ASSESSMENT & TREATMENT OF FIBROMYALGIA USING ELECTROACUPUNCTURE

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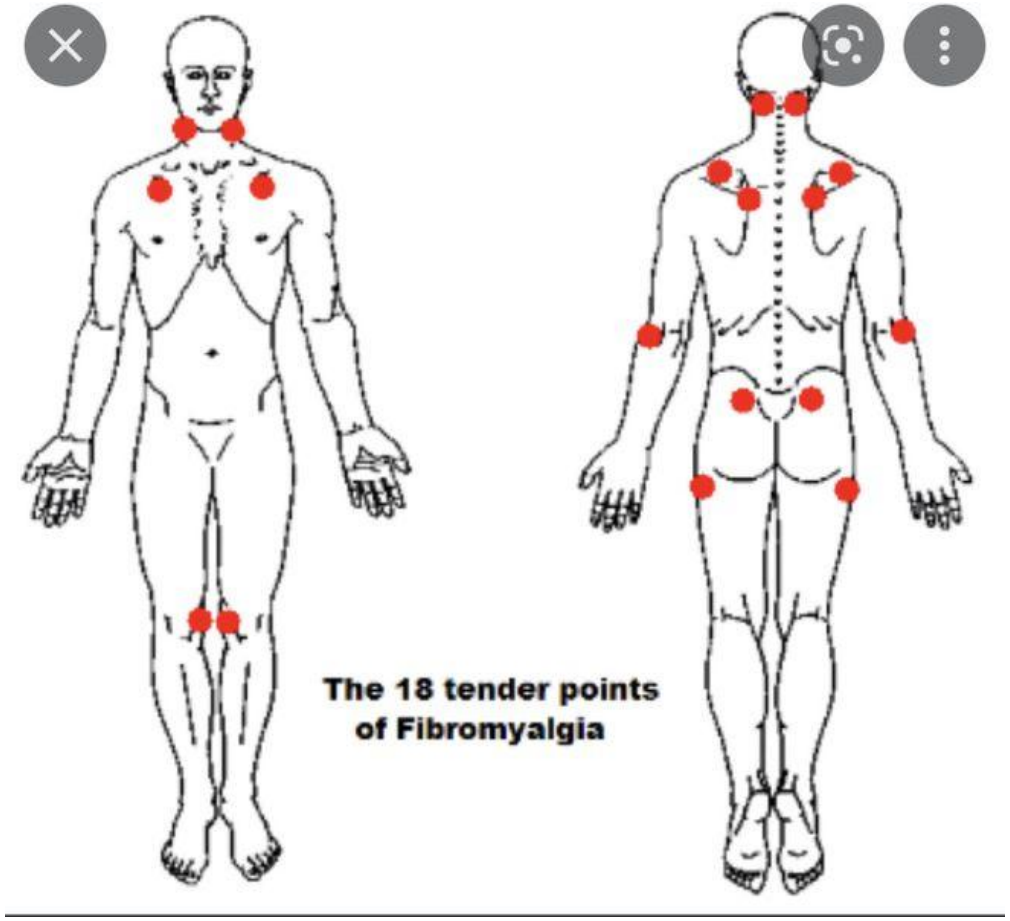
OLD WAY OF DIAGNOSING FIBROMYALGIA



PREDICTORS OF FIBROMYALGIA (IN THOSE WITHOUT IT)

- FEMALE 40-49
- SLEEP DISTURBANCES
- AUTONOMIC DYSFUNCTION
- HEADACHES
- MUSCLE PAINS
- OBESITY
- PSYCHOLOGICAL CONDITIONS: ANXIETY, DEPRESSION, PTSD, BP, OCD
- CHILDHOOD TRAUMA
- CO-MORBITITIES

LOGGIA MILITARY STUDY

- 77,000 OUT OF 2,216,000 MILITARY POPULATION HAD FM
- 8X MORE LIKELY TO BE FEMALE
- MULTIPLE PSYCHOLOGICAL CONDITIONS
- 3X MORE LIKELY TO HAVE A CONNECTIVE TISSUE DISEASE IE. LUPUS, SCLERODERMA, ETC.
- 75-90% ARE MIDDLE AGED WOMEN (40’S)

