

## Proposal for an IRB

**Study Title: Low Level Laser Therapy ( LLLT) for Treatment of Acute and Chronic Musculoskeletal Pain and Neurological Symptoms**

### Investigators:

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Both investigators are licensed MDs in the state of Washington and have clinical practices in which they see many patients in primary care and in consultation with musculoskeletal and neurological symptoms.

### Background

There are many people with acute and chronic musculoskeletal pain and neurological symptoms which are not benefited or have side effects with conventional drugs or other treatments (physical therapy, psychotherapy etc.) There is a rising number of people with chronic pain and sensitization of peripheral nociceptors and mechanoreceptors. There are a rising number of patients with Fibromyalgia and chronic tissue tenderness. There is a high incidence of patients with tendinitis, repetitive stress and carpal tunnel and other peripheral nerve syndromes.

Low level laser treatment is the use of a cold non-heating laser to provide noninvasive pain and symptom relief for the conditions listed below. It uses 890 nanometer 100-miliwatt light to provide photo or biostimulation of the tissue in lesion. The exact mechanism of action is not certain at the present time. It appears to improve cellular metabolism and possibly increase local area cell energy supply. In chronic pain the resting potential of neurons and receptors may be altered leading to hypersensitivity and decreased thresholds for pain. Resting potential of the receptors and neurons may be able to be restored by action on the sodium potassium pumps in the cells. There may be an action on lymphocytes to activate suppresser T cells to inhibit B cells from making antibodies to one's own tissues. There may be other affects on a cellular level that decrease inflammation.

It can be combined with other treatments or used as a single treatment. It is of course important to deal with all of the mechanical and nonmechanical reasons for the pathology and to use the laser in concert with other treatments when appropriate. The LLLT has been approved for use in Canada and has been apparently clinically efficacious. For some reason it is still only approved for veterinary use in the US as of this IRB proposal. There are a tremendous number of patients that would potentially benefit from it.

### Outline:

A) The purpose of this study is: