

# ElectroPhysical Framework – Explanatory Notes

## Concept

This framework map has been developed on the basis that it should provide a useful resource for therapists (clinicians, researchers, students, academics) from any professional group, in any country. It is an attempt to 'map' all the currently used **ElectroPhysical Modalities/Agents** according to the **type of energy** being employed. Each modality should appear on the map somewhere, and should **only appear once**.

The use of trade names, proprietary names and registered trademarks has been deliberately avoided. Where several different 'names' or 'terms' are used around the world (such as the plethora of terms of electrical muscle stimulation), a single term has been used, being the most generic that I could identify (in the case of muscle stimulation, the adopted term is Neuro Muscular Electrical Stimulation – NMES).

Modalities / application which sit in proximity on the framework would be reasonably expected to generate / achieve similar, though not necessarily identical effects.

## Development

The core framework was constructed by Prof Tim Watson and numerous colleagues have contributed and suggested modifications over the last 6 – 9 months resulting in the current version of the framework. The contribution from these colleagues is fully acknowledged and contributors are listed in the Acknowledgements at the end of this document. It is therefore not the conceptual map of just one person – it has been a multi contributor, collaborative development.

### **THIS IS NOT EXPECTED TO BE THE FINAL VERSION OF THE FRAMEWORK**

The reason for releasing it prior to the 'FINAL' version is to encourage further discussion, feedback and comment from the wider community of practitioners (of all persuasions) who use, have an interest in or expertise relating to the therapy use of Electro Physical Energies / Agents / Modalities.

There are several issues to which final resolution has not been reached (some of which are listed below to prompt discussion). If the Framework was constructed on a 'pure' physics basis, whilst it would be 'correct', it turned out not to be as useful to therapists and practitioners. Those looking for a 'pure' physics map may need to look elsewhere (or construct their own!).

### **Some issues:**

- Energy applications which are not classically delivered by therapists in the clinical setting (such as X Ray or Gamma Radiation, Atomic/Nuclear, Chemical) have only been identified as a main branch, but without any additional sub divisions. Clearly all energy types can, and are, employed somewhere in medical practice. This Framework is intended to reflect current practice in what are generally referred to as the therapy professions (such as physical therapy / physiotherapy, osteopathy, chiropractic, sports therapy, athletic trainers, occupational therapy, podiatry). Please do not take offense if your professional group are not listed – not intended to be an exclusive list.

- Combination type therapies cause a problem (such as the simultaneous application of Ultrasound and electrical stimulation – commonly Interferential Therapy, or the simultaneous deliver of radiofrequency with laser light or CryoUltrasound). Given the principle of each ‘modality’ only appearing in one place on the framework, double entries do not work. Each individual element of a combined treatment should be listed. Their combination is not (currently) notated.
- The Electrical Stimulation group still has numerous unresolved issues such as:
  - What is the difference between Pulsed DC and a pulsed current? [Pulsed DC is taken to employ pulses with a duration of longer than 1 second. Pulses of shorter duration are taken to constitute a Pulsed Current]
  - Some current types (such as Russian Stimulation and Aussie Stimulation) could be considered ‘slang’ terms. Their root (Burst Mode Alternating Currents – BMAC) is a ‘proper’ term.
  - Microcurrent is currently identified as a separate group on the basis that it is not employed as a ‘stimulating’ current in terms of its effect on nerve – though of course it is taken to have a stimulating effect on other tissue / physiological activities.
  - Percutaneous / Implanted stimulation systems are currently separated as are Cranial applications. The current types employed overlap with others, but the application mode is very specific.
  - There might be an argument for including ‘Assistive NMES’ branch – where the application of NMES (muscle) stimulation is combined with a splint or other orthotic as an integral part of the treatment. Currently not included, though easily added if it is considered to be genuinely different.
  - Not all the currents listed are available to all therapists or employed widely in therapy, but all constitute a therapy which has been described in the literature.
- Biofeedback (in isolation) is not listed as it does not involve the delivery of any energy into the tissue. Clearly some Biofeedback modes are employed in conjunction with Electrical Stimulation.
- In the Electromagnetic branch, Static and Dynamic Magnetic application are included, though some have argued that this may not constitute their rightful place.
- Laser / LED based therapies do not currently have their ‘own’ branch. This part of the structure has been modified several times. The energy being delivered is clearly electromagnetic. The wavelength can be in the infra-red, visible or ultraviolet bands, and laser type applications are included under all three branches (at present).
- The Ultraviolet branch has not been divided into the most obvious UV-A, UV-B etc bands as many therapy applications employ generators that do not respect such boundaries. [Similarly, therapists also mention ‘luminous Infra Red’ which is a therapy anomaly! What is meant is that the generator used delivers light in the Infra Red AND the Visible Red bands – not that a new type of EM radiation has been invented].

## The Way Forward

In order to achieve the most accurately reflective Framework may, active discussion is encouraged. This is deliberately being developed as a therapy community project rather than a dictate from one or a small group of individuals. It is suggested that the Electrophysical Forum ([www.electrophysicalforum.org](http://www.electrophysicalforum.org)) is the most logical platform. It is free, open access and anyone can make a contribution. You are **STRONGLY ENCOURAGED** to express opinions and highlight issues as a

means to take this forward and get us closer to a final version. Please do not assume that your comment or opinion is not valid – absolutely not the case.

**You are welcome to make whatever use of the current version of the Framework that suits your work BUT PLEASE remember that this is NOT FINAL and is very likely to change. Please DO NOT plan to incorporate the chart (or part thereof) in any publication until we have a final, confirmed version.**

### **Acknowledgement**

In reaching this point, numerous professional colleagues have commented, made suggestions and constructively criticised previous versions. I am indebted to their willingness to invest time and effort. Those who have contributed are listed below (in alphabetical order to avoid any interpretation associated with rank order!). I do not claim that all those listed are in full agreement with the current structure or detail. I do suggest that they have made an active contribution.

Gad Alon; Maryam Al-Mandeel; David Baxter; Alain Bellanger; James Bellew; Ah-Goh Cheng; Lucy Chipchase; Meryl Gersh; Alison Hoens; Luther Kloth; Liisa Laakso; Ethne Nussbaum; Priscilla Poon; Sandy Rennie; Oscar Ronzio; David Selkowitz; Melrose Stewart; Carol Vance.

My sincere apologies if you feel you have made a contribution and are not listed. Please do not take this as a personal affront or academic insult – it is, I assure you, an unintentional error.

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[www.electrotherapy.org](http://www.electrotherapy.org)

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