LOGGIA ET AL

Table 1. Demographic and clinical data on the study subjects*

Variable	Controls (n = 14)	FM patients (n = 31)
Age, years	44.2 ± 14.3	44.0 ± 11.9
Sex, % female	71.4	87.1
Symptom duration, years	–	12.5 ± 12.2
Clinical pain, 0–100 scale		
Intensity	–	34.3 ± 25.19
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Physical function	90.4 ± 26.4	47.4 ± 26.0†
BPI, 0–10 scale		
Pain interference	0.0 ± 0.0	5.5 ± 2.0†
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* Except where indicated otherwise, values are the mean ± SD. FM = fibromyalgia; BDI = Beck Depression Inventory; WPI = Widespread Pain Index; SF-36 = Short Form 36 health survey; BPI = Brief Pain Inventory.
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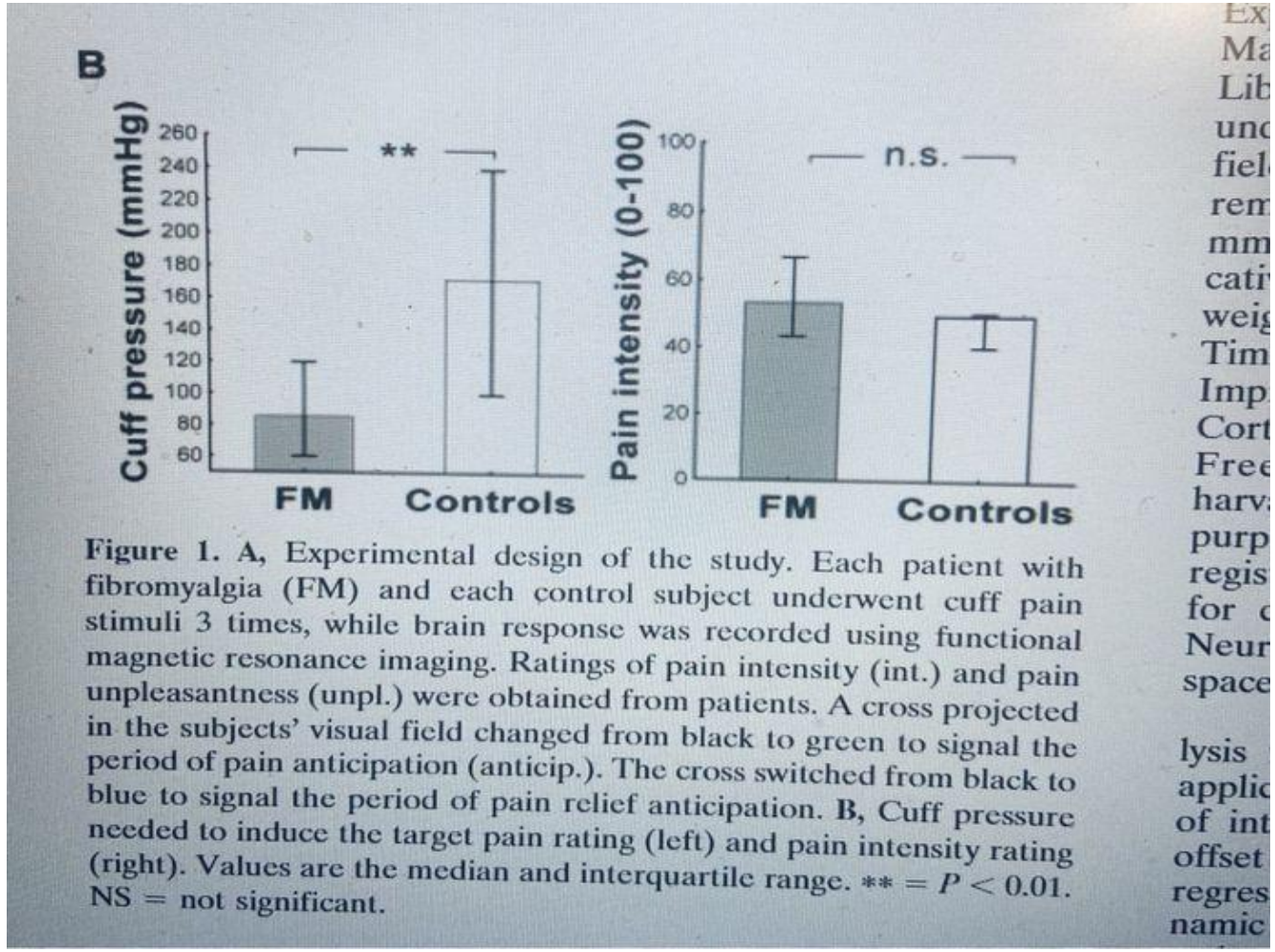
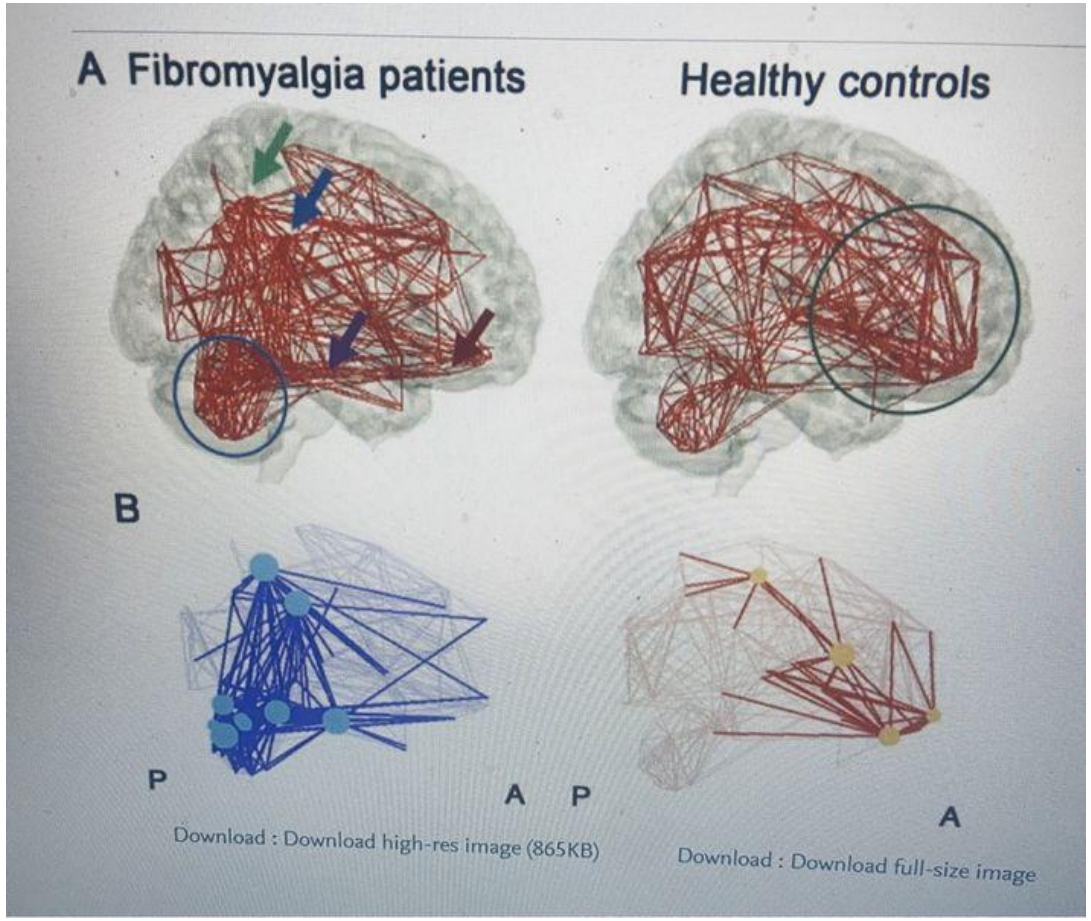


Figure 1. A, Experimental design of the study. Each patient with fibromyalgia (FM) and each control subject underwent cuff pain stimuli 3 times, while brain response was recorded using functional magnetic resonance imaging. Ratings of pain intensity (int.) and pain unpleasantness (unpl.) were obtained from patients. A cross projected in the subjects' visual field changed from black to green to signal the period of pain anticipation (anticip.). The cross switched from black to blue to signal the period of pain relief anticipation. **B,** Cuff pressure needed to induce the target pain rating (left) and pain intensity rating (right). Values are the median and interquartile range. ** = $P < 0.01$. NS = not significant.

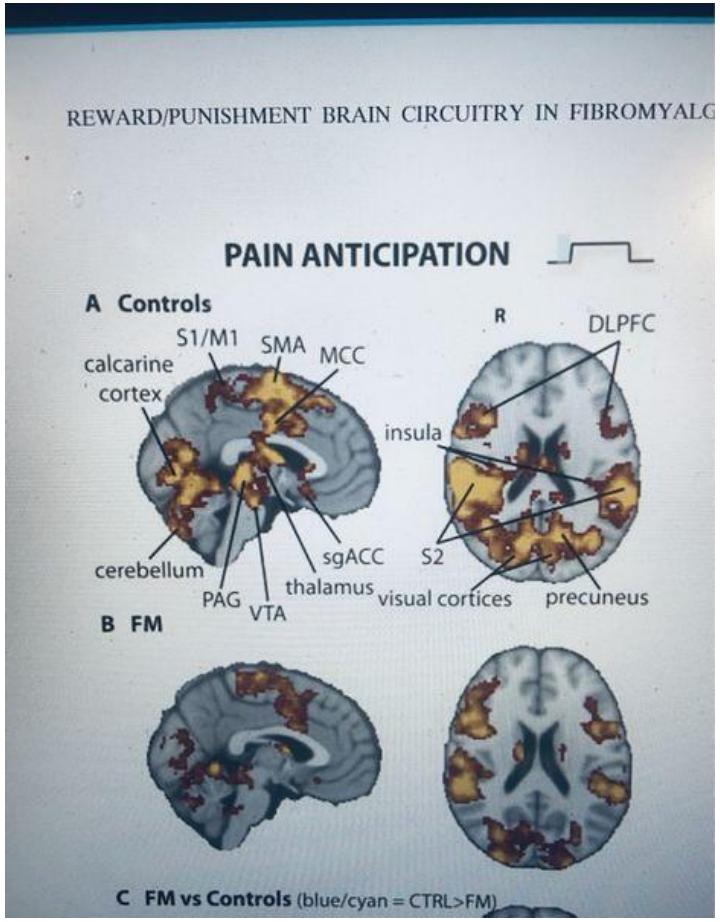
BRAIN CONDUCTIVITY (KIM ET AL, 2015)

