

OSTEOPATHIC TREATMENT OF THE PSYCHIATRIC PATIENT

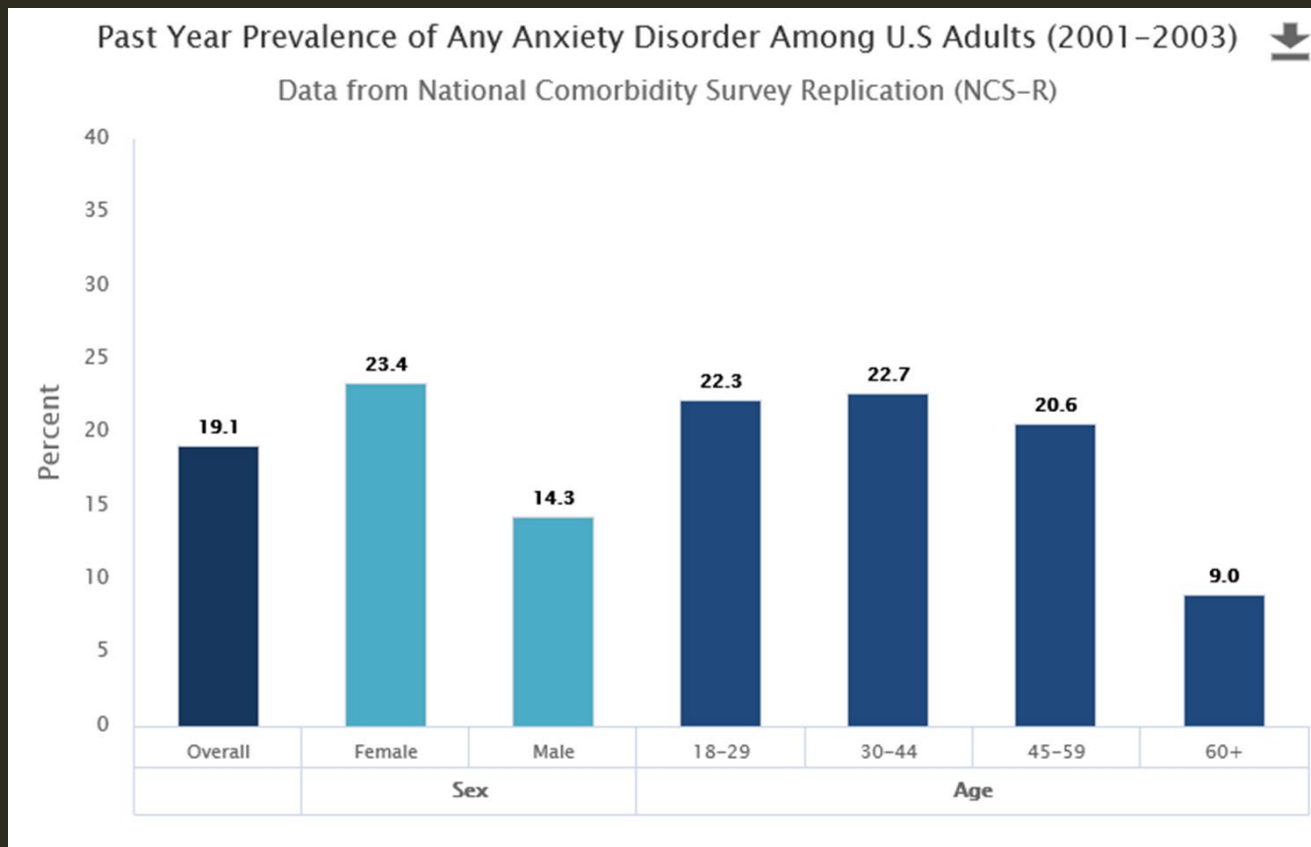
HELENE ALPHONSO DO FAPA

GOALS AND OBJECTIVES

1. Identify the prevalence of Psychiatric conditions
2. Elicit clues to accurate diagnosis of Psychiatric conditions
3. Identify somatic dysfunction patterns in patients experiencing Psychiatric conditions and their link to increased sympathetic tone
4. Treat somatic dysfunction in patients experiencing Psychiatric conditions
5. Apply the principles of monoamines in depression and anxiety treatment
6. Understand the mechanism of action of the most prescribed medications in Psychiatry

PREVALENCE AND DIAGNOSIS OF PSYCHIATRIC CONDITIONS

PREVALENCE OF ANY ANXIETY DISORDER AMONG ADULTS

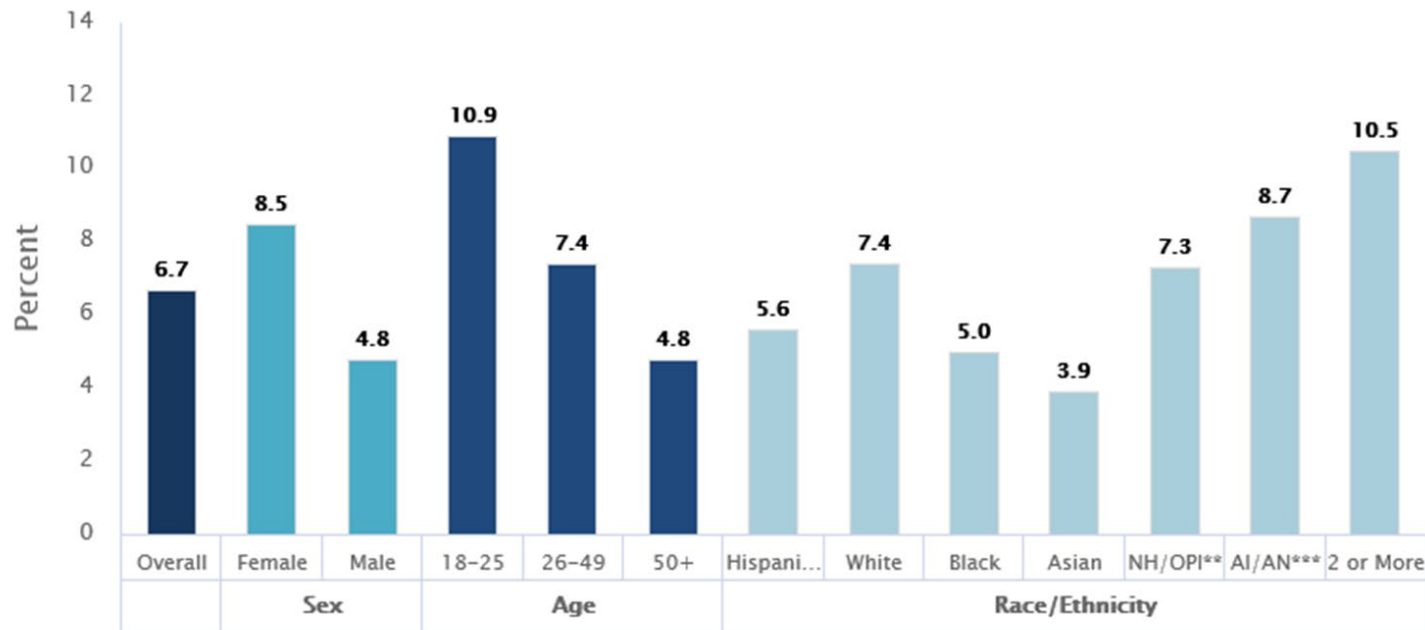


PREVALENCE OF MAJOR DEPRESSIVE EPISODE AMONG ADULTS

Past Year Prevalence of Major Depressive Episode Among U.S. Adults (2016)



Data Courtesy of SAMHSA

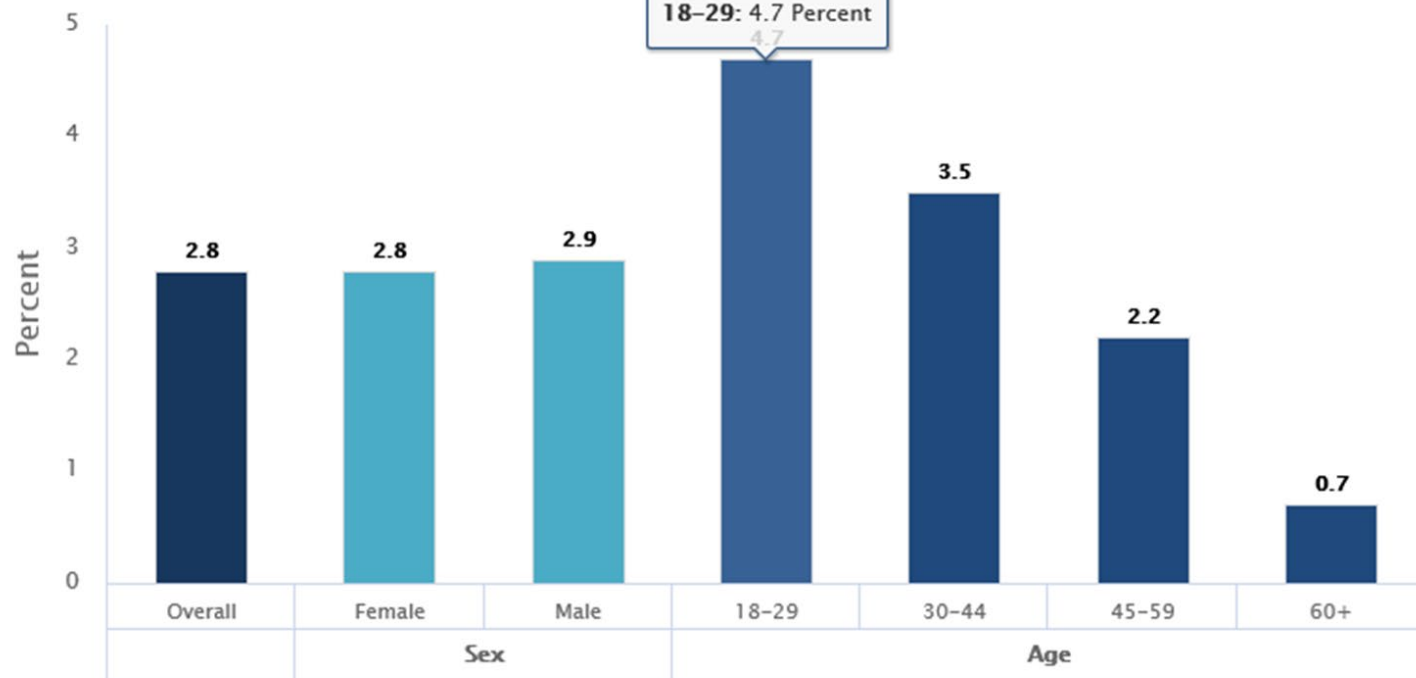


*All other groups are non-Hispanic or Latino | **NH/OPI = Native Hawaiian / Other Pacific Islander
| ***AI/AN = American Indian / Alaskan Native

PREVALENCE OF BIPOLAR DISORDER AMONG ADULTS

Past Year Prevalence of Bipolar Disorder Among U.S. Adults (2001–2003)

Data from National Comorbidity Survey Replication (NCS-R)



PERSONALITY DISORDERS

Personality disorders represent “an enduring pattern of inner experience and behavior that deviates markedly from the expectations of the individual’s culture” per the Diagnostic and Statistical Manual on Mental Disorders, Fifth Edition (DSM-5). These patterns tend to be fixed and consistent across situations and leads to distress or impairment. Additional data on borderline personality disorder is included on this page.

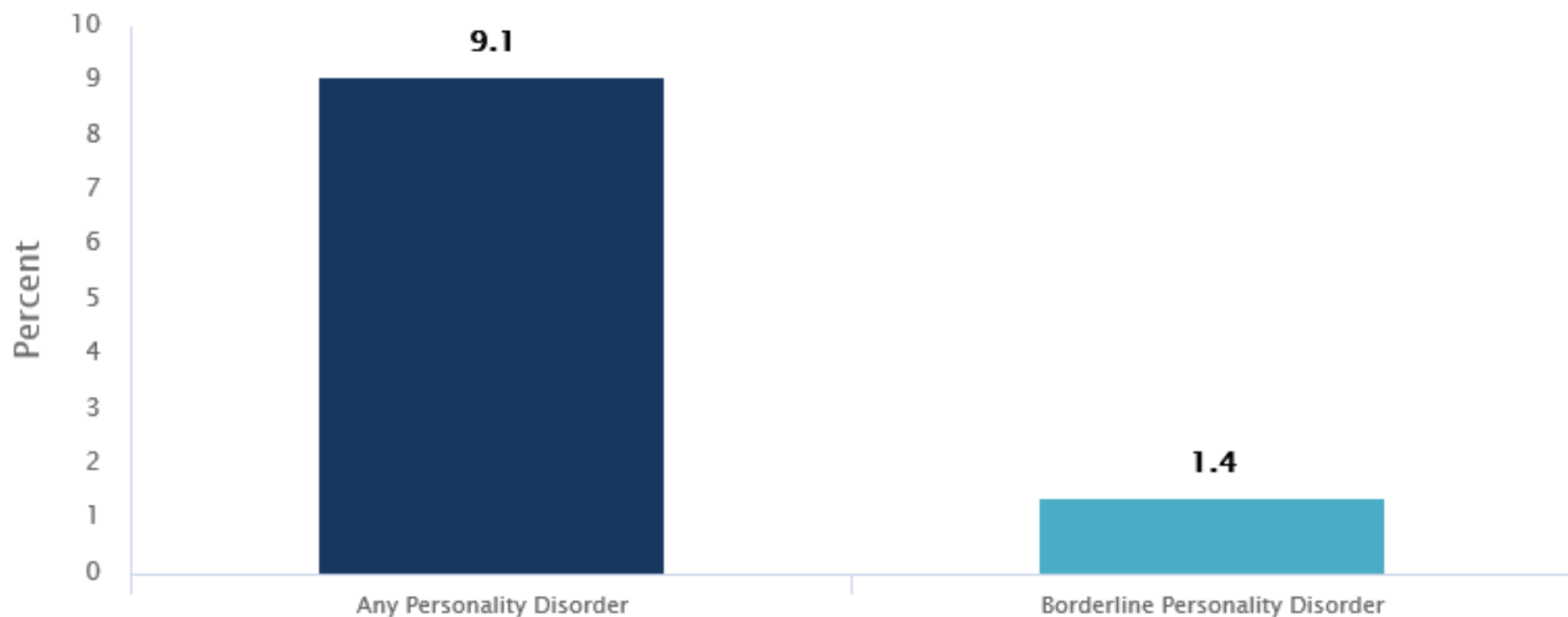
BORDERLINE PERSONALITY DISORDER

Borderline personality disorder is a serious mental disorder marked by a pattern of instability in moods, behavior, self-image, and functioning. These experiences often result in impulsive actions and unstable relationships. A person with borderline personality disorder may experience intense episodes of anger, depression, and anxiety that may last from only a few hours to days.

Past Year Prevalence of Personality Disorders Among Adults (2001–2003)



Data from National Comorbidity Survey Replication (NCS-R)



Past Year Co-morbidity of Personality Disorders with Other Core Disorders Among U.S. Adults

Data from National Comorbidity Survey - Replication (NCS-R)¹

	Any Personality Disorder (%)	Borderline (%)
Any Anxiety Disorder	52.4	60.5
Any Mood Disorder	24.1	34.3
Any Impulse Control Disorder	23.2	49.0
Any Substance Use Disorder	22.6	38.2
Any Disorder	67.0	84.5

BORDERLINE PERSONALITY DISORDER IN PRIMARY CARE

January 14, 2002

Raz Gross, MD, MPH; Mark Olfson, MD, MPH; Marc Gameroff, MA; et al Steven Shea, MD; Adriana Feder, MD; Milton Fuentes, PSYD; Rafael Lantigua, MD; Myrna M. Weissman, PhD

Arch Intern Med. 2002;162(1):53-60.

