# The Science of Intelligent Threads:
# Muscle Actions & Neuron Communications

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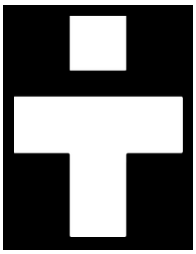

**Purpose:**
This writing aims to communicate what actual components of the muscle are being activated by Intelligent Threads and by what process the neuron receptors of the muscle and supporting faculties are stimulated or become responsive to wearing the shirt.
*{The reader is advised that this is not to be considered an academic review, rather a sharing of thought explaining what we do and how we do it. The reference links herein are offered to further inform of what is readily understood in science and easily searchable online.}*

**General Anatomy Background:**
Muscles contain a network of blood vessels, nerves, and muscle fibers. Inside the belly of the muscle are **Muscle Spindles** which send instantaneous data about the length and state of the muscle (whether tight or taut; having flexion or tension).

Neurons, Receptors, and Sensory Receptors flow between the brain and the body which transmit and receive electrical signals, called energy. This energy is processed and then a communication is made from the Brain, Central Nervous System (CNS), or Autonomic Nervous System (ANS) back to the body (muscles and spindles) to cause an appropriate action or reaction. Included among these systems is the operation of the Ligand-Gated Ion Channels, Motor Neurons, and Sensory Neurons that utilize this communication from neuron receptors to create cellular action.
John Hopkins University Overview of Motor Control

Changes made to the body as a result of these operations are often made unconsciously but are demonstrated in the involuntary adjustments of the jaw, thorax, spine, pelvis, iliotibial bands, and other key areas of the body that formulate posture.

**Functional & Non-Functional Posture:**
Muscles wrap the skeletal structure and affect flexion or tension to create movement when they act in **coordination with various muscle groups**.

The skeletal structure rests in a state of neutrality, called Functional Posture, that is uninhibited in its range of motion or compensational nuances. This correct anatomical position indicates that all structure is seated well bone-to-bone and ligaments and muscles are under its proper tension when standing in space. When maintaining Functional Posture, the skeletal structure, muscles, and tendons work in concert to provide support for full range of movement, bearing stress and activity, and allows for adequate reflexes and agility.

The structure is designed to return to the anatomically correct and neutral position after dynamic activity, having the ability to self-align with key movement and stretch sequences. Problems in self-alignment can be the result of poor seating of bone placement, counter-tension of other muscle groups, or incomplete or inhibited signaling of neuron commands. This physiology is illustrated by having engaged muscles that should not be engaged while in the anatomically correct and neutral position. Such subpar conditions of the muscles can be easily assessed by physical therapists and other professional body-workers.

Malalignment can result in pain of the joint and muscles. This failure in the skeletal posture is called Non-Functional Posture As described in the National Institute of Health.

**Solution:**
Intelligent Threads facilitates this instantaneous correction by utilizing a proprietary frequency compound and imbuement process to create a neuron stimulus aimed specifically at releasing engaged muscles, namely a Propagated Waveform Particle. Done with extreme efficiency, flow is created and energy is then freed up and re-allocated throughout the body allowing for improved reduction of stress, increased power, and boost and/or balance to a healthy parasympathetic state, as seen in **Heart Rate Variability illustrations.**

**Intelligent Threads** uses a process called molecular affixation to imbed the Particle into any textile, and other materials, that when placed on or near the body, the energy/frequency signal provided by the Particle is “picked up” by the antennas of your receptors. This bonded Particle does not expire or diminish, nor can it be washed out or easily deactivated as it is bonded to the molecule and not merely topical or woven within the fabric as metals and other frequency-based products may be (these methods are known as “dipped” or “embedded”). A useful life expectancy has exceeded 10 years of testing effectiveness in our first controlled batches.

Herein, **Intelligent Threads** functions as a neuron receptor stimulus that is designed to activate and/or support your body’s natural method of creating and sending the appropriate and organic energies, chemistries, charges, and signals throughout the body to maintain functional posture and a healthy flow of energy throughout the body and causes zero negative interference with any other health modality. On the contrary, initial feedback from the Chiropractic and General

Practitioner fields have reported better gains in health recovery by purposefully stacking the use of Intelligent Threads with other forms of rehabilitation for structure and non-structure ailments.

**Field Testing:**
Trade shows have offered us thousands of participants per year over several years in a test method we've called a Push Test, which highlights key areas where the body carries tension and pain. The pain or discomfort found in these tests serve as "stored data" in the receptors of the muscle and fascia indicating poor skeletal alignment and muscle imbalances.