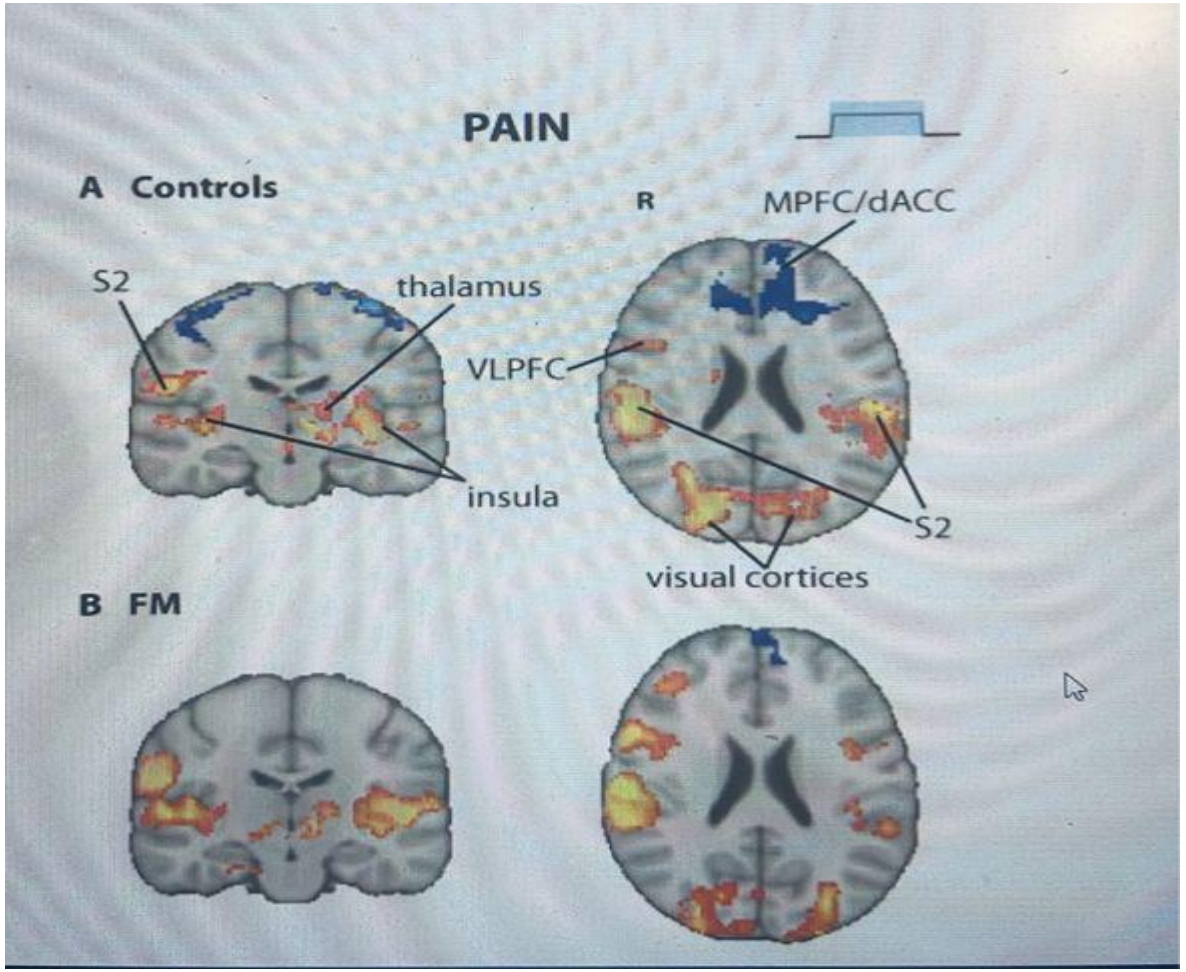
- NORMAL BRAIN FUNCTION HAS A DENSE FRONTAL LOBE
- FM HAS MORE DENSE CONNECTIVITY IN CEREBELLUM WHICH IS CORRELATED WITH DEPRESSION AND HYPERALGESIA BECAUSE THERE IS A DISRUPTION IN PAIN PROCESSION.
- FM PATIENTS HAVE THE REDUCED ABILITY TO ENGAGE THE DECENDING PAIN MODULATORY SYSTEM. IE ENDORPHIN RELEASE
- LETS EXAMINE THE RESEARCH DIAGRAMS

FIBROMYALGIA PATIENTS VS CONTROLS



BRAIN CIRCUITRY DIFFERENCES (KIM ET AL)





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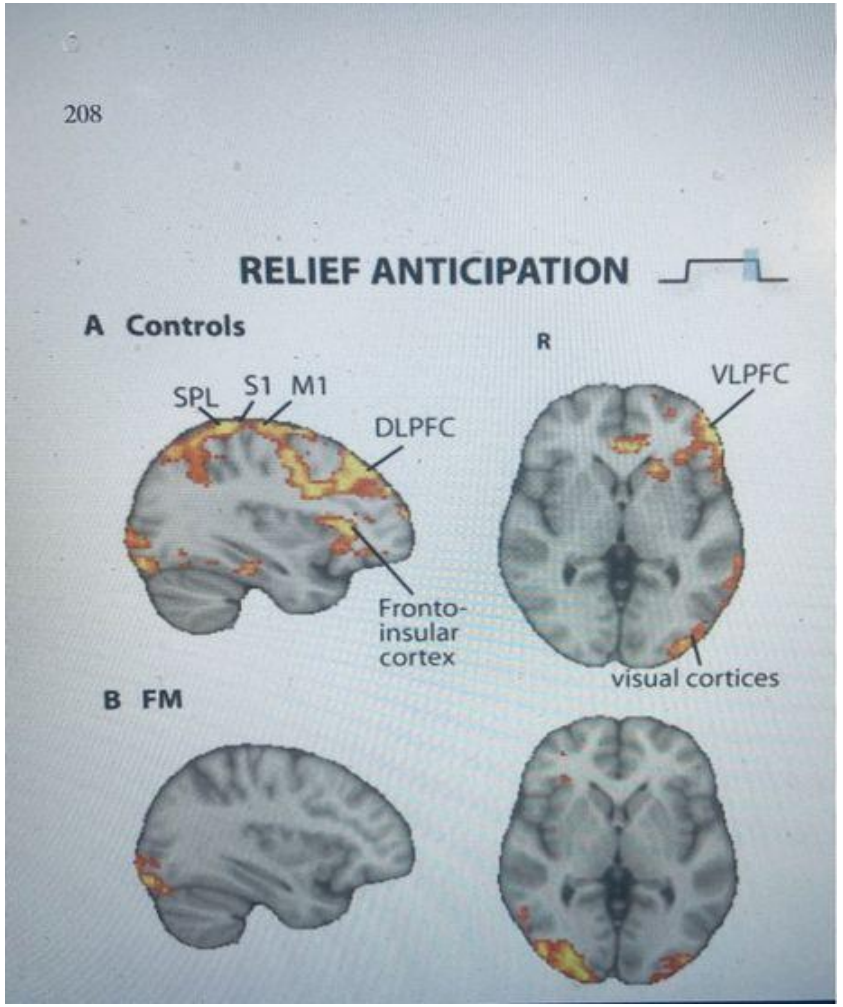


CONCLUSION?