BORDERLINE PERSONALITY DISORDER IN PRIMARY CARE

Methods We examined data from a survey conducted on a systematic sample (N = 218) from an urban primary care practice to study the prevalence, clinical features, comorbidity, associated impairment, and rate of treatment of BPD. Psychiatric assessments were conducted by mental health professionals using structured clinical interviews.

Results Lifetime prevalence of BPD was 6.4% (14/218 patients). The BPD group had a high rate of current suicidal ideation (3 patients [21.4%]), bipolar disorder (3 [21.4%]), and major depressive (5 [35.7%]) and anxiety (8 [57.1%]) disorders. Half of the BPD patients reported not receiving mental health treatment in the past year and nearly as many (6 [42.9%]) were not recognized by their primary care physicians as having an ongoing emotional or mental health problem.

Conclusions The prevalence of BPD in primary care is high, about 4-fold higher than that found in general community studies. (24%) Despite availability of various pharmacological and psychological interventions that are helpful in treating symptoms of BPD, and despite the association of this disorder with suicidal ideation, comorbid psychiatric disorders, and functional impairment, BPD is largely unrecognized and untreated. These findings are also important for the primary care physician, because unrecognized BPD may underlie difficult patient-physician relationships and complicate medical treatment.

AMYGDALA HYPERREACTIVITY IN BORDERLINE PERSONALITY DISORDER: IMPLICATIONS FOR EMOTIONAL DYSREGULATION

Nelson H. Donegan, Charles A. Sanislow, Hilary P. Blumberg, Robert K. Fulbright, Cheryl Lacadie, Pawel Skudlarski, John C. Gore, Ingrid R. Olson, Thomas H. McGlashan, and Bruce E. Wexler

Biological Psychiatry, 54(11), 1284-1293

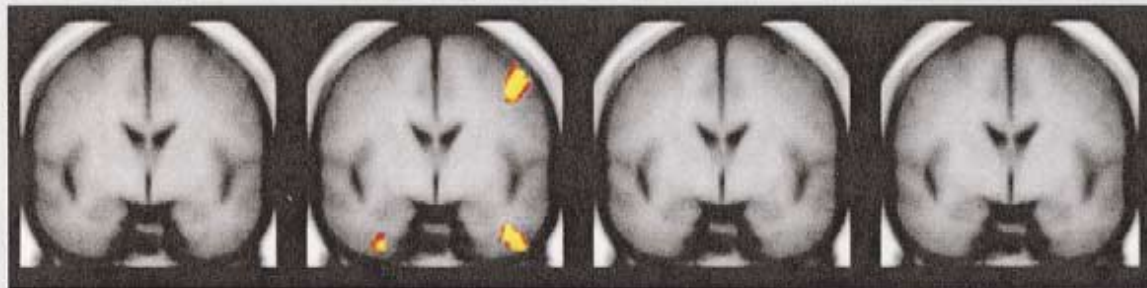


Neutral - Fixation

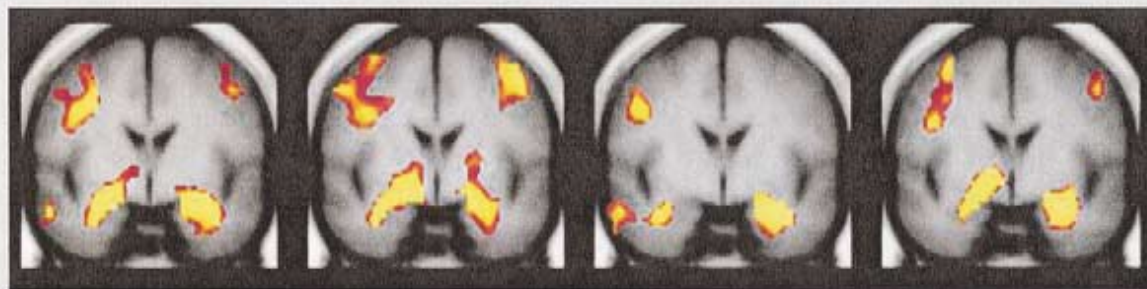
Happy - Fixation

Sad - Fixation

Fearful - Fixation



Controls



Borderline Patients



This U Tube Video can be life changing:
"Back From the Edge" Marsha Linehan PhD



"Back From the Edge" -
Borderline Personality Disorder...

NewYork-Presbyterian Hospital

1.9M views

DIAGNOSING MAJOR DEPRESSION

Sleeping too much or too little

Interest dramatically decreased (even when something good happens you have little to no enjoyment in it eg: if you won the lottery tomorrow how would that change your situation?)

Guilt and/or worthlessness that is persistent and excessive

Energy decreased

Concentration decreased

Appetite decreased or increased

Psychomotor slowing or purposeless hyperactivity

Suicidal ideation

DIAGNOSING GENERALIZED ANXIETY

Excessive anxiety and worry occurring most days over 6 months in a variety of settings.

The individual finds it difficult to control the worry

- Restlessness, keyed up, on edge
- Easily fatigued
- Difficulty concentrating or mind going blank
- Irritability
- Muscle tension
- Sleep disturbance (difficulty falling or staying asleep/restless, unsatisfying sleep)

DIAGNOSING BIPOLAR DISORDER

Mania:

- A distinct period of abnormally and persistently elevated, expansive, or irritable mood and abnormally and persistently increased goal-directed activity or energy lasting at least 1 week.
 - Distractibility (too easily drawn to unimportant or irrelevant external stimuli)
 - Talkative to the point they are difficult to interrupt. Sometimes sending long letters, texts, e mails with disorganized rambling.
 - Racing thoughts/flight of ideas: difficult to follow patient's point due to changing subject
 - Hyposomnia-going with no sleep, or feeling rested after 3 hours a night
 - Increase in goal directed activities-
 - Grandiosity-thinking they will become famous, save the world, they are a god, etc.
 - Hypersexual

OVERLAP BETWEEN MANIA AND ANXIETY

- Distractibility
- Talkative to the point they are difficult to interrupt
- Racing thoughts/flight of ideas
- Hyposomnia
- Increase in goal directed activities
- Grandiosity
- Hypersexual
- Restlessness, keyed up, on edge
- Easily fatigued
- Difficulty concentrating or mind going blank
- Irritability
- Muscle tension
- Sleep disturbance

HIGH YIELD BIPOLAR SCREENING QUESTIONS

Do you have a family history of Bipolar Disorder?

Have you ever been hospitalized in a psychiatric unit?

- When you were hospitalized what were your behaviors like?

How long can you go without sleeping?

What did you do during that time?

How long can you go with 3 hours of sleep a night?

Did you feel energized the next morning?

Were you ever taking an antidepressant without a mood stabilizer?

RISK OF SWITCH IN MOOD POLARITY TO HYPOMANIA OR MANIA IN PATIENTS WITH BIPOLAR DEPRESSION

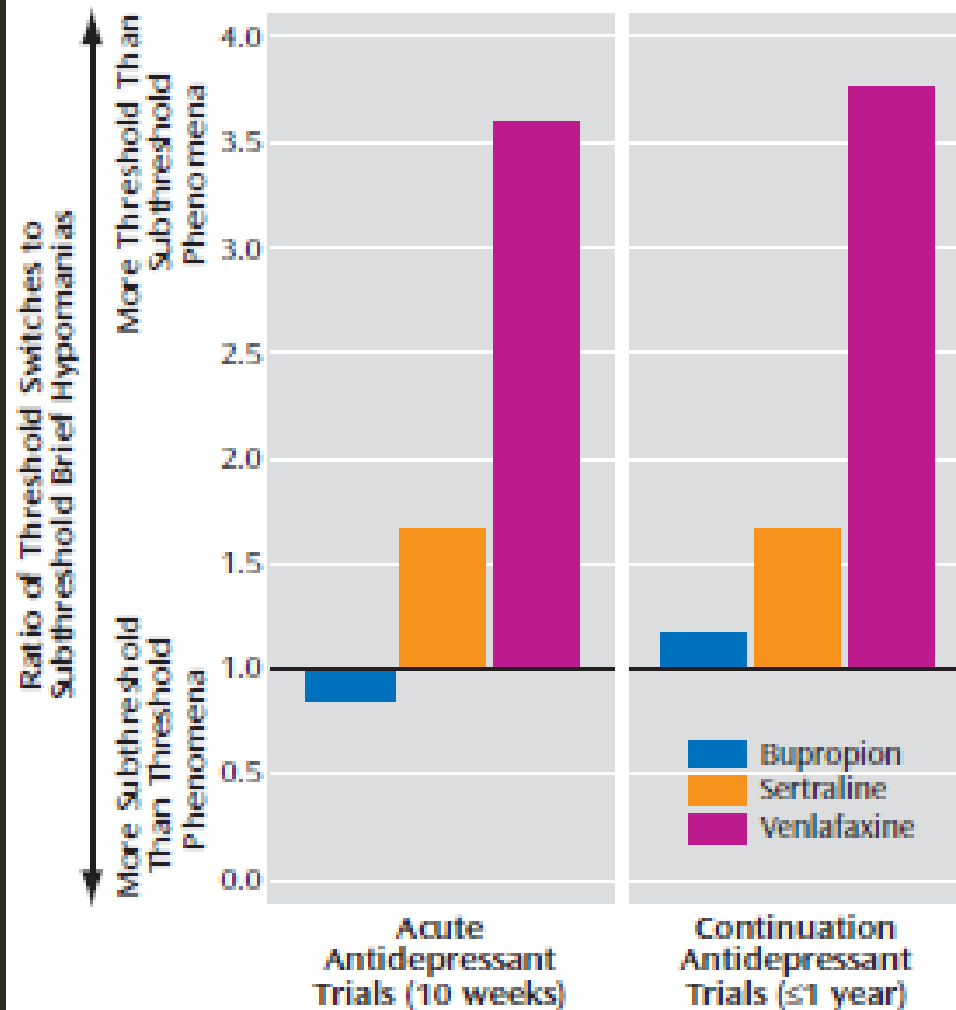
159 patients with Bipolar I and Bipolar II

Results: Switches occurred in 11.4% and 7.9% of the acute treatment, and 21.8% and 14.9% of the continuation groups.

Bipolar I switching 30.8%

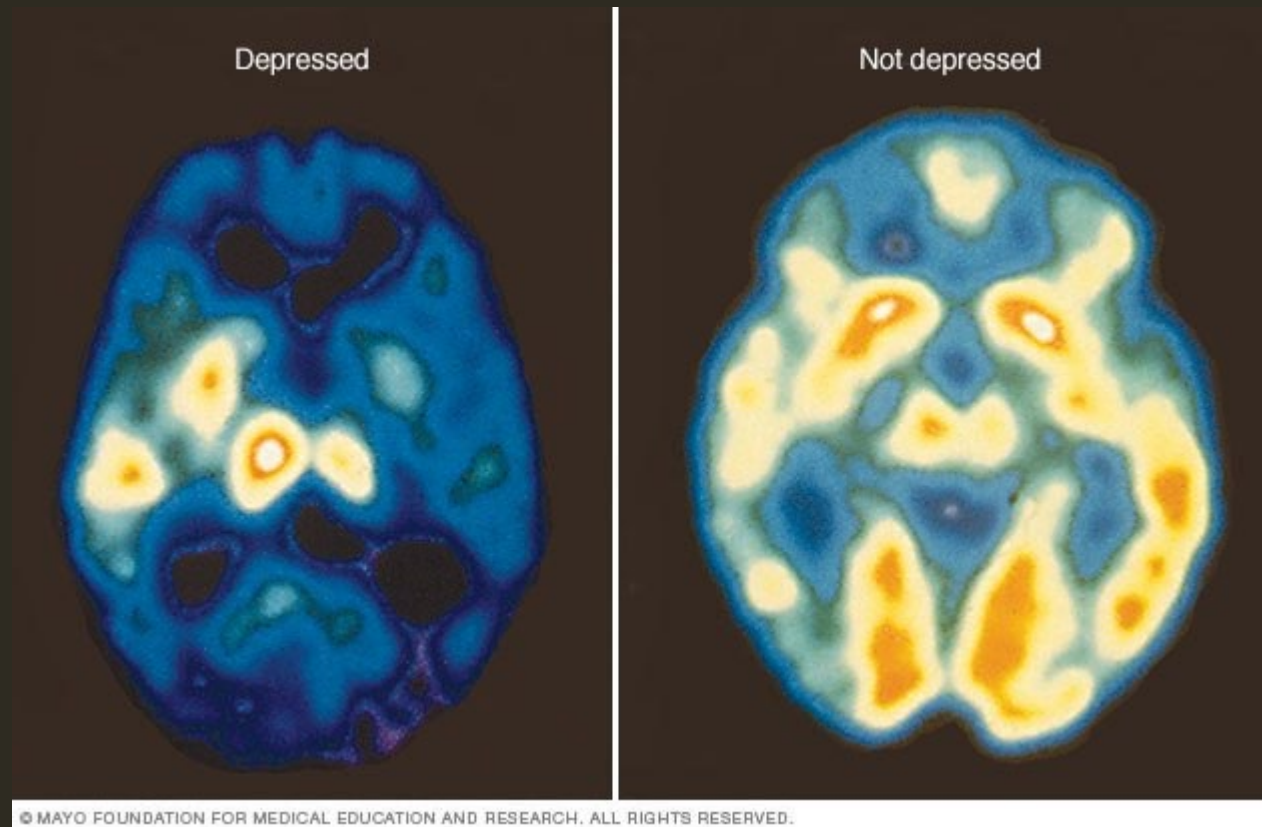
Bipolar II switching 18.6%

FIGURE 3. Ratio of Threshold Switches to Subthreshold Brief Hypomanias in Trials of Bupropion, Sertraline, and Venlafaxine as an Adjunct to Mood Stabilizers in Depressed Patients With Bipolar Disorder



PUTTING IT TOGETHER |

MAYO CLINIC PET SCANS IN DEPRESSION



ADJUNCTIVE OSTEOPATHIC MANIPULATIVE TREATMENT IN WOMEN WITH DEPRESSION: A PILOT STUDY

Researchers from Midwestern University, College of Osteopathic Medicine in Downers Grove, Ill., assessed the impact of OMT as an adjunct to standard psychiatric treatment on 17 participants over an eight-week period.

Eight of the patients received OMT along with standard treatments while the remaining nine women received conventional treatments only.

ADJUNCTIVE OSTEOPATHIC MANIPULATIVE TREATMENT IN WOMEN WITH DEPRESSION: A PILOT STUDY

In addition, patients in both groups underwent structural exams at three points during the study - - the beginning, the middle and the end. The OMT provided to the treatment group was incorporated into these patient sessions, which lasted 30 minutes. The treatment group received several types of OMT including: **counterstrain**, **myofascial treatment** and **Galbreath** treatment.

ADJUNCTIVE OSTEOPATHIC MANIPULATIVE TREATMENT IN WOMEN WITH DEPRESSION: A PILOT STUDY

Results indicate that both groups showed significant improvement in their Zung Scale scores when compared to the scores taken at the beginning of the study. More specifically, by the end of the study, all of the patients receiving OMT returned to the normal range of the Zung Scale. For the control group, more than 70 percent of these patients still had signs of moderate depression by the end of the study.

"Because of the study's small sample size, it is too early to make definite conclusions regarding the effectiveness of OMT for relieving depression," explains Dr. Rodos. "However, our research can provide a basis for further review of OMT in treating this disease."

JOHN UPLEDGER DO AND PAUL SWINGLE, PHD, FCPA, RPSYCH: CRANIOSACRAL THERAPY ALTERS BRAIN FUNCTIONING

"During treatment sessions I obtain EEG measurements. Some of the most important brain effects I've witnessed include a marked increase in theta and alpha brainwave amplitude in the back of the brain associated with the induction of a still point."

