



**An introduction to the use of**

**TRIGGER POINT ACUPUNCTURE**

**For**

**MYOFASCIAL PAIN**

**All students must be actively prepared to receive and give acupuncture needling. All students are required to complete the Health screening Form before the onset of the course.**

## HEALTH SCREENING QUESTIONNAIRE

All delegates are asked to complete the following form and return it with their application for the course.

**Delegates are required to give and receive needling on this course and to receive needling, for demonstration purposes, from the tutor.**

Answers to questions will remain confidential to the tutor on the course. This questionnaire is intended to:

- Safeguard your health and well-being during acupuncture needling
- Inform the tutor of previous health issues that may prevent needling
- Prevent any adverse effects from the needling
- Offer a safe and effective learning environment for students and tutors
- Maintain mutual respect for each other.

**Student Name**

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<b>Do you know of any reason that you should not receive acupuncture needling?</b>	Please state ]
<b>Are you receiving any medication that may interact with acupuncture needling?</b>	Please state
<b>Are you pregnant or actively trying for a pregnancy?</b>	Please state
<b>Have you had any adverse effects to needles before?</b>	Please state
<b>I give my consent to receive acupuncture needling from the course tutor and from fellow delegates under tutor supervision.</b>	Signed

# **AN INTRODUCTION TO THE USE OF TRIGGER POINT MANAGEMENT MYOFASCIAL PAIN Two-day Course**

**This is a basic course for acupuncturists. Participants must be prepared to practice and undertake needling and manual techniques. This course offers two components:**

## **Theoretical**

- Introducing the physiology of trigger point activity
- Applying these mechanisms in the physiology of acute and chronic pain
- Interpreting these mechanisms within evidence based clinical application.
- An understanding of anatomical structures under the needle

## **Practical**

Teaching palpatory skills to delegates in order to determine the location and pain pattern referral of common trigger points in:

- Cervical
- Lumbar
- Lower Limb
- Upper Limb
- Safe trigger point deactivation

## **PRE COURSE INFORMATION**

### **INTRODUCTION TO TRIGGER POINTS**

#### **Recommended Pre Course Reading:**

**Whyte-Ferguson L & Gerwin R (2005) Clinical Mastery in the Treatment of Myofascial Pain. Lippincott Williams and Wilkins. ISBN 0-683-30620-0**

**The Color Atlas of Acupuncture, Ear points, Trigger Points and Acupuncture Points will be on sale during the course priced £27.**

The trigger points discussed on this course will adhere closely to the work of Travell and Simons (1901-1997) who pioneered the study and understanding of muscle trigger points in the management of acute and chronic pain.

There are three types of muscle:

1. Skeletal
2. Visceral
3. Cardiac

Each of these exhibits four characteristics:

1. Excitability (irritability)
2. Contractility
3. Extensibility
4. Elasticity

The focus of this course is contractile, voluntary skeletal muscle tissue though any manual stimulus will influence the whole body.

#### **Learning Outcomes**

##### **The course will:**

Introduce the concepts underlying the development of myofascial trigger points and myofascial pain.

1. Introduce the participant to the dysfunctional muscle and the physiological response.
2. Introduce the neurophysiology of muscle pain, referred pain and the concept of the functional motor unit with its diverse spread.
3. Develop an awareness of palpatory and manual skills in the identification of trigger points
4. Develop a programme of treatment management, which will include

diagnosis, myofascial release and needling with appropriate stretching regimes.

5. Identify biomechanical and predisposing factors, which predispose and maintain myofascial pain.
6. Outline the essential component of myofascial trigger point reduction in chronic pain management.

## **PRINCIPLES**

1. Pain results from trigger points in muscle, fascia, skin or tendons and ligaments.
2. Myofascial points are identified by palpation and are characterised by their pain pattern referral.
3. Myofascial muscular trigger points cause
  - a. Restriction of movement
  - b. Muscle weakness
  - c. Interference of reciprocal inhibition

## **Treatment**

1. Elimination of the trigger point
2. Restoration of full range of movement
  - a. Stretching either active or passive or both
  - b. Isometric contraction
  - c. Respiratory facilitation
  - d. Strain and counter strain
3. Restoration of muscle imbalance
4. Postural realignment and rehabilitation.