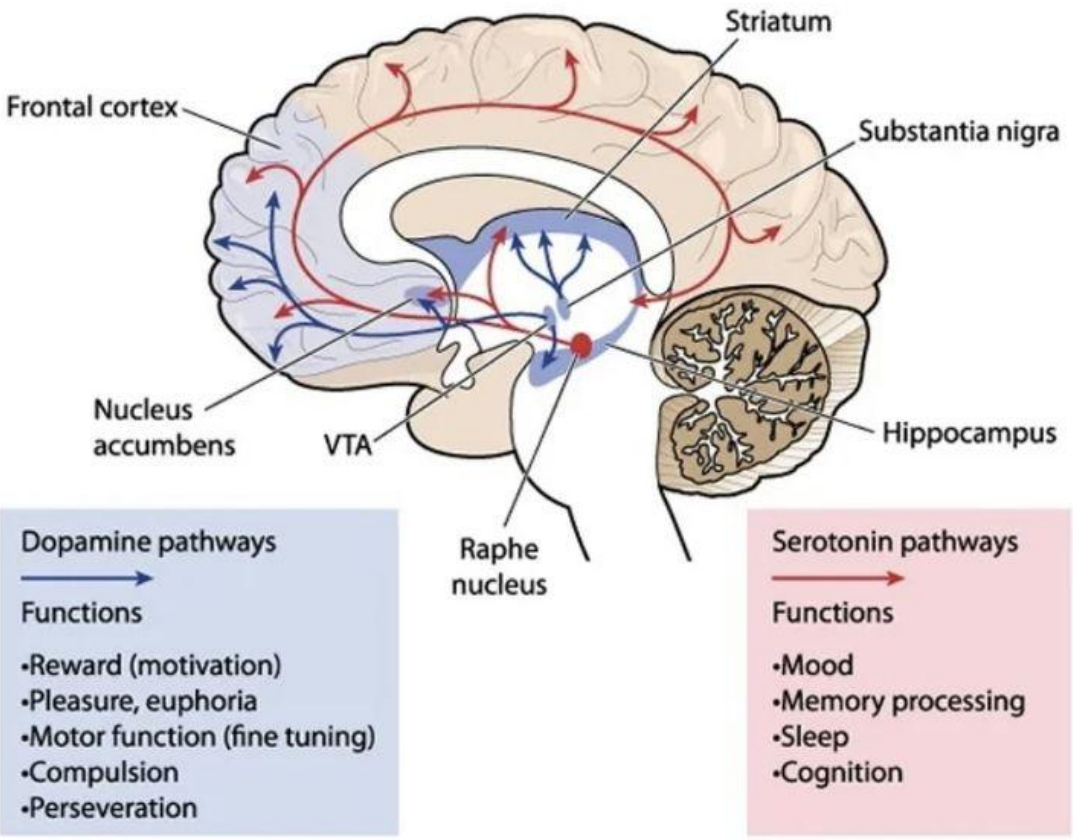
- THERE IS ALTERED DOPAMINERGIC NEUROTRANSMISSION IN FM PATIENTS.

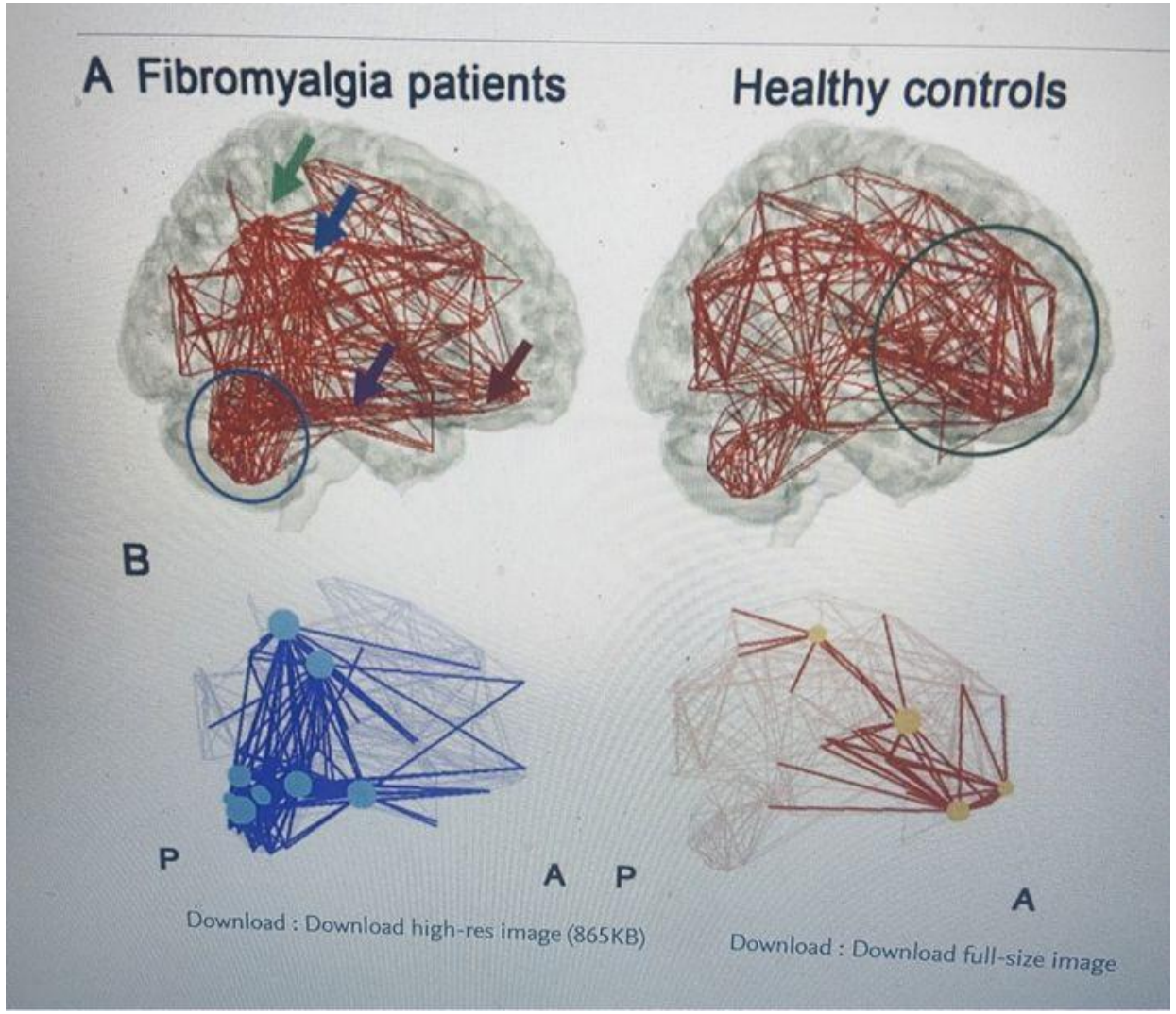
WHAT IS DOPAMINE?

DOPAMINE

- A NEUROTRANSMITTER
- RUSSELL ET AL (1992) FOUND DECREASE OF DOPAMINE IN CSF OF FM PATIENTS.
- SIGNIFICANT REDUCTION IN UPTAKE IN THE DOPAMINERGIC CENTERS OF THE MIDBRAIN WHERE DOPAMINE PLAYS A ROLE IN NATURAL ANALGESIA
- THEY FOUND CHRONIC STRESS CAN DISRUPT DOPAMINE ACTIVITY IN THE VTA (VENTRAL TEGMENTAL AREA)

MIDBRAIN DIAGRAM





PRE-ASSESSMENT: CAUSES

LACK OF DOPAMINE IN POTENTIAL FM PATIENTS

- STRESS
- ALCOHOL/DRUG ABUSE
- OBESITY
- POOR NUTRITION
- HISTORY OF TRAUMA
- DEPRESSION
- RESTLESS LEG SYNDROME
- PARKINSON’S DISEASE

THEREFORE..