"Slow wave (i.e., theta) deficiency in the occipital region is associated with poor stress tolerance, sleep disturbance, racing thoughts, generalized anxiety, and vulnerability to substance addiction,"

Currently, Dr. Swingle treats children with involuntary movement disorders and seizure disorders. A major component of his protocol is to "increase the sensory motor rhythm over the sensory motor cortex [roughly across the top of the head from the tips of the ears]. The sensory motor rhythm is represented by brainwave activity between 13 and 15 cycles per second. When made stronger with brainwave biofeedback, it results in increased seizure threshold and reduced involuntary body movements," he notes. The increased brainwave amplitude Dr. Swingle has witnessed with CST is associated with "calm and passive attentiveness."

He has also reported an increase in the important sensory motor rhythm when a thoracic release is performed. To illustrate, he performed still point inductions on six patients with closed head injury and one with attention deficit disorder. "The effect of the still point was an increase in theta amplitude from a low of 6.2 percent to a high of over 80 percent," he reported. "Such changes in theta amplitude can have profound effects on brain quieting."

STILLPOINT: A GENTLE CRANIOSACRAL INTERVENTION

A stillpoint is an observable, palpable, and measurable physiological state in which the craniosacral rhythmic impulse (CRI) is temporarily suspended. In this state, apparently the production of craniosacral fluid ceases, and the active craniosacral rhythm, which is the natural force exerted by the system upon the rest of the body, also ceases. This allows the body to enter a state of deep rest and self-correcting activity, the results of which are the reduction of symptomatic conditions, and an increase in wellbeing.

CRANIOSACRAL RHYTHMIC IMPULSE (CRI)

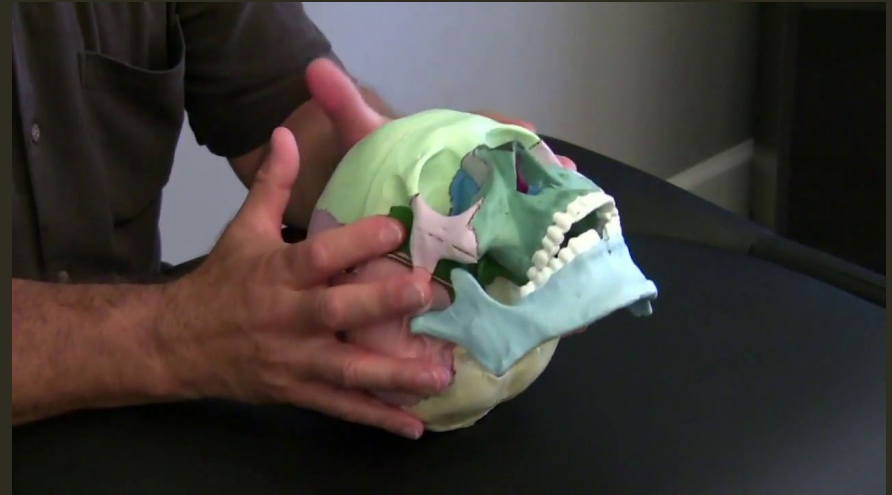
Factors that Decrease CRI

- 1) Stress
- 2) Depression
- 3) Chronic infection/fatigue
- 4) Compression strain

Factors that Increase CRI

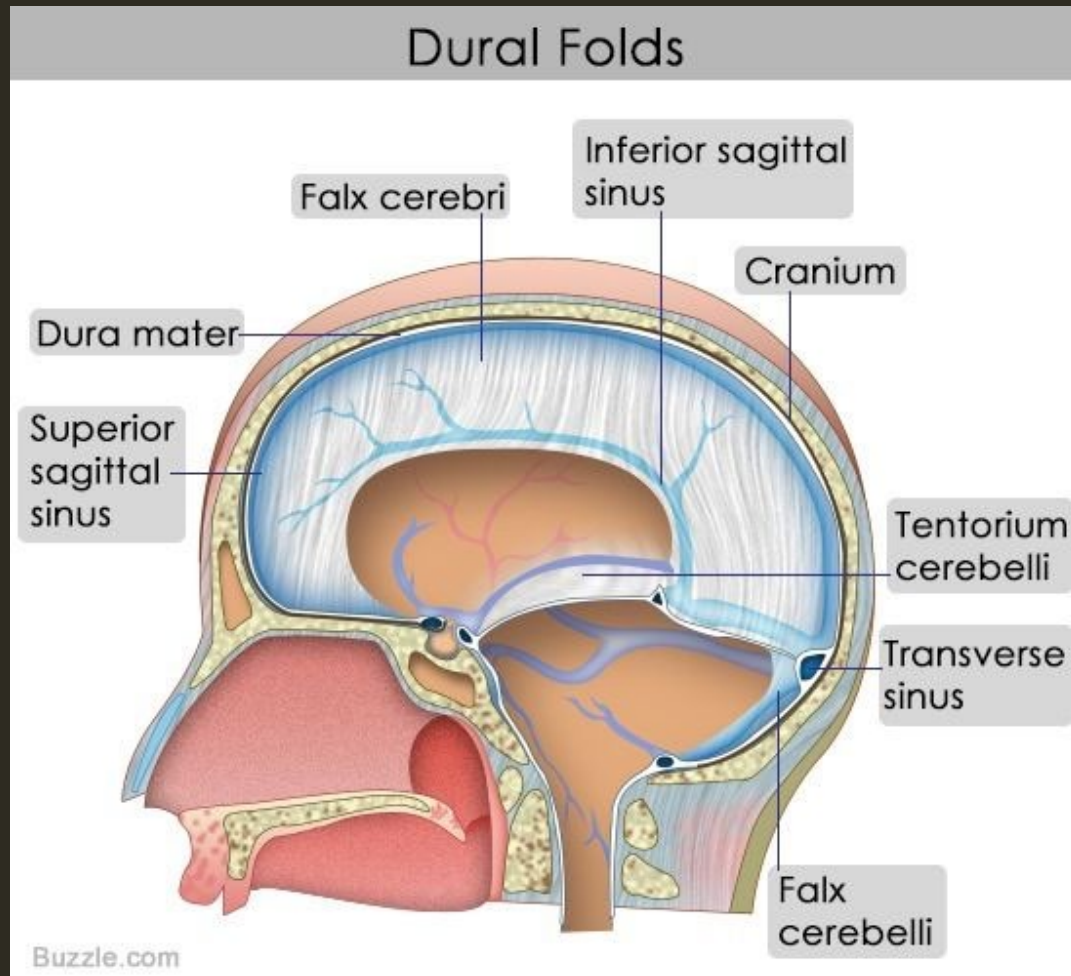
- 1) Vigorous exercise
- 2) Systemic fever
- 3) craniosacral OMT

VAULT HOLD



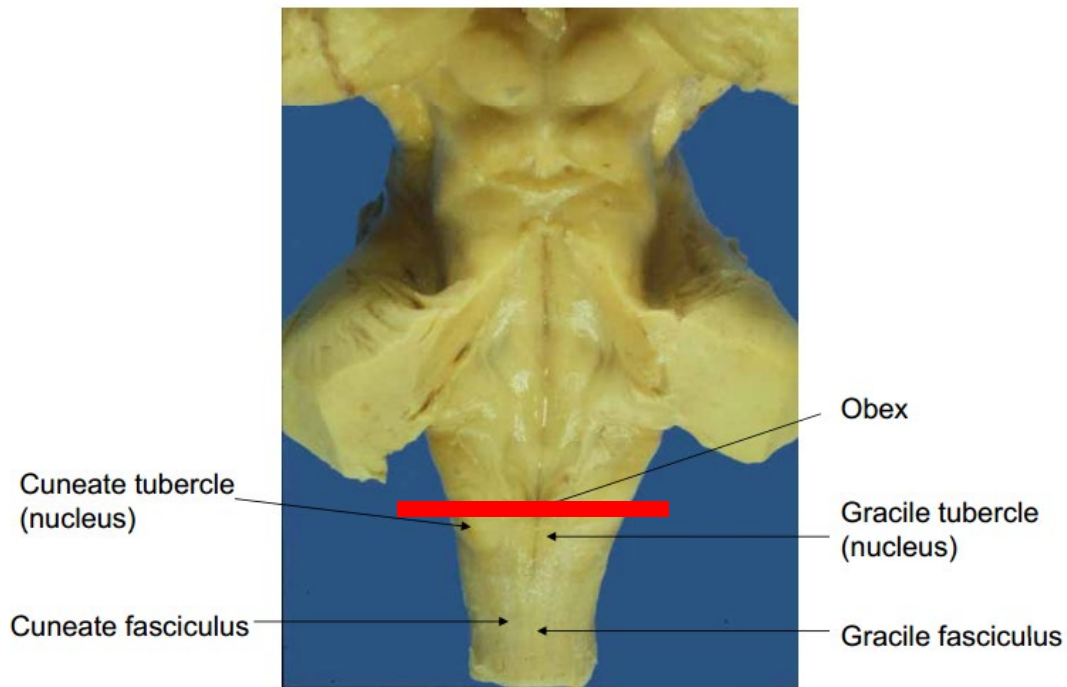
Finger	Placement
Index	Greater wing of sphenoid
Middle	Temporal bone in front of ear
Ring	Mastoid region of temporal bone
Pinkie	Squamous portion of occiput

VAULT HOLD

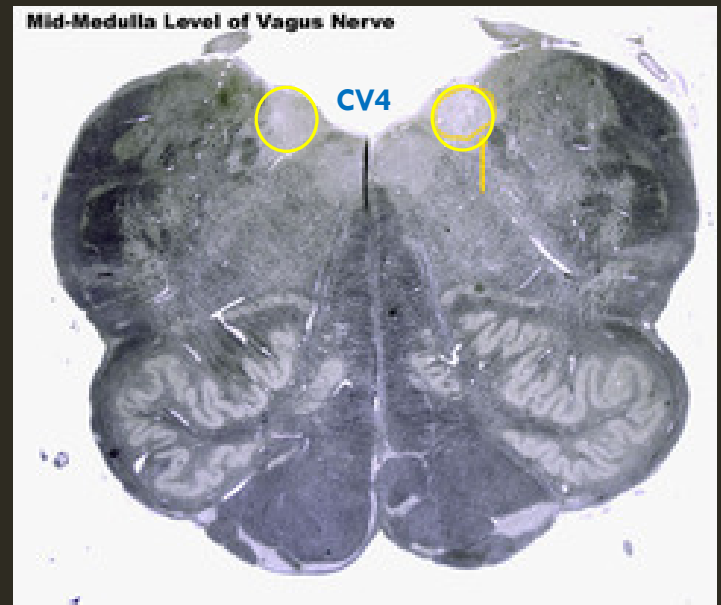


WHY CV 4?

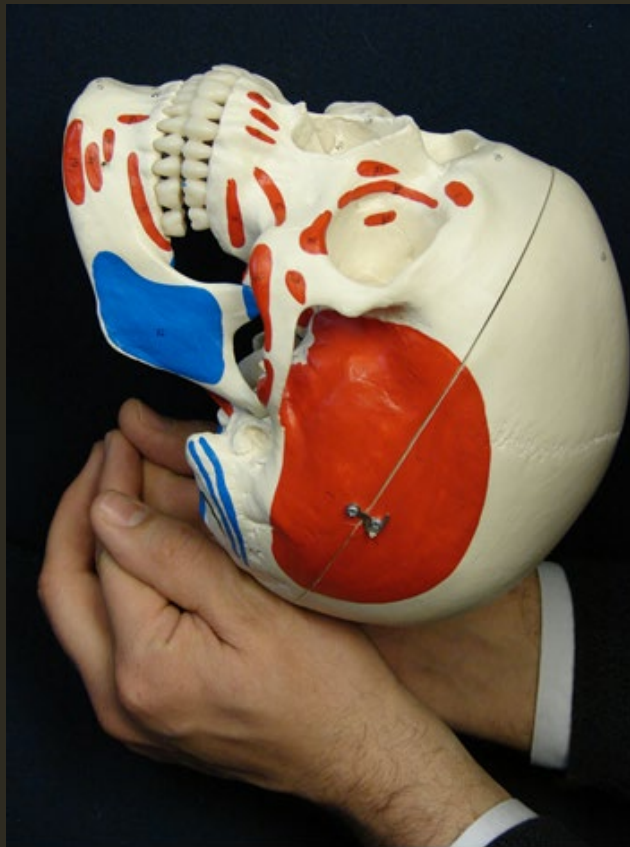
Brainstem - dorsal surface, cerebellum removed



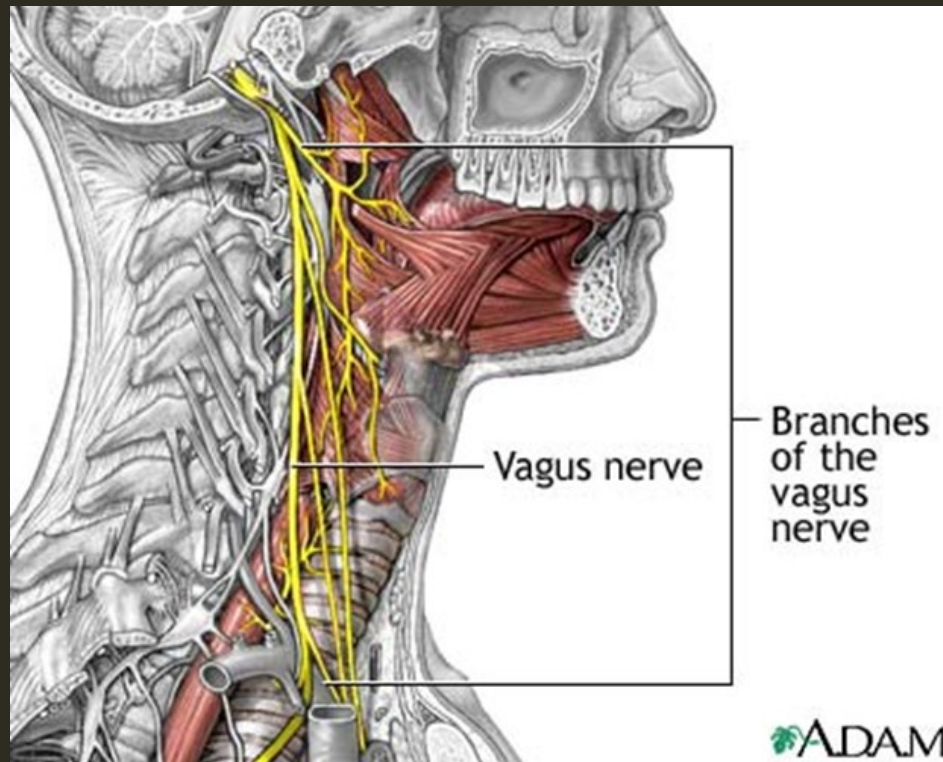
Dorsal Nuclei of the Vagal Nerve



CV4 COMPRESSION



WHY THE GALBREATH TECHNIQUE?