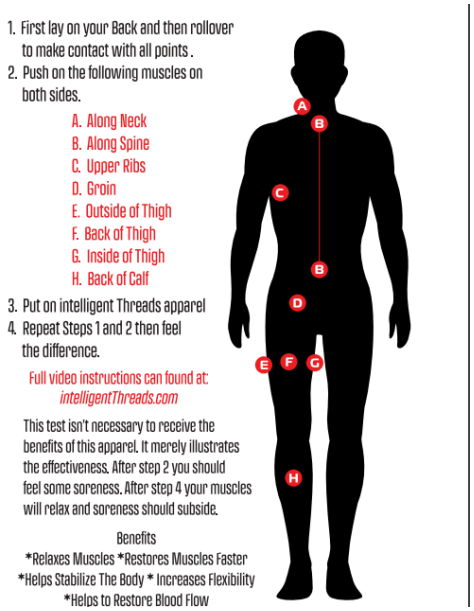

FIGURE A

Figure A, above, illustrates the various points of the test one could be experiencing sensitivity due to the effects of engaged muscles or counter tension muscles in a state of rest. Tension in these places create areas that are sensitive to the touch and reveal muscle imbalances in shoulders, hips, knees, and head placement. The principle of the test is to highlight a participant's postural condition and to demonstrate the rapid recovery of Functional Posture in the "after" test. Any discernible poking pressure to these definite areas are effective for this test. The test, also, does not rely on the specialization of the Testor - save only that the definite areas (key tissue, bands, etc) are consistently located for the "before and after".

Whereas, participants can feel discomfort and pain in some of these areas as the Testor applies a poking pressure, the second test applying the shirt onto their body allows for the instantaneous result of various muscle groups releasing, which reduces or eliminates the initial pain and discomfort of the poking pressure. This is possible as the Central Nervous System and Autonomic Nervous System interact with the muscle groups of all testing areas and have the ability to influence them undetected within milliseconds.

What does this test confirm? It confirms that the receptors are tuned with the stimulus that our Particle is providing and that a body's response is to activate the appropriate neuron messaging and chemistry in the muscle groups of the test to equalize. Of approximately 4,000 expo participants and testing over 15,000 personal clients in the years of our development, a staggering 100% success rate has been achieved in releasing the targeted engaged muscles (by measurement of a physical assessment). Conscientiously added, it should be duly noted that the test affirms the releasing of engaged muscles in a neutral position which is believed to be a root cause solution in such particular cases. Muscles, tendons, and other postural changes are made initially through this release (as demonstrated within this test), to then allow for further adjustments from stretching sequences, breathing exercises, and other movements for the repairing of pulled and shortened muscles, breakage of scar tissue, and the lowering of inflammation which will further return the body to the full anatomically correct position. These results would not be sustained if it were not for the release of engaged muscles prior to their rehabilitation.

Concerning the human senses of wearing the shirt, some participants reported being able to feel the subtle energy field immediately upon wearing the garment. However, most participants do not demonstrate this sensitivity to changes within their bioenergetic field, though still having a successful test outcome of releasing engaged muscles and restoring Functional Posture.

The tests suggest that one without severe injury or deformity may immediately receive the instant re-alignment of skeletal structure at shoulders and hips. This is due to the reflexes and micro movements of the muscles making immediate partial self-adjustment to knees, iliotibial bands, hips, neck, and ribs. A fuller posture self-adjustment can be achieved by a series of stretches and movements thereafter while wearing an article.

**Benefits:**
You may sense the operations of increased blood flow, increase in range of motion, pain relief, and a balanced parasympathetic state.

In recreational applications, Athletes benefit as muscle spindles are responsible for the contraction, length, and rate of speed in which the muscle should be engaged. The stimulus to receptors affords them quick reactions and sustained output, increasing the reflexive reactions demanded in sports resulting in less soft tissue injuries, according to our **Sports Study.**

In practical applications, patrons applying our technology to work uniforms as well as the general public having a selection of garments to choose from, will benefit from the same reflexive reactions and stabilization of the muscles that maintain alignment in posture and balance in the muscles preventing injury or strain in the workplace or at home.

Furthermore, the recovery aspect of athletes and those in post-surgery recovery may benefit from the ability to demonstrate increased blood flow to muscles and parasympathetic state as seen in heart rate variability publishings as shared by many patrons.

**Emerging Uses:**
While we intended for the engaged muscles to pick up our stimulus, we discovered that the whole body allocated a use for it as illustrated from brain mapping and acupuncture shared results. Key discoveries were also made possible through measuring devices such as Heart Quest HRV and NeuralChek HRV to track the overall health and progress of brian wave function and recovery rates of the Autonomic Nervous System. In addition to these, EEG, ECG, and EKG instruments have all captured positive movement within health scores of these devices making them ideal methods to track one's progress in their healing journey. These applications have been drawn upon commercially by Licensees in order to enhance the experience with meditation services and sports recovery and performance, as this technology can be molecularly bonded to almost any item. Feedback from customers also indicate positive effects of Intelligent Threads offering parasympathetic advantages with ADD, ADHD, and Autistic users. High-profile, and energy sensitive, equestrian trainers also reported structural corrections and efficiencies on performing animals when in contact with the Particle.

**Safety:**

A neuron goes through **a cycle of depolarization and polarization** (in short) which basically means that it charges and releases the energies it needs in a cycle so that it consumes only what is needed to complete an action. Neurons activate and work this way.