- DECREASE DOPAMINE REDUCES ITS FUNCTION IN THE MIDBRAIN WHICH MAKE THE BRAIN LESS RESPONSIVE TO ANTICIPATION OF PAIN AND/OR RELIEF OF PAIN.
- THEREFORE STIMULI BECOME HYPERSENSITIVE SINCE THE BRAIN CANNOT PROPERLY MODULATE NOCICEPTION.
- FOR EXAMPLE…

CASE STUDY

CASE STUDY

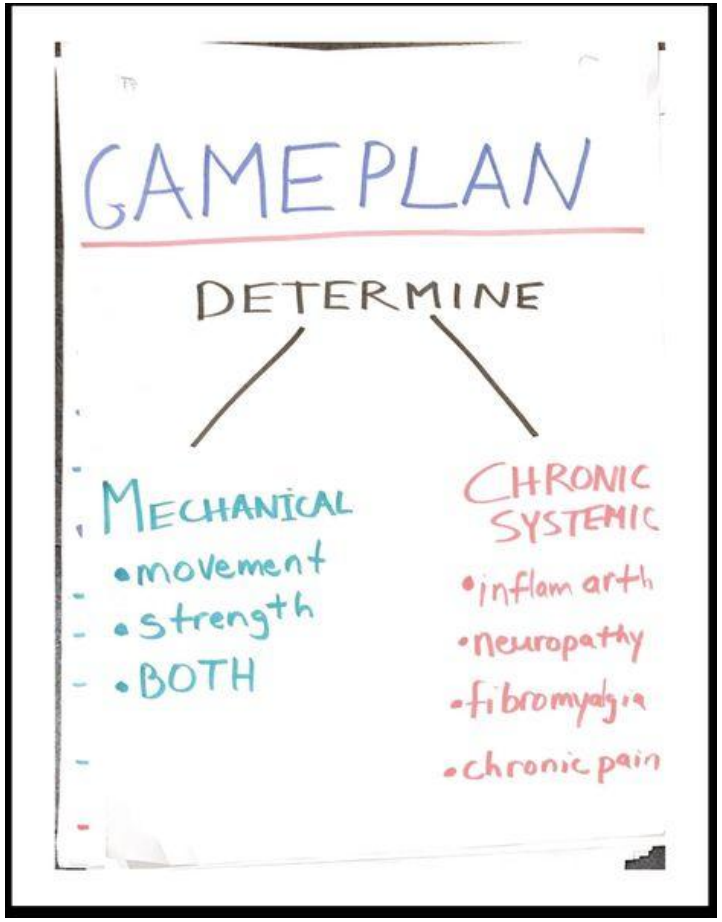
- 41 YEAR OLD FEMALE IN A MINOR MVA
- WHILE PARKED AT A LIGHT HIT FROM BEHIND BY A CAR OVING 8-10 MPH.
- HER RIGHT KNEE MADE CONTACT WITH THE UNDERSIDE OF THE DASHBOARD.
- PATIENT EXPERIENCE EXCRUCIATING PAIN FOR MANY MONTHS
- AFTER HER 3RD VISIT SHE TOLD ME ABOUT SOMETHING THAT HAPPENED TO HER WHEN SHE WAS 9.

HOW TO EXPLAIN THIS TO THE PATIENT

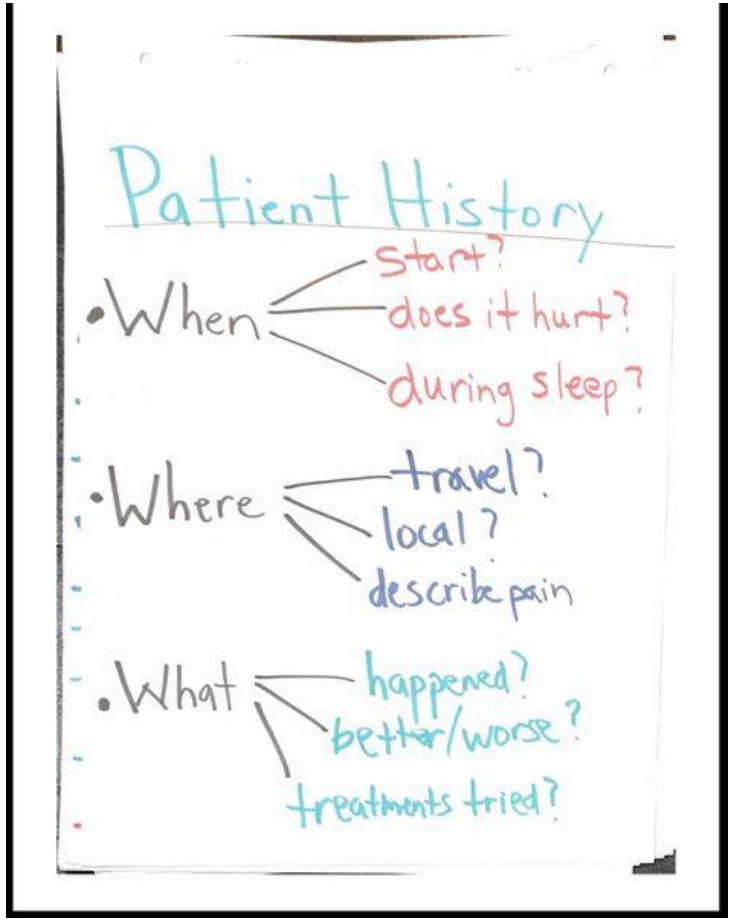
- “CHRONIC PAIN CHANGES THE BRAIN CHEMISTRY. THAT’S WHY YOU DON’T RESPOND TO TREATMENT VERY EASILY.”
- “THEREFORE, LIGHT TRAUMA CAN MAKE THE PAIN WORSE”

RETURNING TO HISTORY

CLASSIFICATION DETERMINES GAMEPLAN



9 QUESTIONS: THE PATIENT HISTORY

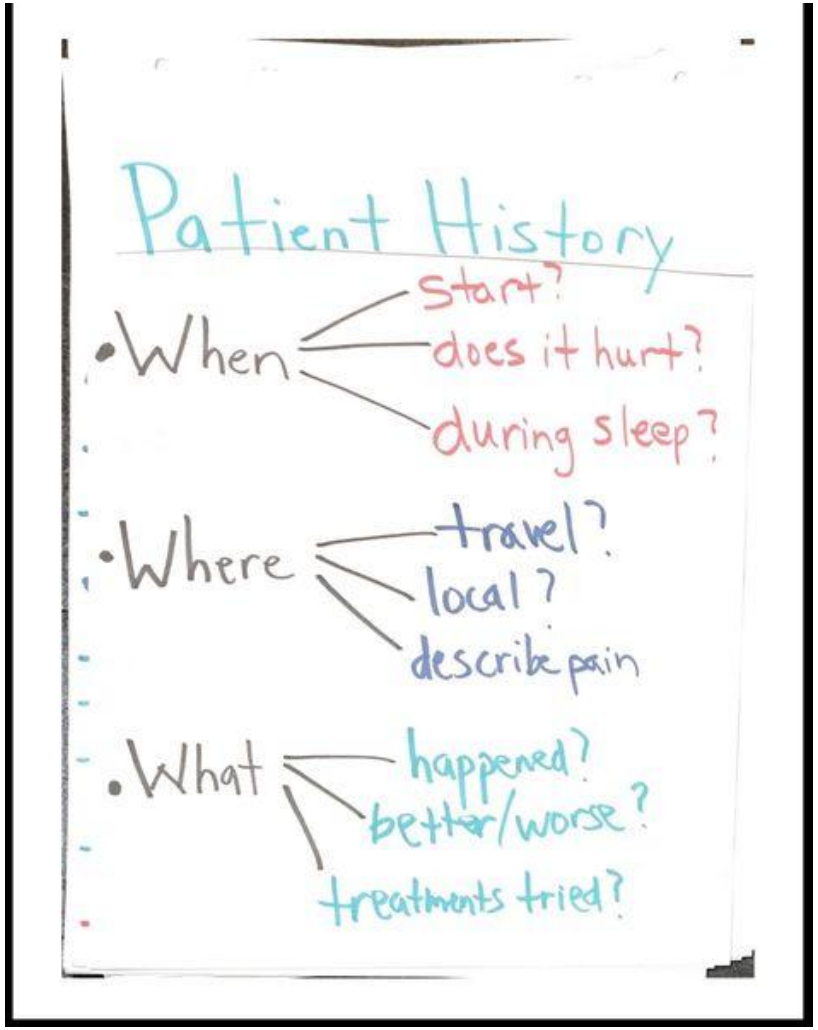


PATIENT HISTORY: *CHRONIC SYSTEMIC*

- PAIN IS ALL THE TIME
- SLEEP USUALLY AFFECTED
- NO DISTINCT ONSET OR MECHANISM
- PAIN IS DESCRIBED AS BEING EVERYWHERE
- NOTHING MAKES IT BETTER
- OFTEN ASSOCIATED WITH PSYCHO-EMOTIONAL CHARACTERISTICS.
- HISTORY OF TRAUMA

(25%-38% OF THE POPULATION)

- IN MULTIPLE MUSCLES: TENDERNESS



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Beck's Depression Inventory

This depression inventory can be self-scored. The scoring scale is at the end of the questionnaire.