## MUSCLE PAIN

Muscle pain syndromes are generally classified into three distinct categories:

- **Fibromyalgia**
  - Neuro-endocrine or metabolic dysfunction
  - Widespread and diffuse
- **Myofascial pain syndrome**
  - Regional
  - Acute or Chronic
- **Soft tissue mechanical dysfunction**
  - Mechanical
  - Tears
  - Tendinitis
  - Acute
  - Confined to local area

## MYOFASCIAL PAIN SYNDROME

### Diagnosis

1. Presence of active trigger point
2. Sensitive and painful to touch
3. Existence of taut band of skeletal muscle
4. Patient recognition of pain referral pattern
5. Painful limit to full stretch

### Confirmation

1. Local twitch response
2. Pain or altered sensation on needle application
3. Trigger point release on needling

### Active trigger points

1. Normal physiological movements cause pain
2. Restriction of normal ROM
3. Muscle weakness
4. Kinesiophobia
5. Muscle weakness without atrophy
6. Inhibition of gamma motor neuron activity
7. Reflex inhibition of AHC
8. Autonomic phenomena
  - a. Vascular changes
  - b. Skin temperature
  - c. Pilomotor, secretory and trophic changes

### Latent Trigger points

1. Significant movement or pressure are required to elicit pain

2. Restriction of normal ROM
3. Muscle weakness

### **Clinical Characteristics**

1. Diffuse pain
2. Confined to one or more regions of the body
3. Local sharp pain
4. Referred pain
  - Deep and burning
  - Dull and aching

### **Predisposing factors**

1. Leg length discrepancy
2. Postural overload
3. Post traumatic
4. Small hemipelvis
5. Short upper arm syndrome
6. Long second metatarsal syndrome

### **Pathogenesis**

#### **Musculo-skeletal abnormalities**

- There is some evidence of histological changes at the site of myofascial trigger points identified by light microscopy (Mense 1997). In 1951 Glowsky and Wallraff reported damaged fibril structures.
- Fassbender (1973) observed degenerative changes in I bands in addition to capillary damage. Accumulation of glycogen, disintegration of myofibril network
- Gariphianova (1995) described muscle biopsy results demonstrating mitochondria decrease causing metabolic distress

#### **ENERGY CRISIS HYPOTHESIS**

The local tenderness and taut bands are proposed by Hong (1998) to be caused by decreased circulation and local ischemia due to sustained sarcomere shortening. Brukle (1990) found low O<sub>2</sub> levels (5% of normal) within myofascial trigger points.

Shortening of actin and myosin complex can be caused by traumatic release of calcium either from the sarcomplasmic reticulum or from a failure to restore adenosine triphosphate. This is essential for the normal functioning of the calcium pump and for normal release of actin and myosin complex. The shortage of adenosine triphosphate can result in local muscle contractures or taut bands.

With the impaired calcium pump the intercellular calcium concentration stays elevated causing continuous activation of actin and myosin filaments.

#### **Electrophysiological Abnormalities**

Hubbard and Bekhoff (1993) confirmed the presence of specific electromyographic trigger points of the trapezius muscle. The activity was greater than that in the non-tender muscle, low amplitude continuous action potentials and intermittent spikes are mediated through the motor end plate often associated with excessive ACTH production affecting the voltage-gated sodium channels of the sarcolemmal reticulum and increases the intracellular calcium levels.

In summary myofascial trigger points are probably associated with abnormal motor end plates, which is further supported by the use of botulinum toxin injections, which deactivate motor end plate activity.

### **Autonomic changes**

Administration of the sympathetic blocking agent phentolamine significantly reduces the electrical activity of a myofascial trigger point, which supports the theory that the ANS is involved in the pathogenesis of trigger points (Hubbard 1996; Chen 1998). However, this theory is inconclusive and requires further investigations.

