

Driving force is the net electrical force available to move an ion across the cell membrane. The driving force on potassium is 7 mV: The driving force on sodium is -133mV. If you want the actual equation used to calculate that…here it is…..

- It's the difference between the ion's equilibrium potential and the actual membrane potential (E_m). So, in formal terms, the driving force for an ion **= E_m - E_{ion}**

- Example, calculating the driving force on potassium is would be (−73 mV) − (−80 mV) = **7mV**. The driving force on sodium would be (−73 mV) − (60 mV)= **-133mV**

Permeability is a measure of how easily an ion can cross the membrane. So, in a resting membrane, while the driving force for potassium is low, its permeability is very high. Sodium has a huge driving force and almost no resting permeability. In this case, potassium carries about 20 times more current than sodium, and thus has 20 times more influence than sodium.

Summary:

So why do you need to know all that. You don't! However, from the above, you can see that calculations required to provide the correct electrical potentials, providing assistance in cellular regeneration are very complex and not simply a matter of providing a powerful electromagnetic field at designated frequencies. We've put together a complex EM sequence, to stimulates cell regeneration with the added feature of impairing pain signals by resisting chemical transmission (Synapse) through the neurological pathways. **The programming of which is a trade secret and the reason for our success in this field.**

Oska Pulse is designed to speed recovery, getting to the cause of pain, also suppressing the neuro transmission of pain signals to the brain.

See some FAQ's next page

FAQ's on this subject

- ***Do we need powerful electromagnetic fields to modulate cell membrane?***
  No.

- ***Do we need to carefully plan what is needed to simulate the body's own natural emf?***
  Yes, we certainly do.

- ***How can a small 9v battery supply the emf power necessary to modulate cell membrane?***
  Oska Pulse uses special electronic circuits to induce the current required in Oska's coil to generate sufficient energy, effective over 10" from its base in all directions.

- **One could ask "*How can the same lithium ion battery used in my cell phone transmit a signal 30 miles or more to the transmission tower?***

- **Or…."*How can a 12 volt car battery generate 20,000 volts of electricity needed to produce the spark that keeps your car engine going?***
  The answer to both is "the application of technical knowledge, building electronic components in a method that beats common logic!"

- ***Is their any radiation from Oska Pulse and is it dangerous?***
  No. Oska Pulse generates complex but low frequency electromagnetic fields. There's more radiation from the electrical wiring in your home than Oska Pulse. If you're not concerned about your hairdryer, your microwave or your television, there's absolutely no reason to be the slightest bit concerned about your Oska Pulse!