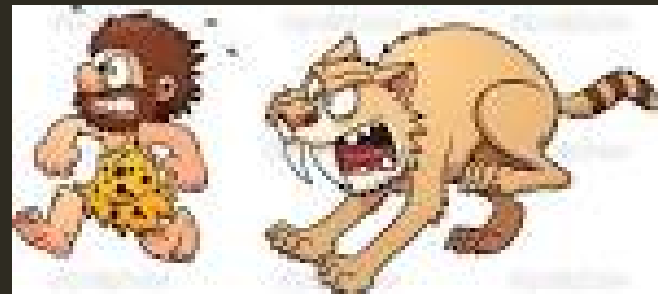
THE GALBREATH TECHNIQUE



EVOLUTION, ADRENALINE, AND ANXIETY



4.4 million years of evolution taught us to do this:



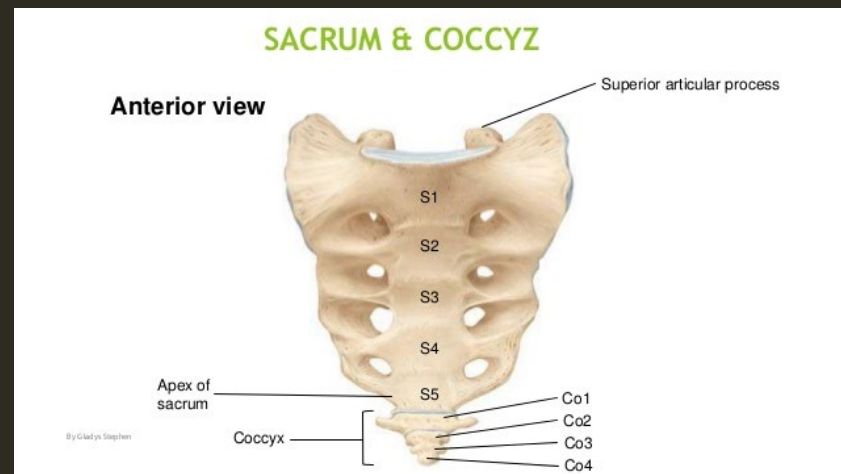
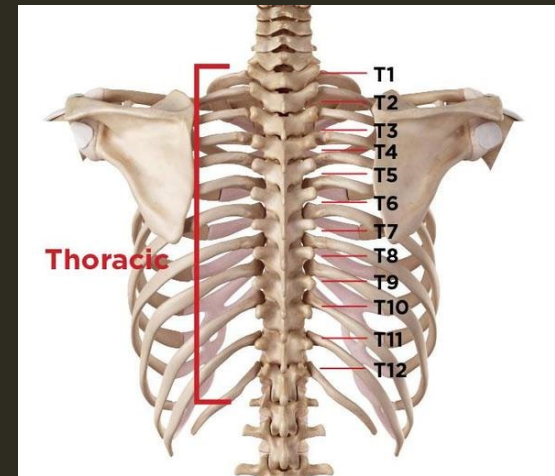
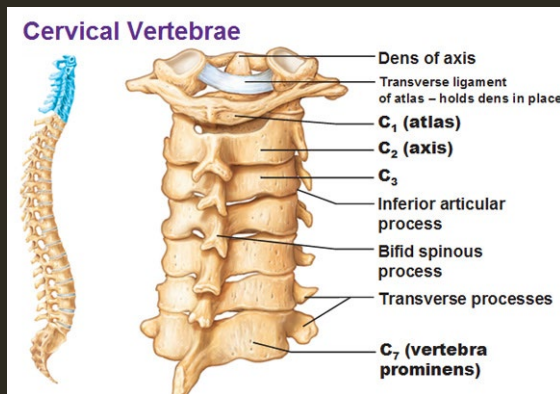
MODERN LIFE IS INCONSISTENT WITH OUR EVOLUTIONARY DESIGN

The past 100 years taught us to do this:



LOOKING FOR SYMPATHETIC HYPERSTIMULATION

Sympathetic hyperstimulation most commonly manifests at the levels of C2, T4-T6, and S2

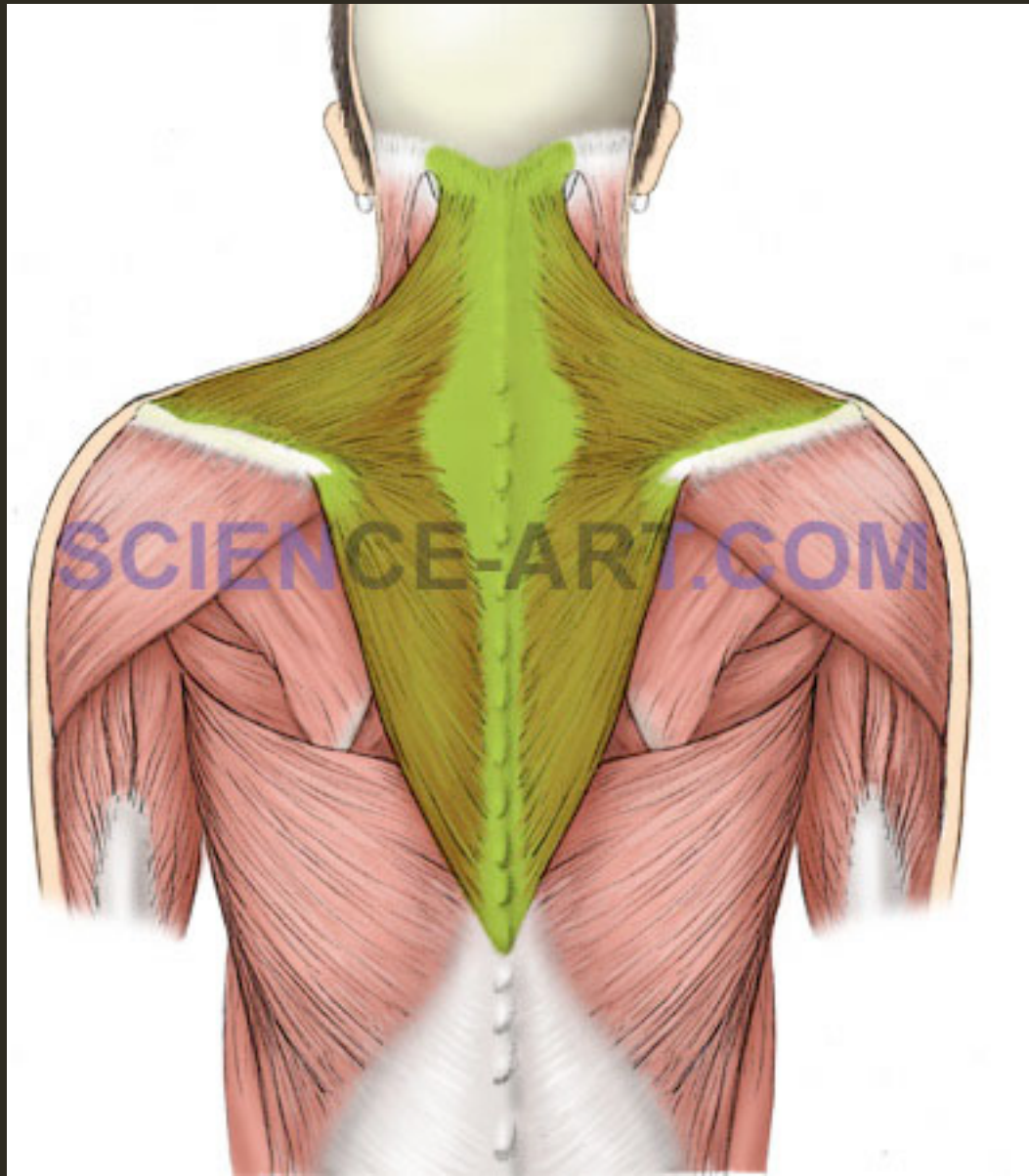


DIAGNOSING GENERALIZED ANXIETY

Excessive anxiety and worry occurring most days over 6 months in a variety of settings.

The individual finds it difficult to control the worry

- Restlessness, keyed up, on edge
- Easily fatigued
- Difficulty concentrating or mind going blank
- Irritability
- Muscle tension
- Sleep disturbance (difficulty falling or staying asleep/restless, unsatisfying sleep)



TRAPEZIUS MUSCLE ENERGY

Have the patient flex their chin down.

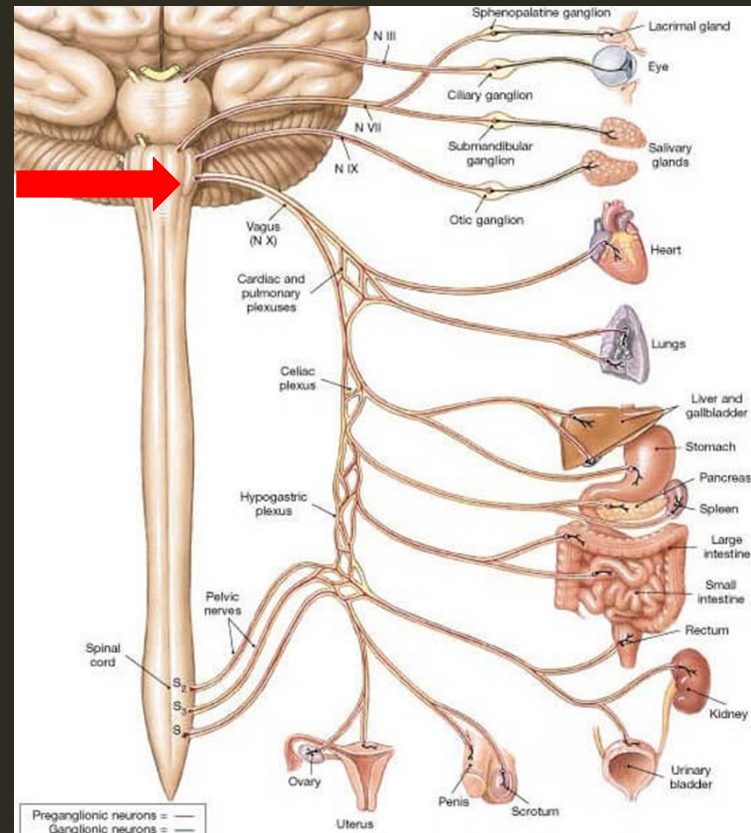
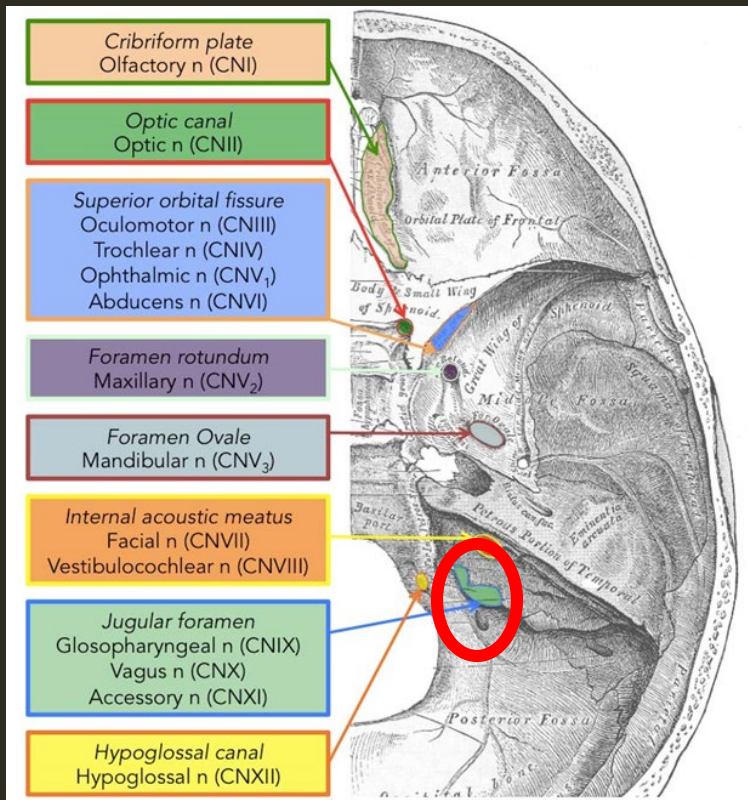
The patient holds their hands folded behind their head.

Without allowing their head to move, the patient pushes their head up against their folded hands for 3 seconds, then relaxes.

The patient then finds they can flex their chin closer to their chest. They bring their chin down slightly, and repeat this process 3 times.

Audience Participation

VAGUS NERVE



TWO-YEAR OUTCOME OF VAGUS NERVE STIMULATION (VNS) FOR TREATMENT OF MAJOR DEPRESSIVE EPISODES

J CLIN PSYCHIATRY 2005;66(9):1097-1104

Background: Vagus nerve stimulation (VNS) had antidepressant effects in an initial open, acute phase pilot study of 59 participants in a treatment-resistant major depressive episode (MDE). We examined the effects of adjunctive VNS over 24 months in this cohort.

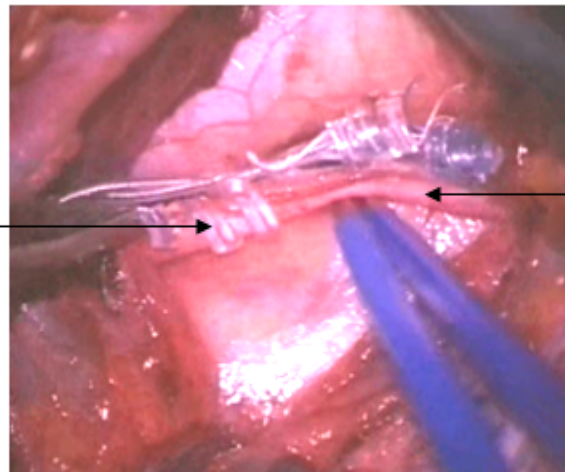
Method: Adult outpatients (N = 59) with chronic or recurrent major depressive disorder or bipolar (I or II) disorder and experiencing a treatment-resistant, nonpsychotic MDE (DSM-IV criteria) received 2 years of VNS. Changes in psychotropic medications and VNS stimulus parameters were allowed only after the first 3 months. Response was defined as $\geq 50\%$ reduction from the baseline 28-item Hamilton Rating Scale for Depression (HAM-D-28) total score, and remission was defined as a HAM-D-28 score ≤ 10 .

Results: Based on last observation carried forward analyses, HAM-D-28 response rates were 31% (18/59) after 3 months, 44% (26/59) after 1 year, and 42% (25/59) after 2 years of adjunctive VNS. Remission rates were 15% (9/59) at 3 months, 27% (16/59) at 1 year, and 22% (13/59) at 2 years. By 2 years, 2 deaths (unrelated to VNS) had occurred, 4 participants had withdrawn from the study, and 81% (48/59) were still receiving VNS. Longer-term VNS was generally well tolerated.

Conclusion: These results suggest that patients with chronic or recurrent, treatment-resistant depression may show long-term benefit when treated with VNS.



The electrode is wrapped around the Vagus Nerve.



The Vagus Nerve

Figure 1: A still from implant surgery. The image shows the vagus nerve itself and the beginning of the electrode coiling process (Schachter & Schmidt, 2003)

OA DECOMPRESSION



This technique balances the parasympathetic tone of the Vagus nerve and stretches the Trapezius as well.

Place a towel rolled into a log under the neck and lie on a firm, flat surface.

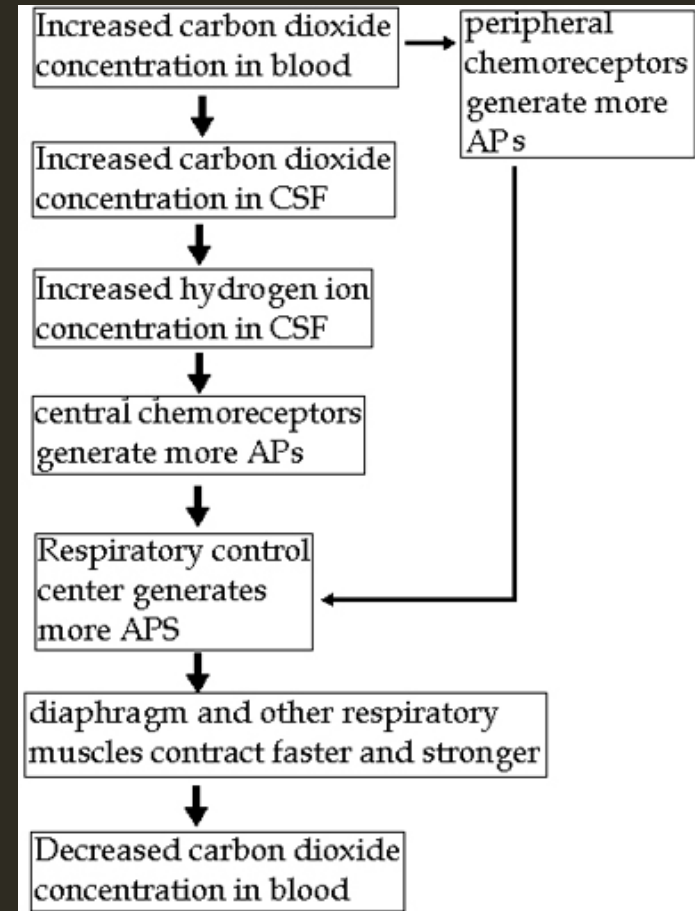
Thin travel pillows, a sock with 2 racquetballs inside, or a spouse can aid in this technique as well.