1.
- 0 I do not feel sad.
- 1 I feel sad
- 2 I am sad all the time and I can't snap out of it.
- 3 I am so sad and unhappy that I can't stand it.

2.
- 0 I am not particularly discouraged about the future.
- 1 I feel discouraged about the future.
- 2 I feel I have nothing to look forward to.
- 3 I feel the future is hopeless and that things cannot improve.

3.
- 0 I do not feel like a failure.
- 1 I feel I have failed more than the average person.
- 2 As I look back on my life, all I can see is a lot of failures.
- 3 I feel I am a complete failure as a person.

4.
- 0 I get as much satisfaction out of things as I used to.
- 1 I don't enjoy things the way I used to.
- 2 I don't get real satisfaction out of anything anymore.
- 3 I am dissatisfied or bored with everything.

5.
- 0 I don't feel particularly guilty
- 1 I feel guilty a good part of the time.
- 2 I feel quite guilty most of the time.
- 3 I feel guilty all of the time.

6.
- 0 I don't feel I am being punished.
- 1 I feel I may be punished.
- 2 I expect to be punished.
- 3 I feel I am being punished.

7.
- 0 I don't feel disappointed in myself.
- 1 I am disappointed in myself.
- 2 I am disgusted with myself.
- 3 I hate myself.

8.
- 0 I don't feel I am any worse than anybody else.
- 1 I am critical of myself for my weaknesses or mistakes.
- 2 I blame myself all the time for my faults.
- 3 I blame myself for everything bad that happens.

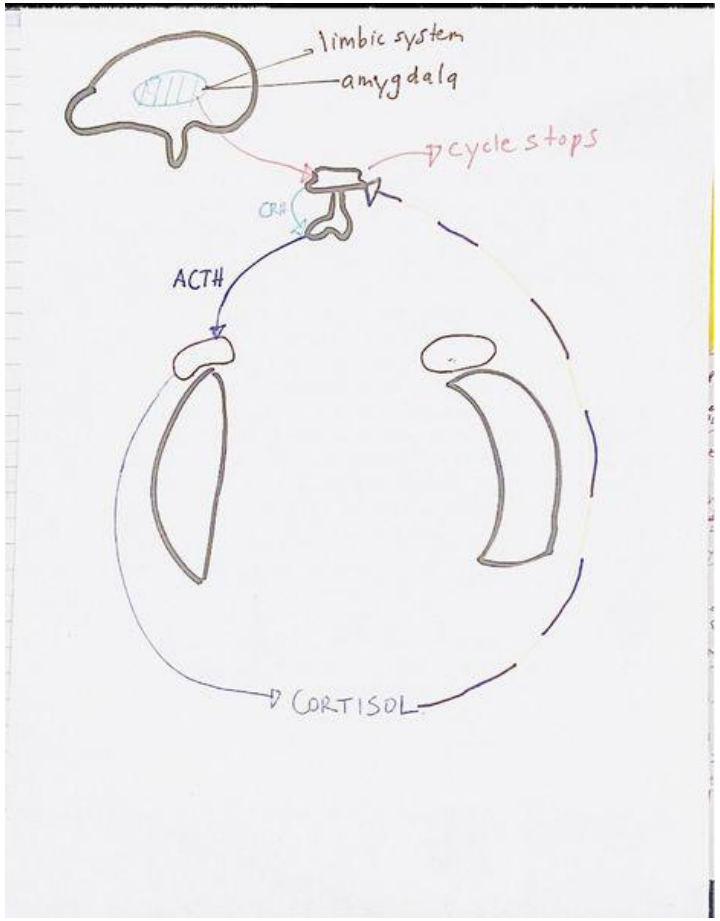
9.
- 0 I don't have any thoughts of killing myself.
- 1 I have thoughts of killing myself, but I would not carry them out.
- 2 I would like to kill myself.
- 3 I would kill myself if I had the chance.

10.
- 0 I don't cry any more than usual.
- 1 I cry more now than I used to.
- 2 I cry all the time now.
- 3 I used to be able to cry, but now I can't cry even though I want to.

GOVERNING SYMPATHETIC TONE

HYPOTHALAMUS, PITUITARY, ADRENAL AXIS

HPA AXIS FLOWCHART



HPA AXIS FLOWCHART IN A FM PATIENT

1. FEAR/STRESS STIMULATES THE LIMBIC SYSTEM TO STIMULATE THE HYPOTHALAMUS
2. CORTICOTROPIN RELEASING HORMONE STIMULATES THE PRODUCTION AND RELEASE OF ADRENOCORTICOTROPIC HORMONE FROM THE PITUITARY GLAND.
3. THE ADRENAL GLAND IS STIMULATED WHICH RELEASE CORTISOL TO AID IN THE “FIGHT OR FLIGHT” REACTION
4. CORTISOL RELEASE GLUCOSE INTO THE BLOOD
5. CORTISOL RELEASE ENDS THE CYCLE – ONLY IN FM PATIENT THE CONSTANT PAIN ALWAYS TRIGGERS THE LIMBIC AND STARTS THE CYCLE OVER.

KEY FACTORS INFLUENCING HPA AXIS

- MENTAL/EMOTIONAL
- SLEEP DISORDERS
- ***METABOLIC: TOO MUCH GLUCOSE IN THE BLOOD CAN EVENTUALLY CAUSE THE MUSCLE, FAT, AND LIVER CELLS TO BE RESISTANCE TO INSULIN OR THE PANCREAS IS UNABLE TO PRODUCE AMOUNT OF INSULIN.***

**1 OR ALL 3 CAN TRIGGER FEAR IN THE LIMBIC SYSTEM WHICH MAY START THE CYCLE OVER AGAIN.

FIBROMYALGIA & DIABETES

FIBROMYALGIA AND DIABETES

- **Conclusion:** Fibromyalgia is a common finding in patients with types 1 and 2 diabetes, and its prevalence could be related to control of the disease. As with other diabetes complications, FM might be prevented by improved control of blood glucose levels.
- 2003 Jul;23(4):171-3. doi: 10.1007/s00296-002-0279-7.

FINDINGS OF LOW CORTISOL

- LOW CORTISOL (DOPAMINE) FOUND IN FIBROMYALGIA PATIENTS
- LOW CORTISOL (DOPAMINE) FOUND IN DEPRESSION
- LOW CORTISOL (DOPAMINE) FOUND IN HISTORY OF TRAUMA AND ABUSE

BLOODWORK

WHEN TO ORDER BLOODWORK AND WHY?

