

# An Extended Model of Physical Therapy Modes of Action

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## PURPOSE AND RELEVANCE :

Research from several disciplines illustrates that the effects of Physical Therapy interventions are more complex than generally thought <sup>(1)</sup>.

Whilst historically, effects are described in terms of gross physiology and mechanics, the reality is that there are several additional modes of action to consider.

These include, but are not limited to :

- Neurological (Neuro Modulation)
- Chemical
- Bioelectric

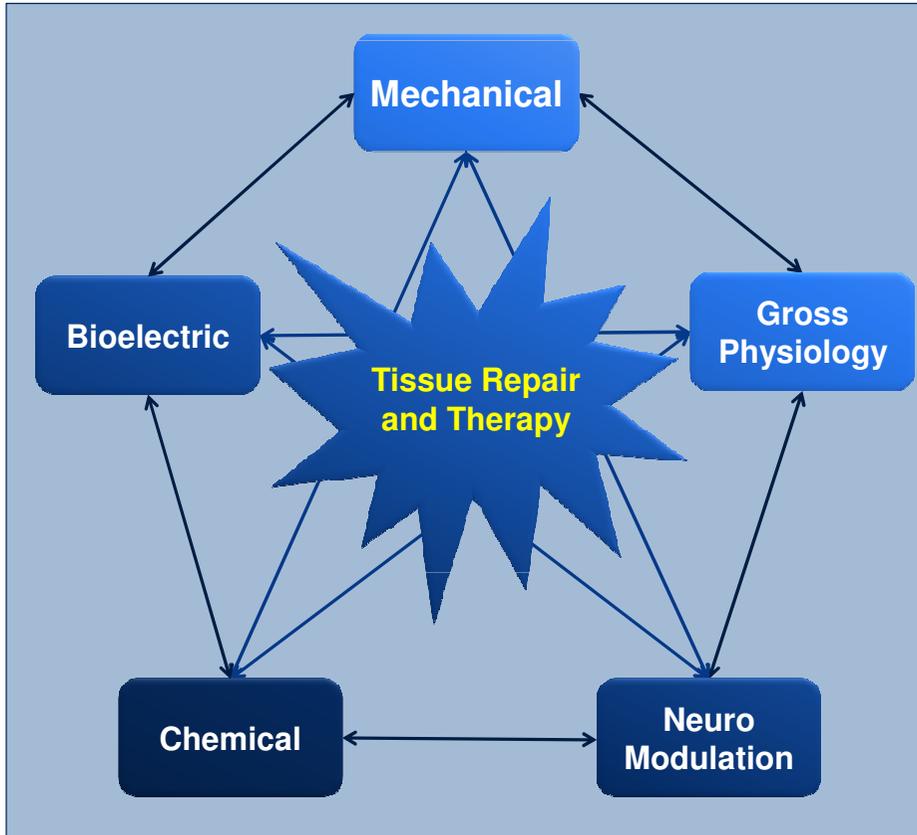
This work aimed to provide a model in which this new range of effects mechanisms could be integrated. It is proposed that differently weighted models will be applicable to specific interventions and patient presentations.

## METHOD AND EVALUATION :

The work considers research literature from a wide range of specialities which provide evidence to support the extended model of action effects.

These additional elements are complementary to the existing explanations, which are not 'incorrect' but may be 'inadequate' to fully explain how therapy interventions achieve their evidenced outcomes.

Different therapy approaches will utilise these effects to varying degrees, but all are integral to the combined mechanism of effect.



## MODAL ELEMENTS :

**CHEMICAL** – These is a very strong body of evidence to support the contention that therapy influences a range of cytokines and chemical mediators in healthy and particularly in diseased and damaged tissue (e.g. 2-10). Electro Physical Agents, Manual Therapy and Exercise exert a significant effect on the tissue biochemical environment. This effect can be maximised for specific application and treatment options.

**BIOELECTRIC** – There is a significant background bioelectric activity in the musculoskeletal tissues <sup>(11)</sup>. This is important in the control of normal physiological events and the response of the tissues to injury, trauma and disease <sup>(12,13)</sup>. Various interventions influence or modify the bioelectric environment, and this, it is proposed, is partly responsible for their effects (e.g. 14 – 18). Further development may result in an enhancement of these outcomes.

**NEURO** – Neuromodulation has already gained some 'intergration' into several PT models including Manual Therapy, Exercise and the use of Electro Physical Agents

## CONCLUSIONS :

The effects of therapy intervention include the frequently reported mechanical and gross physiological changes. In addition, there are subtle changes to the neural, cytokine, biochemical and bioelectric environments which significantly contribute to treatment outcome.

With further research, it is suggested that a stronger appreciation of these modes of action will lead to enhanced intervention techniques, more effective therapy and improved patient care.

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