OA DECOMPRESSION

1. Physician uses index fingers to contact the occiput as near to the condyles as possible. Asking the patient to nod the head helps obtain access to the area. The index fingers may be reinforced with the middle fingers. Physician hands support by the table.
2. Tension is applied toward the orbits to make firm contact with the occiput
3. Physician applies traction while his/her elbows are moved medially. This moves the fingers laterally to widen the foramen magnum along its entire margin and decompress the tension on the occiput.
4. The respiratory phases are tested for the best increase in tension on the side of the restriction.
5. Pt. is instructed to hold breath as long as possible in this phase. (Usually inhalation) minor adjustments in all 3 planes to maintain balanced ligamentous tension.
6. Step 5 is repeated until the best motion is obtained (average is 3 times)

CARBON DIOXIDE THEORY OF ANXIETY

► The most important factor controlling respiration is the hydrogen ion concentration of the fluid bathing the CSF. If carbon dioxide levels in the blood increase, the carbon dioxide will diffuse into the CSF. Since the carbonic acid equation runs to the right as carbon dioxide concentration increases, the hydrogen ion concentration of the CSF will increase.

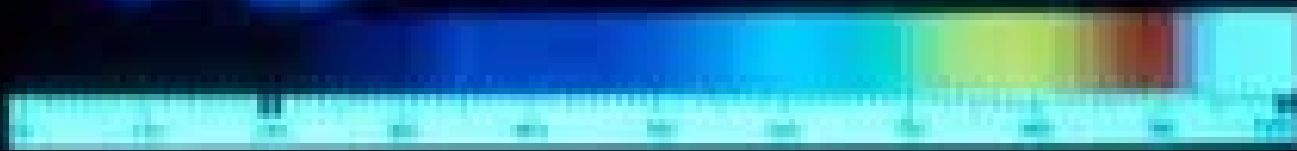
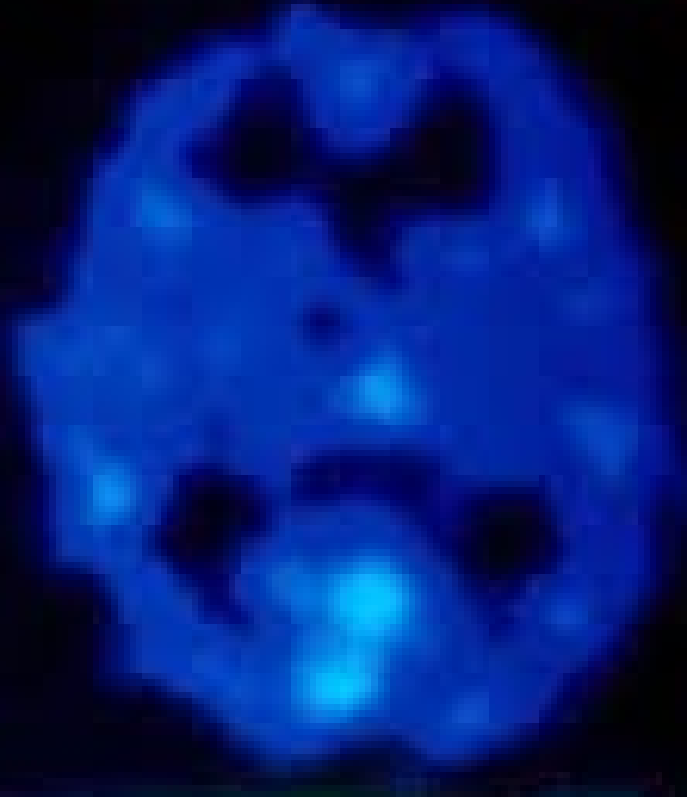
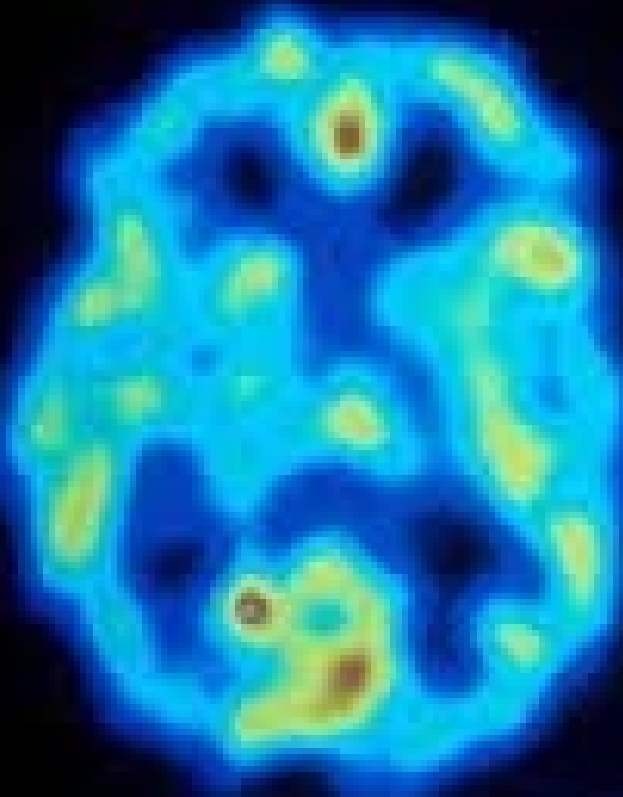


CARBON DIOXIDE THEORY OF ANXIETY

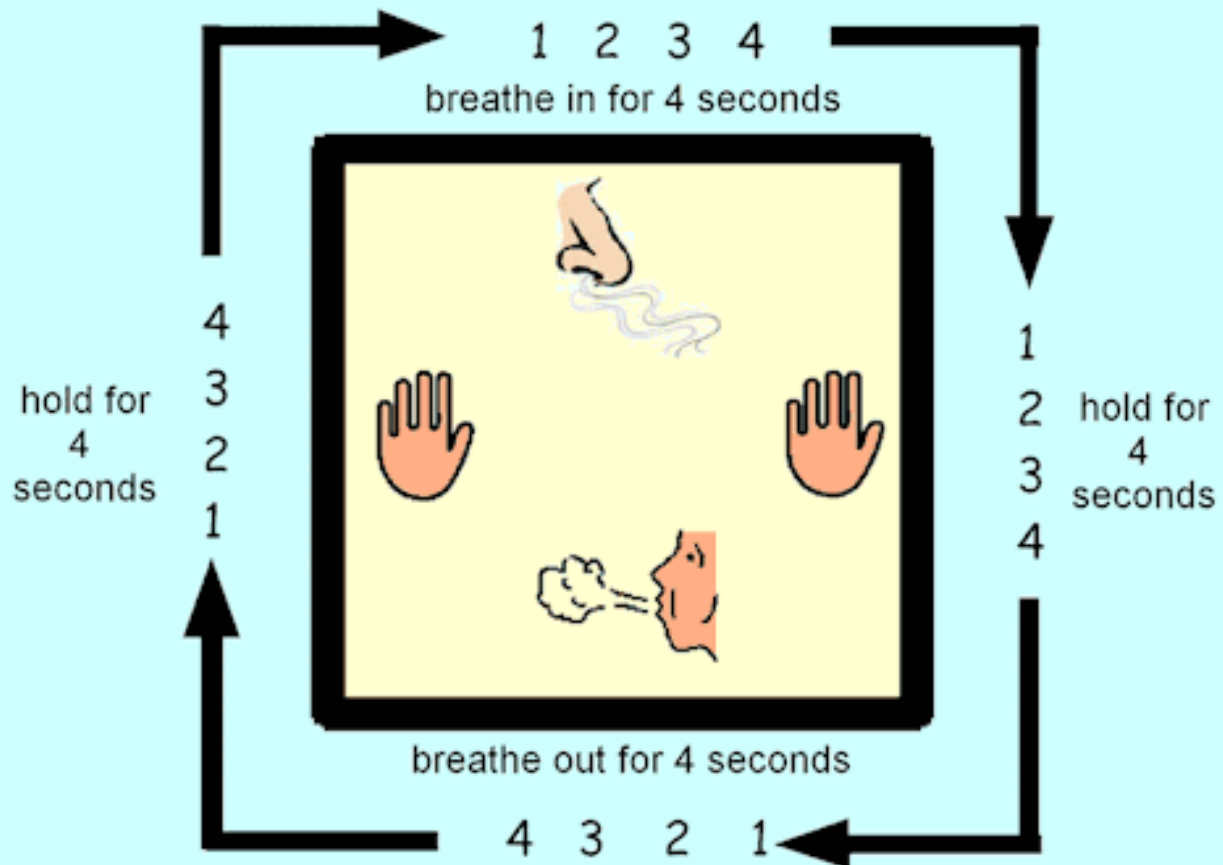
- ▶ Central chemoreceptors in the medulla oblongata of the brain respond to the increased hydrogen ion concentration by generating more action potentials (APs), which stimulate the respiratory control center. As the respiratory control center generates more action potentials in the motor neurons innervating the respiratory muscles, the respiratory muscles will contract harder and more often. Breathing harder allows more carbon dioxide to diffuse out of the blood, into the lungs, and then be exhaled outside the body. This lowers the carbon dioxide concentration of the blood and restores homeostasis.
- ▶ There are peripheral chemoreceptors that are also sensitive to blood carbon dioxide concentration, but these peripheral chemoreceptors are less important than the central chemoreceptors.

NORMAL BREATHING

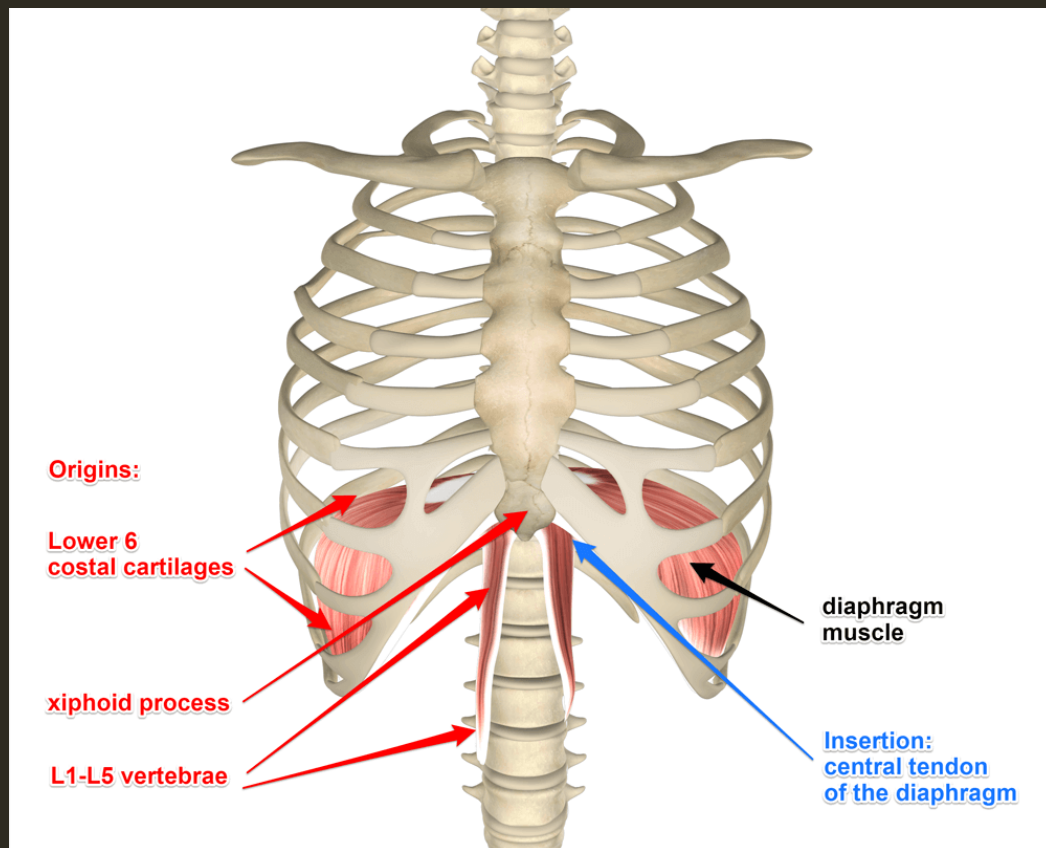
HYPERVENTILATION



SQUARE BREATHING



DIAPHRAGM



DIAPHRAGM



ELEVATED 1ST RIB

SUPINE DIRECT ME/PATIENT COOPERATION

Pt. supine and physician at head of table

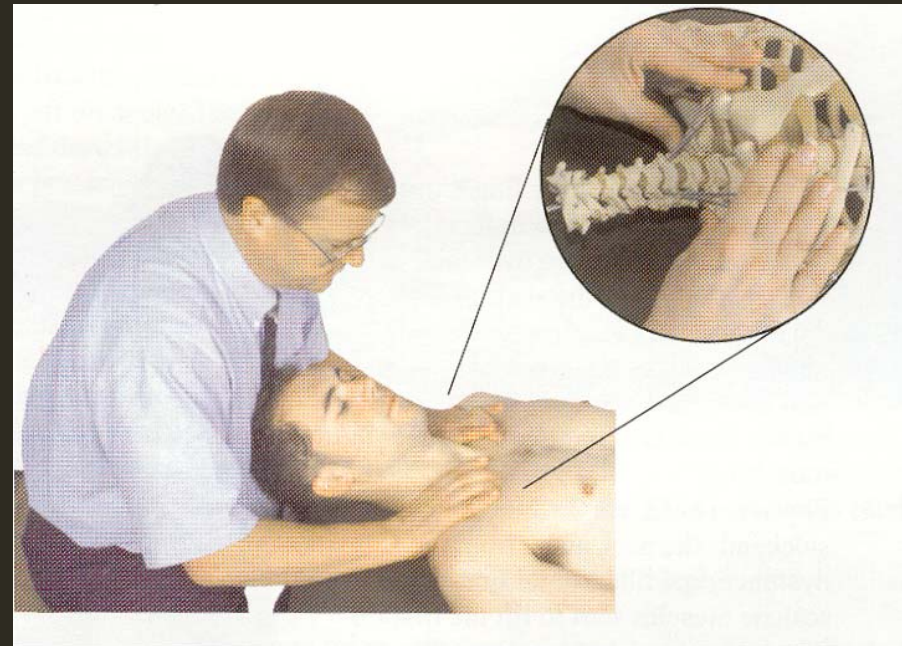
Contact posterior margins for first ribs with thumbs in front of trapezius

Instruct pt. to shrug the shoulder with the elevated rib and hold

Maintain caudad pressure on ribs

As pt. relaxes, take rib to new restrictive barrier

Repeat as necessary



MODIFIED 1ST RIB DIRECT MUSCLE ENERGY

Have the patient put their index and/or middle fingers behind the clavicle and depress slightly until they feel the tender 1st rib.

The patient shrugs their shoulder while holding the 1st rib in place for 3 seconds, then relaxes.

Repeat this process 3 times on both sides.