- NOT RESPONDING TO TREATMENT
- NEUROPATHIC SIGNS/SYMPTOMS
- PAIN IN MULTIPLE JOINTS/REGIONS
- PREDOMINANT PAIN IN STIFFINESS IN THE MORNING IN AGE 25-40
- MULTIPLE CHRONIC SYSTEMIC CHARACTERISTICS

BLOOD TEST MARKERS

- **C-REACTIVE PROTEIN (CRP):** MEASURE THE LEVEL OF INFLAMMATION IN THE BODY BUT CAN BE DUE TO HEART DISEASE, CANCERS, INFECTIONS, AUTOIMMUNE DISEASES ETC
- **RHEUMATOID FACTOR (RF):** A POSITIVE TEST INDICATES AN ASSOCIATION WITH AUTOIMMUNE DISEASES, IN PARTICULAR RHEUMATOID ARTHRITIS

BLOOD TEST MARKERS

- **ANA (ANTINUCLEAR ANTIBODY):** THIS IS USED TO SCREEN AUTOIMMUNE DISORDERS. ALMOST 100% POSITIVE IN SLE PATIENTS CAN BE POSITIVE FOR OTHER CONDITIONS.
- **ANTI-dsDNA**: VERY SPECIFIC TO SLE. ALSO SEEN IN RA AND AUTOIMMUNE HEPATITIS.

BLOOD TEST MARKERS

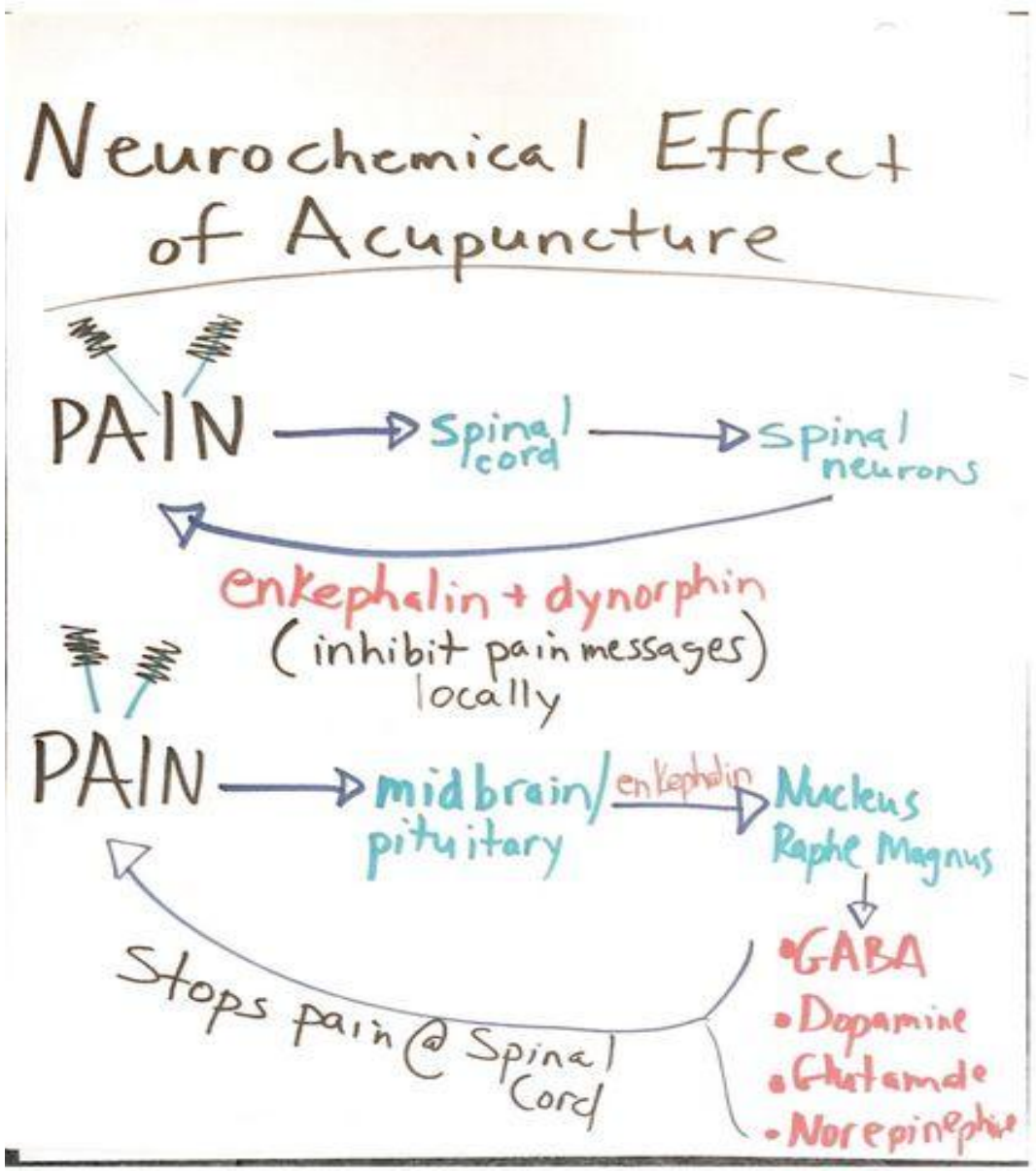
- **HLA (HUMAN LEUKOCYTE ANTIGEN):** SPECIFICALLY HLA-B27. POSITIVE IN SPONDYLOARTHROPATIES, IE ANKYLOSING SPONDYLITIS, SOMETIMES PSORIATIC ARTHRITIS, AND IN REACTIVE ARTHRITIS.