## **MANUAL EFFECTS**

### **Mechanical**

Trigger point acupuncture disrupts the integrity of the dysfunctional motor end plate. It is hypothesized that an accurately placed pressure provides a localized stretch to the contracted cytoskeleton structures, which may disentangle the myosin filaments in the Z band. This appears to have an effect of straightening the collagen fibres (Langevin 2001). This brief mechanical stimulation causes actin cytoskeleton reorganisation increasing interleukins. Group II fibres will register a change in total fibre length which will activate the gate control system by blocking nociceptive input from the trigger point and help alleviate pain (Baldry 2001).

### **Neurophysiological Effects**

A nerve fibre may be stimulated at long as 72 hours after needle insertion. Prolonged stimulation of sensory afferent A fibres may activate the enkephalinergic inhibitory DH interneurons, causing opioid mediated pain suppression.

Activation of serotonergic and noradrenergic descending inhibitory systems, blocking incoming noxious stimuli in the DH. The activation of:

- Enkephaline
- Serotonin
- Noradrenalin is caused by A nerve fibres
- Activation of skin and muscle A and C fibres increases cerebral blood flow.

The analgesic effect involves the medial hypothalamic Arcuate nucleus and the anterior part of the hypothalamic Arcuate nucleus.

## **Chemical effects**

- Bradykinin, CGRP, Substance P.
- Gaba
- Motor end plate actions

## **TREATMENT PROCEDURE**

1. Patients should be treated in lying wherever possible. Syncope is a potential complication of trigger point needling and lying reduces this.
2. The taut band or trigger point is identified and palpated.
3. Palpation and reproduction of pain is experience under the practitioner's hand.
4. Safe, effective needling technique
5. Manual MET procedures.

## **Complications**

1. Allergic reactions
2. Vasodepressive syncope
3. Haematoma
4. Nerve irritation
5. Vascular injury
6. Trauma
7. Infection
8. Increased spasm and pain
9. Muscle soreness

## **Reasons for failure**

1. Diagnostic error
2. Incomplete management of perpetuating factors
3. Missed trigger point
4. The primary trigger point was missed
5. A latent trigger point was treated
6. Inadequate post treatment stretching and muscle imbalance rehabilitation.

## TRIGGER POINTS AND MYOFACIAL PAIN

### Timetable Day I

<b>9.00</b>	<b>Registration</b>	
<b>9.30</b>	<b>Welcome</b>	
	<b>Physiology of myofascial pain Trigger point physiology Physiology of acupuncture</b>	<b>Theoretical perspective Evidence based</b>
<b>10.30</b>	<b>COFFEE</b>	<b>COFFEE</b>
<b>10.50</b>	<b>Findings the trigger points Palpation Practical Needling techniques</b>	<b>Needling safety Needling competency</b>
<b>11.30</b>	<b>Practical Observation Palpation Location</b>	<b>Manual skills Needling skills</b>
<b>12.45</b>	<b>LUNCH</b>	<b>LUNCH</b>
<b>1.30</b>	<b>Head and Neck</b>	<b>Practical application Safety Techniques</b>
<b>2.45</b>	<b>TEA</b>	<b>TEA</b>
<b>3.15</b>	<b>Headaches Cervical Dysfunction  Clinical Reasoning</b>	<b>Headaches TMJ Safety</b>
<b>4.30</b>	<b>Introduction to Shoulder Dysfunction</b>	
<b>5.00</b>	<b>Close</b>	<b>Close</b>

**DAY II**

<b>9.00</b>	<b>Registration</b>	
<b>9.30</b>	<b>Welcome</b>	
	<b>Shoulder Girdle muscles Acute Chronic</b>	<b>Practical needling</b>
<b>10.30</b>	<b>COFFEE</b>	<b>COFFEE</b>
<b>10.50</b>	<b>Thoracic Spine  Lumbar spine</b>	<b>Needling safety Needling competency</b>
<b>11.30</b>	<b>Clinical Reasoning skills</b>	<b>Manual skills Needling skills</b>
<b>12.45</b>	<b>LUNCH</b>	<b>LUNCH</b>
<b>1.30</b>	<b>Knee and Hip</b>	<b>Practical application Safety Techniques</b>
<b>2.45</b>	<b>TEA</b>	<b>TEA</b>
<b>3.15</b>	<b>Clinical problem solving</b>	
<b>4.30</b>	<b>Case Submission</b>	
<b>5.00</b>	<b>Close</b>	<b>Close</b>