Audience Participation

OSTEOPATHIC TREATMENT IN OTHER RELATED CONDITIONS

BORDERLINE PERSONALITY DISORDER

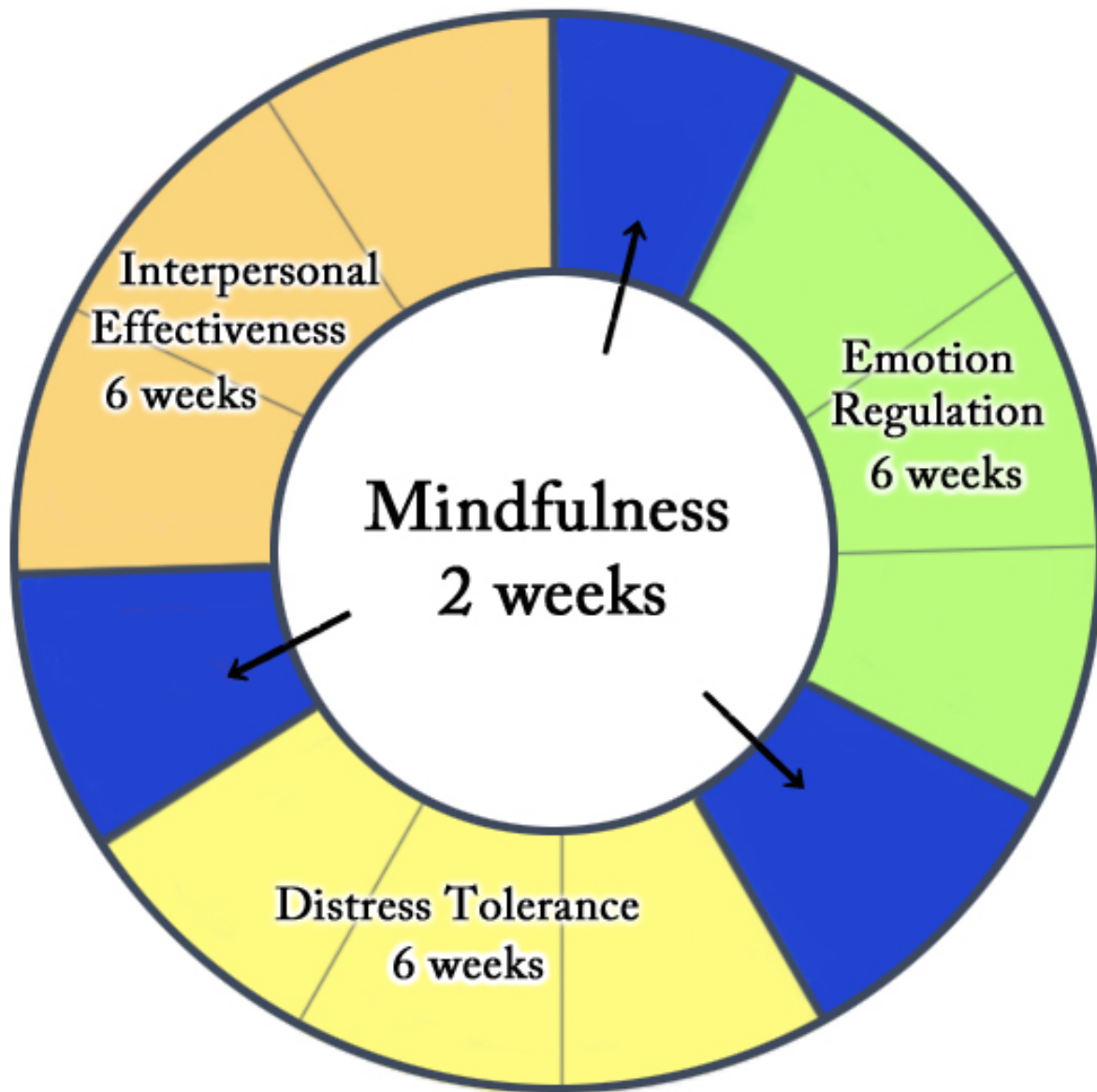
A pervasive pattern of instability of interpersonal relationships, self-image, and affects, and marked impulsivity beginning by early adulthood and present in a variety of contexts, as indicated by five (or more) of the following:

1. Frantic efforts to avoid real or imagined abandonment.
2. A pattern of unstable and intense interpersonal relationship characterized by alternating between extremes of idealization and devaluation.
3. Identity disturbance: markedly and persistently unstable self-image or sense of self
4. Impulsivity in at least two areas that are potentially self-damaging (e.g., spending, sex, substance abuse, reckless driving, binge eating).
5. Recurrent suicidal behavior, gestures, or threats, or self-mutilating behavior
6. Affective instability due to a marked reactivity of mood (e.g., intense episodic dysphoria, irritability, or anxiety usually lasting a few hours and only rarely more than a few days).
7. Chronic feelings of emptiness
8. Inappropriate, intense anger or difficulty controlling anger (e.g. frequent displays of temper, constant anger, recurrent physical fights).
9. Transient, stress-related paranoid ideation or severe dissociative symptoms.

DIALECTIAL BEHAVIOR THERAPY

A modified form of cognitive behavioral therapy (CBT), DBT was developed in the late 1980s by Marsha M. Linehan, a psychology researcher at the University of Washington, to treat people with borderline personality disorder and chronically suicidal individuals. Research on its effectiveness in treating other conditions has been fruitful;

DBT combines standard cognitive behavioral techniques for emotion regulation and reality-testing with concepts of distress tolerance, acceptance, and mindful awareness largely derived from Buddhist meditative practice. DBT is based upon the biosocial theory of mental illness and is the first therapy that has been experimentally demonstrated to be generally effective in treating BPD.



Interpersonal
Effectiveness
6 weeks

Emotion
Regulation
6 weeks

Mindfulness
2 weeks

Distress Tolerance
6 weeks

BALANCING SYMPATHETICS AND PARASYMPATHETICS

A core principle to distress tolerance in DBT that provides relief to severely ill patients.

Temperature



Intense Exercise



Progressive Muscle Relaxation

TIPS

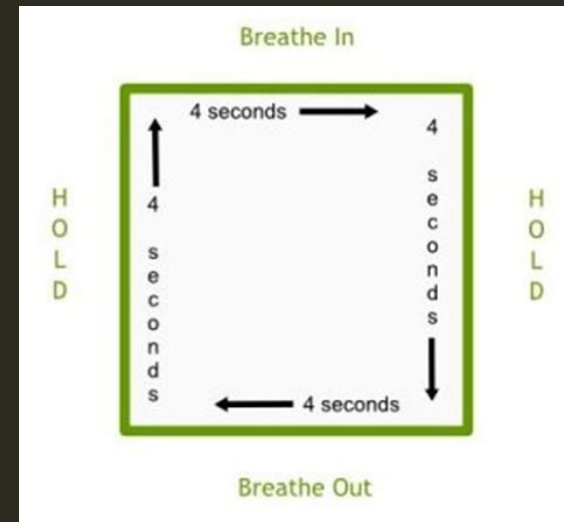
Segmented Breathing

RELAX AWAY STRESS IN EACH AND EVERY MUSCLE

Try Progressive Muscle Relaxation to unwind your body and mind. Follow the steps, tensing the muscles from your feet (1) to your face (12) for a few seconds, then relax with a deep breath.

The diagram shows a female silhouette with 12 numbered points indicating muscle groups for Progressive Muscle Relaxation: 1-2 (feet), 3-4 (ankles), 5-6 (thighs), 7-8 (lower legs), 9-10 (upper legs), 11 (torso), and 12 (face).

DE-STRESS MONDAY Happy New Week!



IDIOPATHIC INTRACRANIAL HYPERTENSION STENTING OF TRANSVERSE SINUS

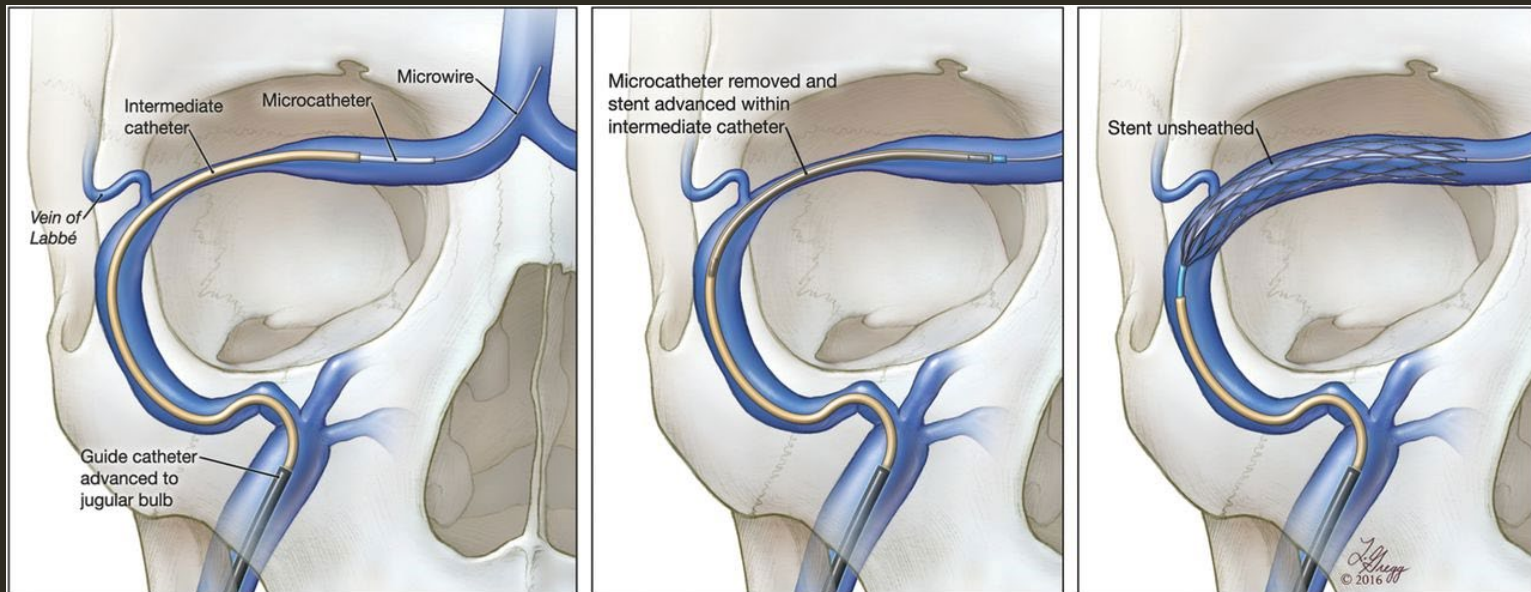
BACKGROUND AND PURPOSE: Transverse sinus stenosis is common in patients with IIH. While the role of transverse sinus stenosis in IIH pathogenesis remains controversial, modeling studies suggest that stent placement within a transverse sinus stenosis with a significant pressure gradient should decrease cerebral venous pressure, improve CSF resorption in the venous system, and thereby reduce intracranial (CSF) pressure, improving the symptoms of IIH and reducing papilledema. We aimed to determine if IIH could be reliably treated by stent placement in transverse sinus stenosis.

MATERIALS AND METHODS: We reviewed the clinical, venographic, and intracranial pressure data before and after stent placement in transverse sinus stenosis in 52 of our own patients with IIH unresponsive to maximum acceptable medical treatment, treated since 2001 and followed between 2 months and 9 years.

RESULTS: Before stent placement, the mean superior sagittal sinus pressure was 34 mm Hg (462 mm H₂O) with a mean transverse sinus stenosis gradient of 20 mm Hg. The mean lumbar CSF pressure before stent placement was 322 mm H₂O. In all 52 patients, stent placement immediately eliminated the TSS pressure gradient, rapidly improved IIH symptoms, and abolished papilledema. In 6 patients, symptom relapse (headache) was associated with increased venous pressure and recurrent stenosis adjacent to the previous stent. In these cases, placement of another stent again removed the transverse sinus stenosis pressure gradient and improved symptoms. Of the 52 patients, 49 have been cured of all IIH symptoms.

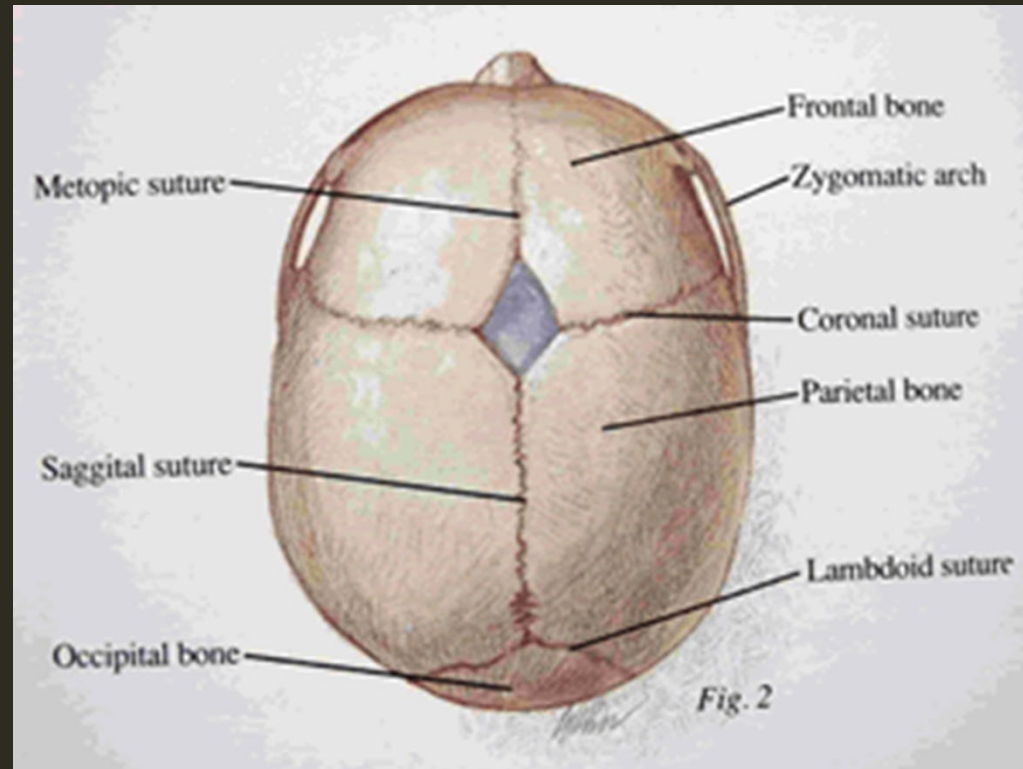
CONCLUSIONS: These findings indicate a role for transverse sinus stent placement in the management of selected patients with IIH.