TREATMENT

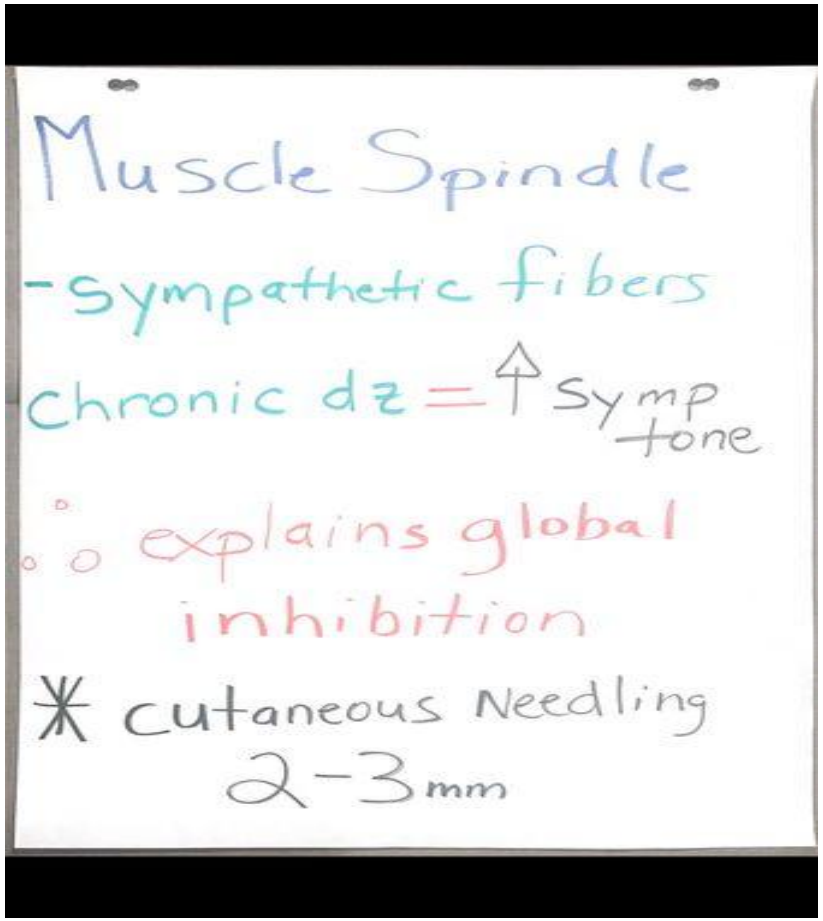
REVIEW OF FUNCTION

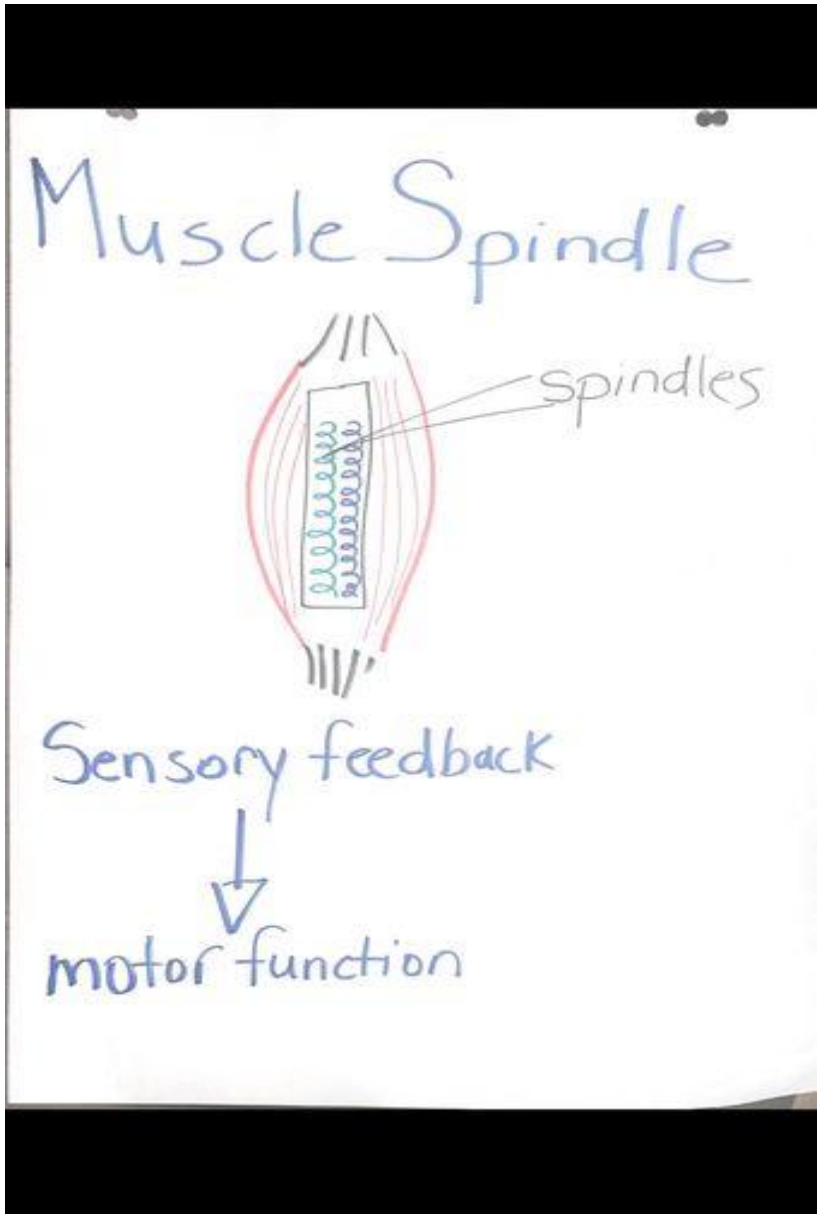
-NON-NOXIOUS STIMULUS CLOSES THE “GATE” WHICH PREVENTS NOCICEPTION FROM REACHING THE PRE-FRONTAL CORTEX

-ELECTROACUPUNCTURE AMPLIFIES THE STIMULUS THAT STOPS THE PAIN RESPONSES, WHICH INCLUDED **DOPAMINE**

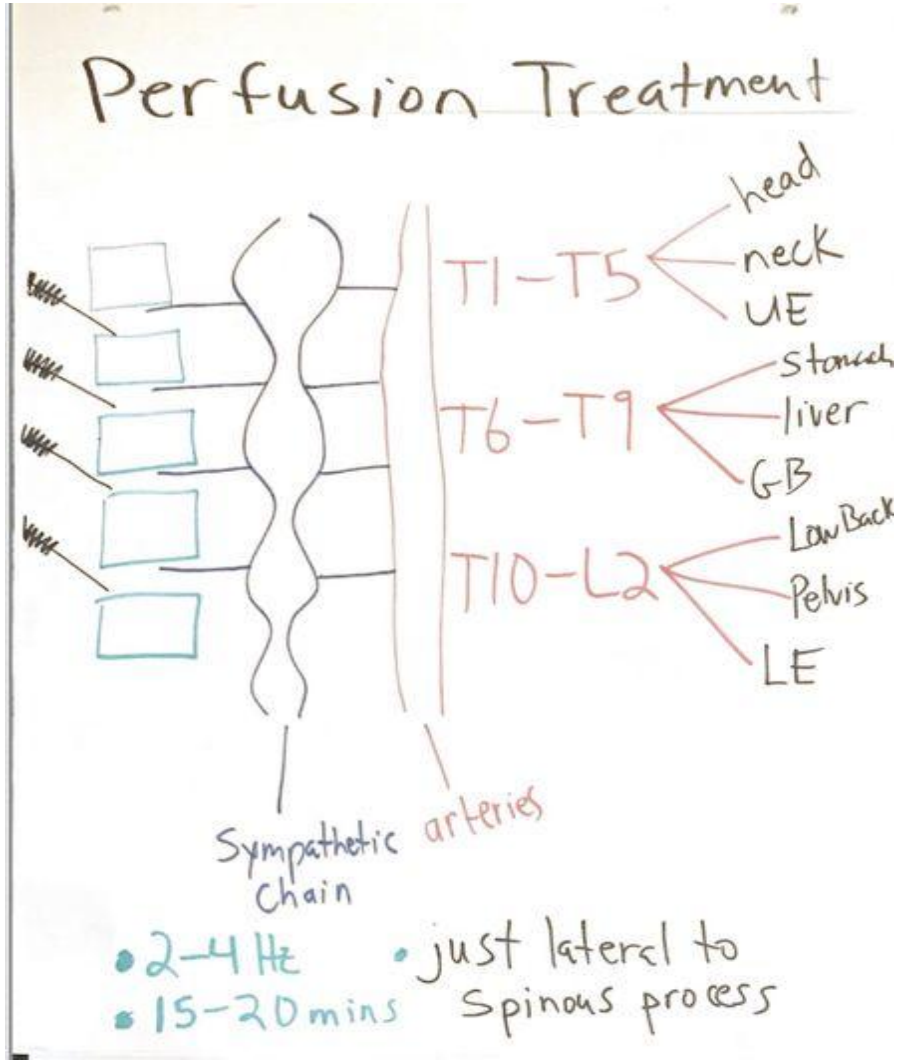


MUSCLE SPINDLES





PERFUSION TREATMENT: BLOOD RESTORED



GB 34 AND DOPAMINE FUNCTION

CNS Neuroscience & Therapeutics
Wiley-Blackwell

Acupuncture Stimulation on GB34 Activates Neural Responses Associated with Parkinson's Disease

Sujung Yeo, Sabina Lim, [...], and Sung-Hoon Kim

Additional article information

Summary

Background

Results

Acupuncture stimulation increased neural responses in regions including the substantia nigra, caudate, thalamus, and putamen, which are impaired caused by PD.

Conclusions

Areas associated with PD were activated by the acupuncture stimulation on GB34. This shows that acupuncture treatment on GB34 may be effective in improving the symptoms of PD. Although more randomized controlled trials on the topic will be needed, this study shows that acupuncture may be helpful in the treatment of symptoms involving PD.

FM TREATMENT PROTOCOLS

1. ONE NEEDLE TECHNIQUE SURFACE PECKING
2. SUPERFICIAL 2NT TO TENDER POINTS AT 25 HZ (FLICKERING)
3. SUPERFICIAL IN-LINE TECHNIQUE (FLICKERING)
4. PERFUSION TREATMENT
5. BILATERAL GB 34 EVERYTIME.

END