Our Particle introduces no foreign chemicals or metals to the body and only serves as a stimulus, so the body reacts solely upon its own organic chemistry; which means that the body will create, activate, and deactivate, in a continuous cycle, whatever receptor charge and action potentials are created by the body. The body cannot become over activated.

# Posture Screen Case Series Intelligent Threads


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Intelligent Threads



In this posture screen case study, 11 individuals were evaluated using the posture screen assessment to determine their static standing posture analysis using the PostureScreen ® Mobile app (PSM), which is a digital posturographic assessment tool that was used to perform a 3D postural examination. The PSM has been established as a reliable and valid method for evaluating static posture .


## 1 Introduction

The modern lifestyle, characterized by frequent use of smartphones, computers, and laptops, has been associated with a detrimental impact on cervical health. This habitual practice contributes to the destabilization of the natural cervical curve, resulting in the loss of the typical architecture of the cervical lordotic curve. This alteration is attributed to the elongation of cervical ligaments, leading to the manifestation of symptoms. Research findings suggest that changes in head position have a profound effect on various aspects of health, influencing muscle activity, proprioception, breathing patterns, and the occurrence of neck pain.

A notable study by Szczygiel et al. (2020) represents the first systematic review of the relationship between head posture and the overall function of the human body.

Tension Release Technology ™ (TRT) aims to release and relax tight muscles, facilitating improved body structure realignment. Our hypothesis posits that the implementation of the Tension Release Technology™ can alleviate neck tension, promote enhanced posture, mitigate forward head syndrome, and reduce the effective head weight contributing to overall musculoskeletal well-being.

## 2 Objective

This case study aims to look at the correlation between usage of Tension Release Technology™ (TRT) and static posture using Posture Screen Mobile app assessment. 11 participants were recruited to study evaluate their static posture before and after application of TRT to evaluate postural changes if any.

## 3 Methodology

In a case series involving 11 participants (9 male, 2 female), baseline posture data was gathered using the Posture Screen measure, assessing lateral displacement and effective head weight. The participants were then exposed to Tension Release Technology™ embedded in the Intelligent Threads t-shirt. Posture Screen measures taken 2 minutes after wearing the technology-embedded t-shirt enabled a rapid assessment of immediate changes in musculoskeletal alignment and head weight distribution, offering insights into the swift impact of Tension Release Technology™ on participants' posture.

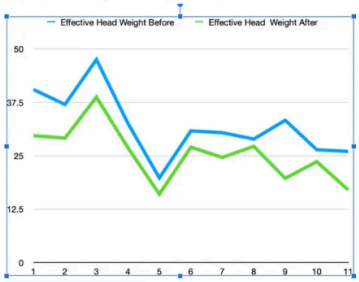
## 4 Results

The average change of the effective head weigh is 6.7 lbs reduction (20.6% reduction). The average change for lateral angulation of the head measured is 4.76 degrees reduction. Paired t-test was applied and the p-value is 0.00007.

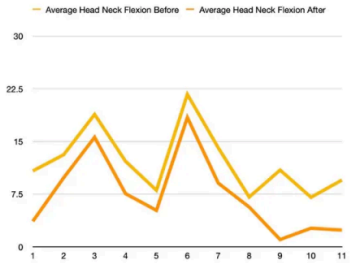
Based on this preliminary case study, it supports the hypothesis that the Tension Release Technology™ helps to reduce the muscle tension in the body, and hence helps to reduce effective head weight and lateral angulation of the head (the impact of forward head posture).

## 5 Analysis

A paired test was selected to analyze Posture Screen data from 11 participants, especially looking at the effective head weight and lateral angulation of the head before and after the introduction of the Tension Release Technology™ embedded in the Intelligent Threads shirt. This method allows for the direct comparison of individual changes within a small sample, enhancing sensitivity to detect intervention effects and ensuring accurate assessment of the technology's impact on these critical variables.




The effective head weight measured from 19.8 lbs to 47.5 lbs before the technology was applied. After, it measured from 16 lbs - 37 lbs . Paired t-test p value is 0.00012




The lateral angulation of the head measured from 7.04 degrees to 21.69 degrees before the technology was applied. After, it measured from 2.37 degrees to 18.4 degrees. Paired t-test was applied and the p-value is 0.00007.

## 6 Conclusion

By using the Tension Release Technology™ for 2 minutes, participants demonstrated improvement in their effective head weight and lateral angulation of the head. This showed potential of the TRT technology to alleviate long term changes that come from overstretching the musculature of the neck: neck pain, low back pain, decreased lordosis of the cervical spine, etc. Because the sample size is small, we need more research with a larger sample size to evaluate the benefit of the Tension Release Technology™ on posture and forward head posture.


**Related literature**

Szczygiel E, Fudacz N, Golec J, Golec E. The impact of the position of the head on the functioning of the human body: a systematic review. Int J Occup Med Environ Health. 2020;33(5):559-568. doi:10.13075/ijomeh.1896.01585

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