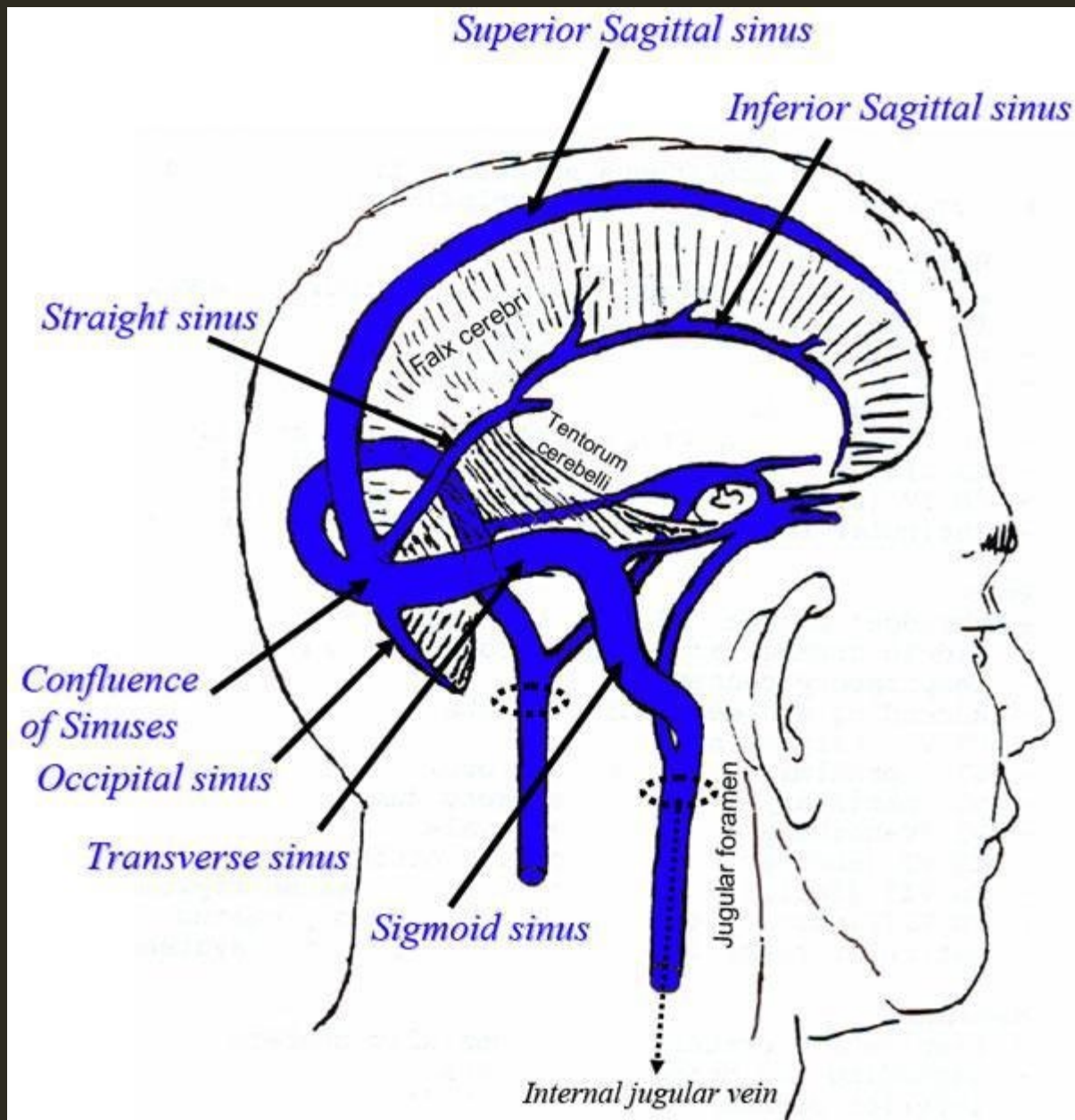
STENTING OF TRANSVERSE SINUS



THE OSTEOPATHIC ALTERNATIVE TO STENTING: VENOUS SINUS DRAINAGE

1. Confluence of sinuses(at the inion)
2. Sigmoid sinus(lambda)
3. Superior sagittal(sagittal suture)
4. Meitopic suture.







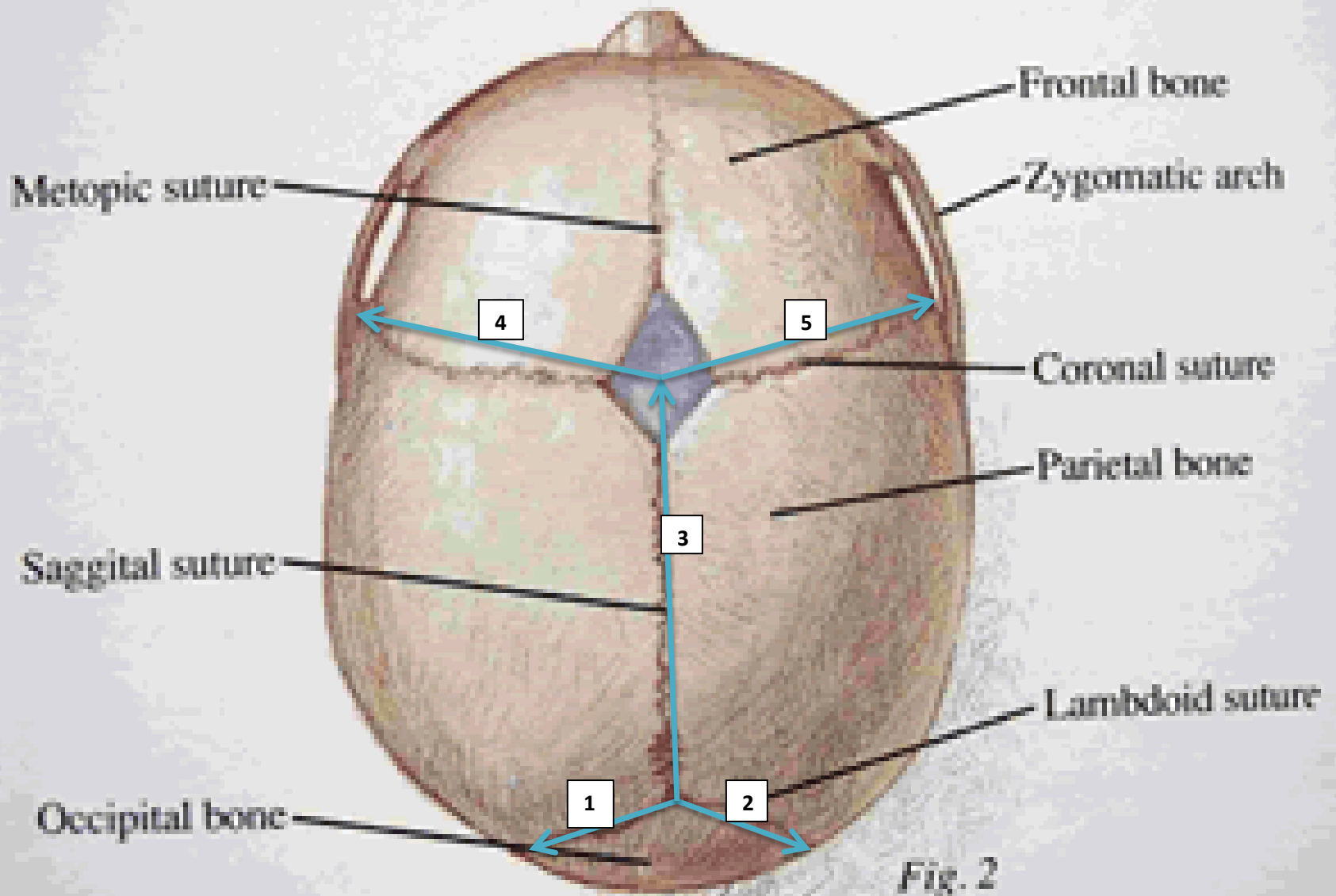
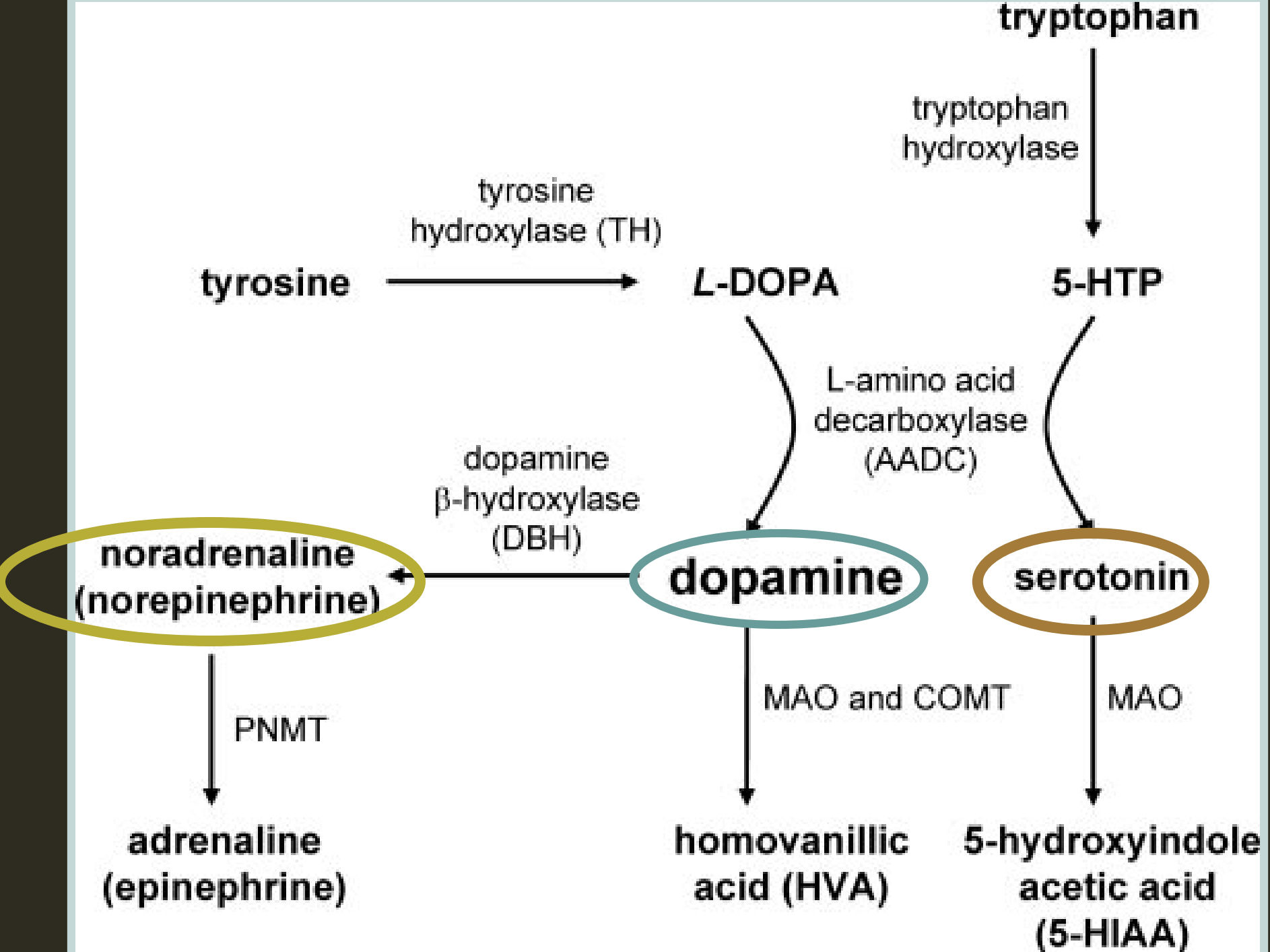


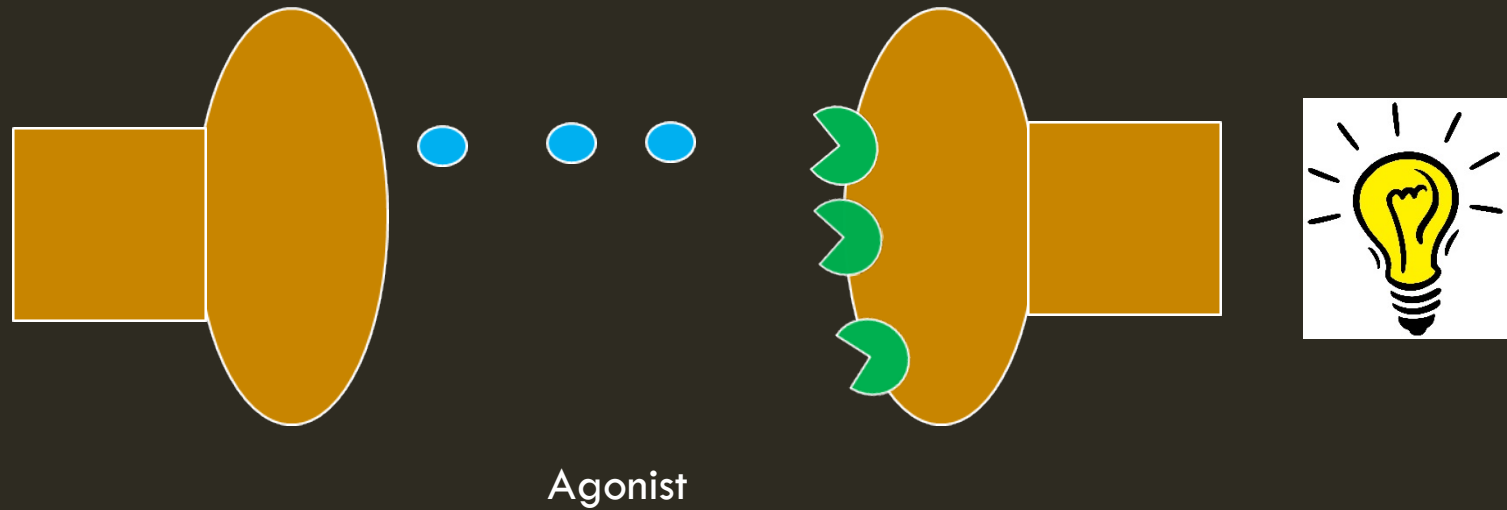
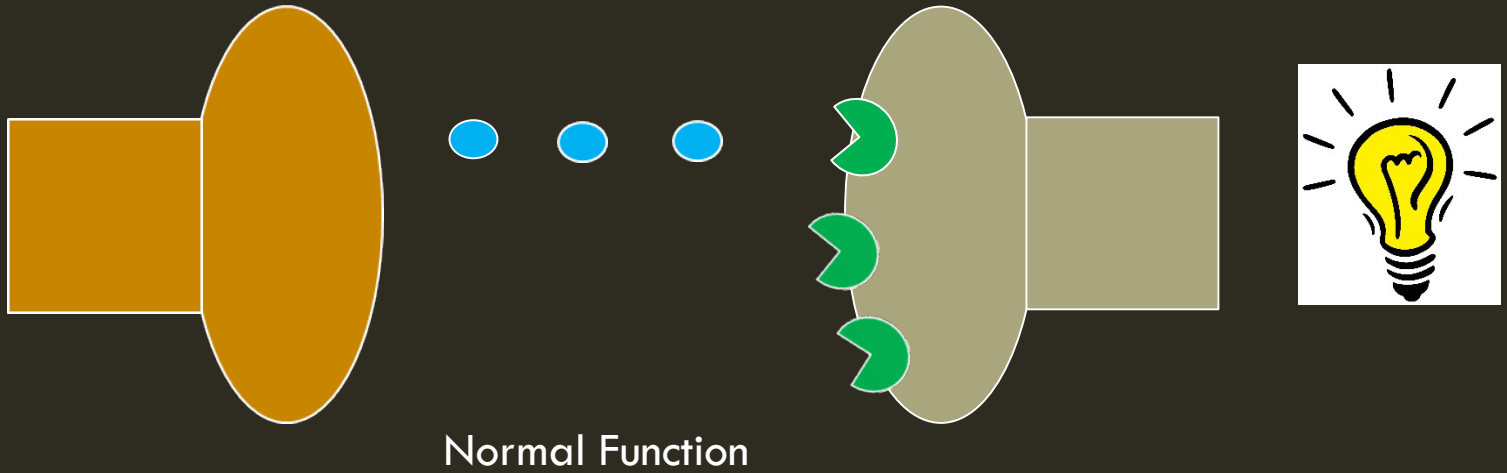
Fig. 2