## CASE STUDY PROTOCOL

**2,500 WORDS**

<b>STUDENT</b>	<b>NAME</b>
ABSTRACT	100 words
KEY WORDS	10 words
INTRODUCTION and OVERVIEW OF CASE	200 words
CLINICAL REASONING FOR ACUPUNCTURE RELEVANT RESEARCH TO SUPPORT CHOICE	600 words
ACUPUNCTURE POINT RATIONALE	PRODUCED IN TABLE FORMAT 150 words
PHYSIOLOGICAL REASONING FOR ACUPUNCTURE SELECTION	500 words
OUTCOME MEASUREMENTS AND RESULTS	200 words
CONCLUSION AND LIMITATIONS	200 words
DISCUSSION	500 words
AKNOWLEDGEMENT	20-50 words
REFERENCES	
SUBMISSION	WORD FORMAT ARIEL POINT 12

NOTES

**Marks are awarded for:**

- **Integrating clinical reasoning within acupuncture and physiotherapy paradigms.**

- **Supporting acupuncture point selection within current research and evidence based protocols.**
- **Providing outcome measurements that sit well within an acupuncture modality**
- **Integrating reflective practice within the case study**

Banding Criteria for CASE STUDY

Classification	Criteria
86 – 100%	Exceptional abilities over and above criteria justifying excellence
Excellent 70 – 85%	Excellent clarity & logical presentation of patient history & relevant clinical findings. Evidence of extensive reading. Excellent knowledge of relevant theory. Management approach fully appropriate with thorough justification. Excellent analysis of information given in the case study. Strong evidence of ability to evaluate & integrate acupuncture concepts into practice. Appropriate & accurate referencing using Harvard reference system. Appropriate terminology used throughout, grammatically correct & legible. Excellent overall structure & presentation of portfolio.
Very good 60 -69%	Very good clarity & logical presentation of patient history & relevant clinical findings. Evidence of wide reading. Very good knowledge of relevant theory. Management approach appropriate and justified. Very good analysis of information given in the case study. Clear evidence of the ability to evaluate & integrate acupuncture concepts into practice. Appropriate & accurate referencing using Harvard reference system. Appropriate terminology, grammatically correct & legible. Good overall structure & presentation of portfolio.
Good 50 – 59%	Good clarity & logical presentation of patient history & relevant clinical findings. Some evidence of wide reading. Good knowledge of relevant theory. Management approach appropriate with some justification. Good analysis of information given in the case study. Some evidence of ability to evaluate & integrate acupuncture concepts into practice. Appropriate & accurate referencing using Harvard reference system. Appropriate terminology, grammatically correct & legible. Good overall structure & presentation of portfolio.
Satisfactory 40 – 49%	Presentation of patient history & relevant clinical findings lacked logic & clarity in parts. Some reading evident. Satisfactory knowledge of relevant theory. Management approach safe & reasonably appropriate with limited justification. Superficial analysis of information given in the case study. Limited evidence of ability to evaluate & integrate acupuncture concepts into practice. Referencing appropriate but may be inaccurate in places. Appropriate terminology, grammatically correct & legible. Satisfactory overall structure & presentation
Unsatisfactory 30 – 39%	Little or no evidence of higher level cognitive skills Little evidence of understanding relevant theory

	Poor critical appraisal of current literature and relevant research Poor analytical capabilities demonstrated through clinical reasoning Poor links between theory & practice
Significantly unsatisfactory below 30%	Demonstrates unsafe principles of practice Falls below majority of criteria within 30-39% band.