BASIC NEUROPHARMACOLOGY

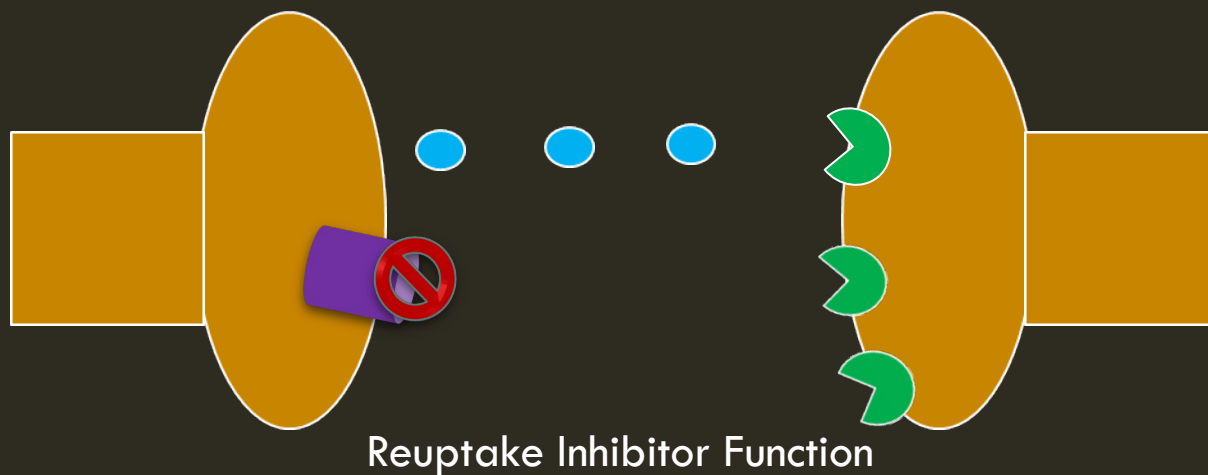
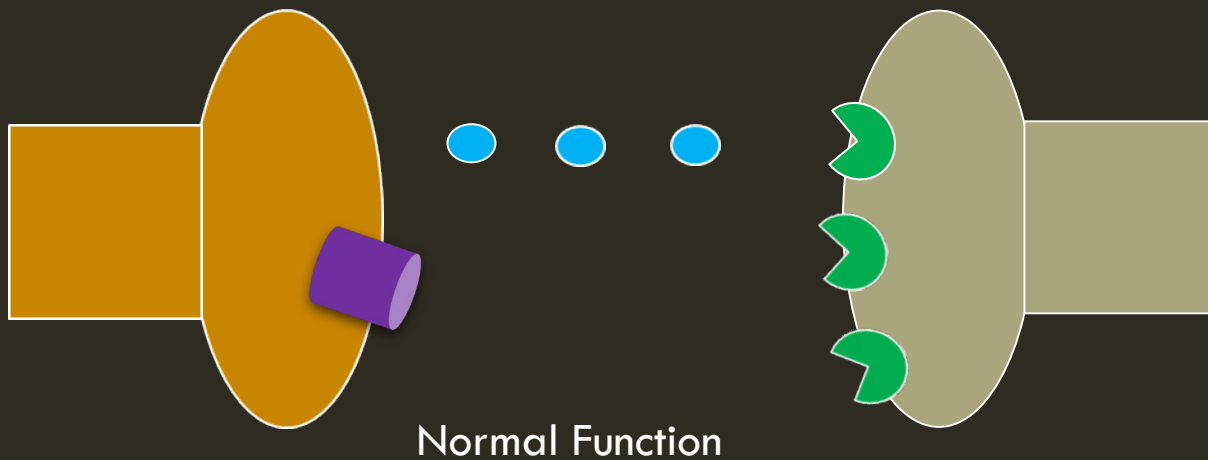
What to do when a
Psychiatric consult is months
away



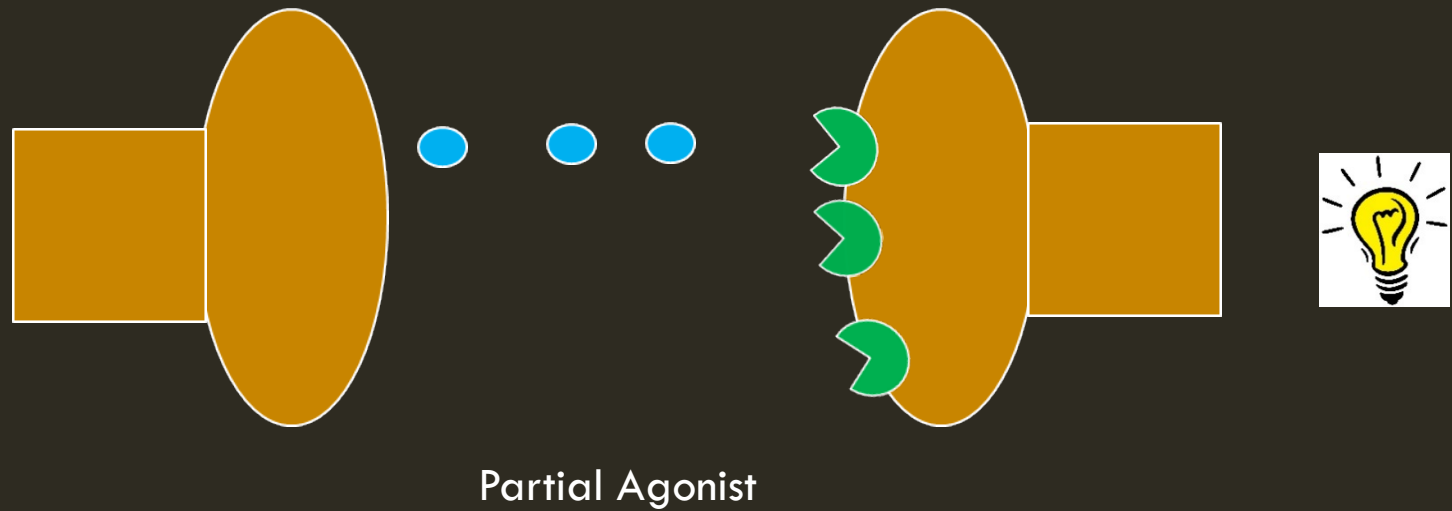
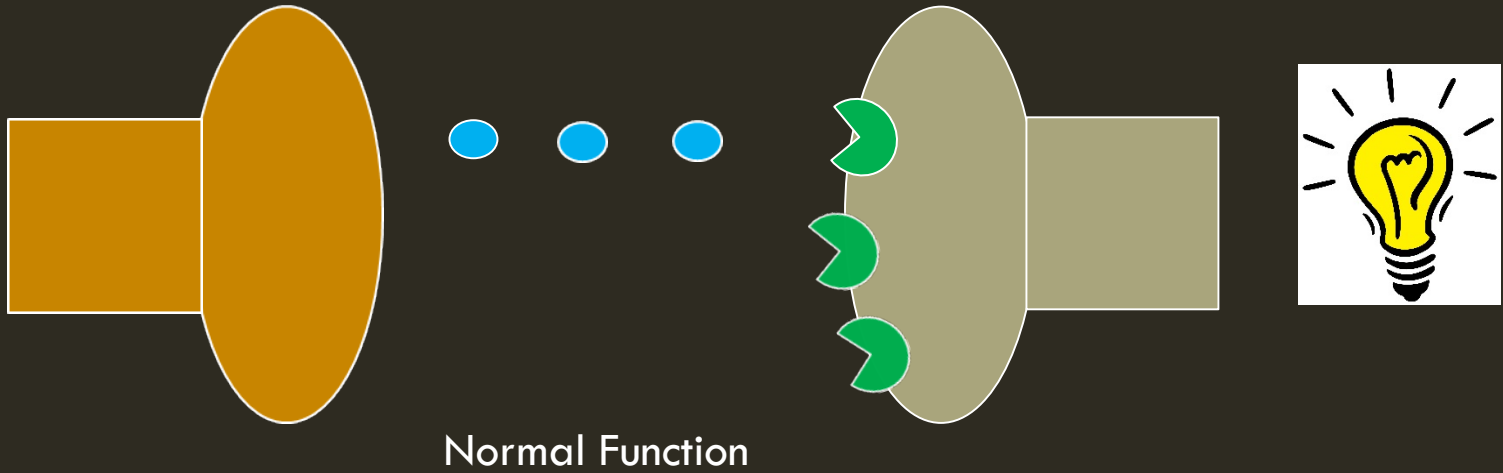
HOW AGONISTS WORK



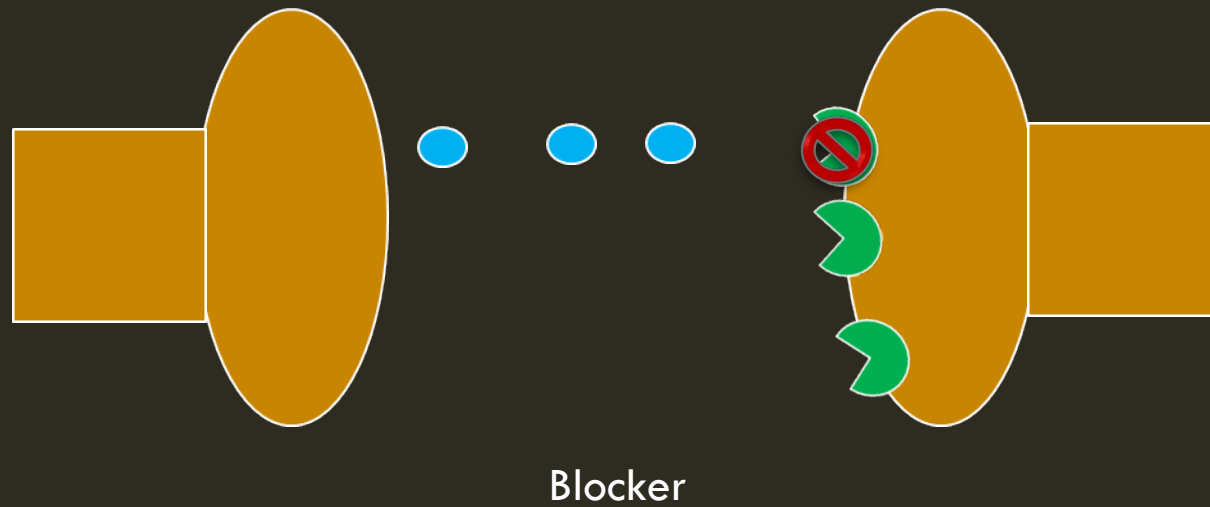
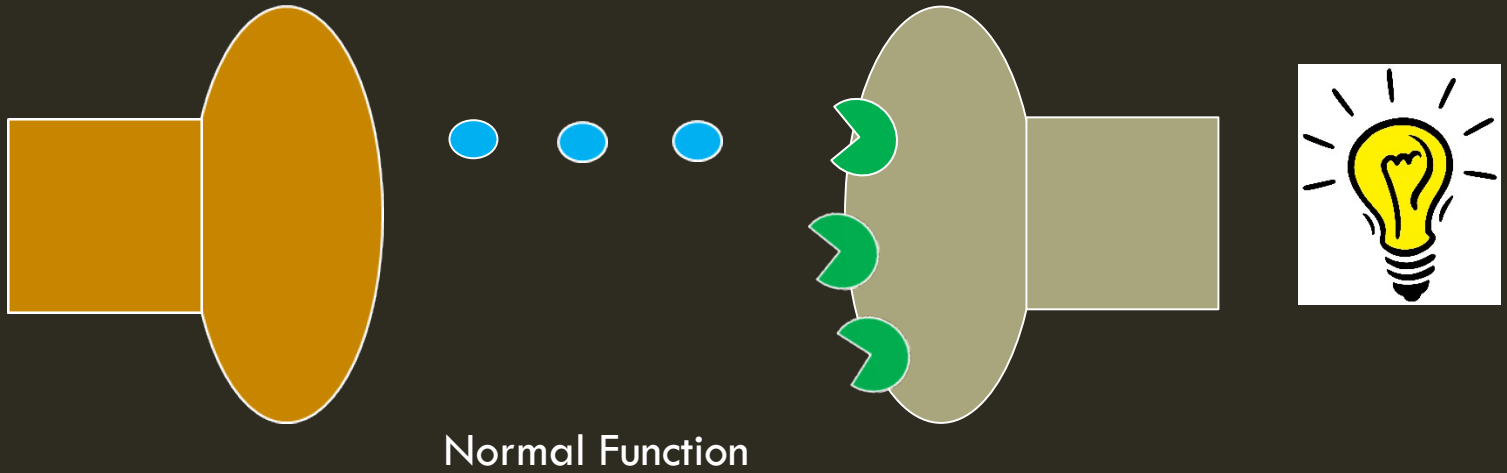
HOW REUPTAKE INHIBITORS WORK



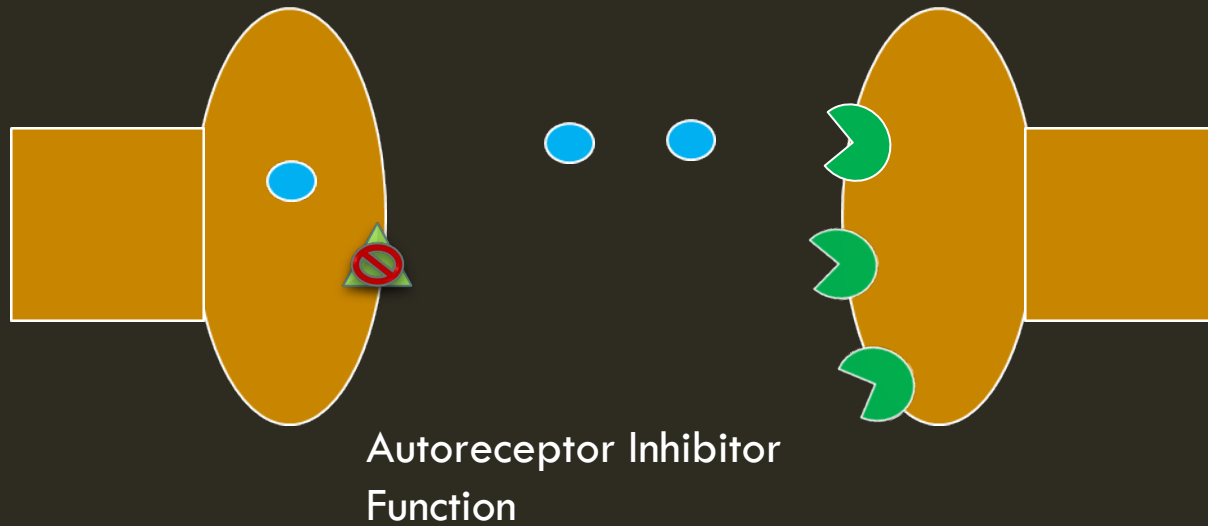
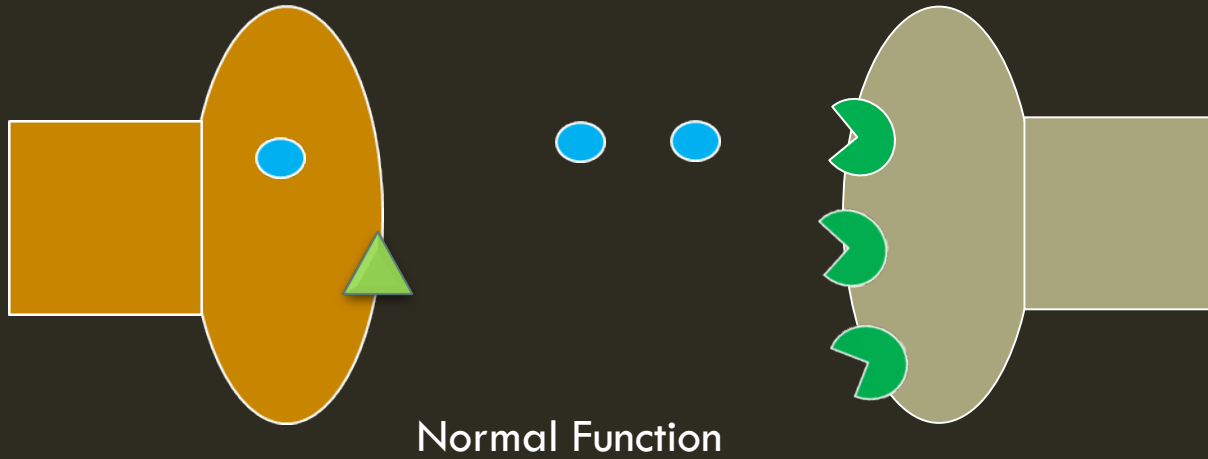
HOW PARTIAL AGONISTS WORK



HOW BLOCKERS WORK



HOW AUTORECEPTOR INHIBITORS WORK



SELECTIVE SEROTONIN REUPTAKE INHIBITOR
LEXAPRO/ESCITALOPRAM, CELEXA/CITALOPRAM,
ZOLOFT/SERTRALINE, PAXIL/PAROXETINE, PROZAC/FLUOXETINE



Dopamine

Norepinephrine

**DOPAMINE AND NOREPINEPHERINE REUPTAKE
INHIBITOR
WELLBUTRIN/BUPROPRION**

Serotonin

Dopamine

Norepinephrine

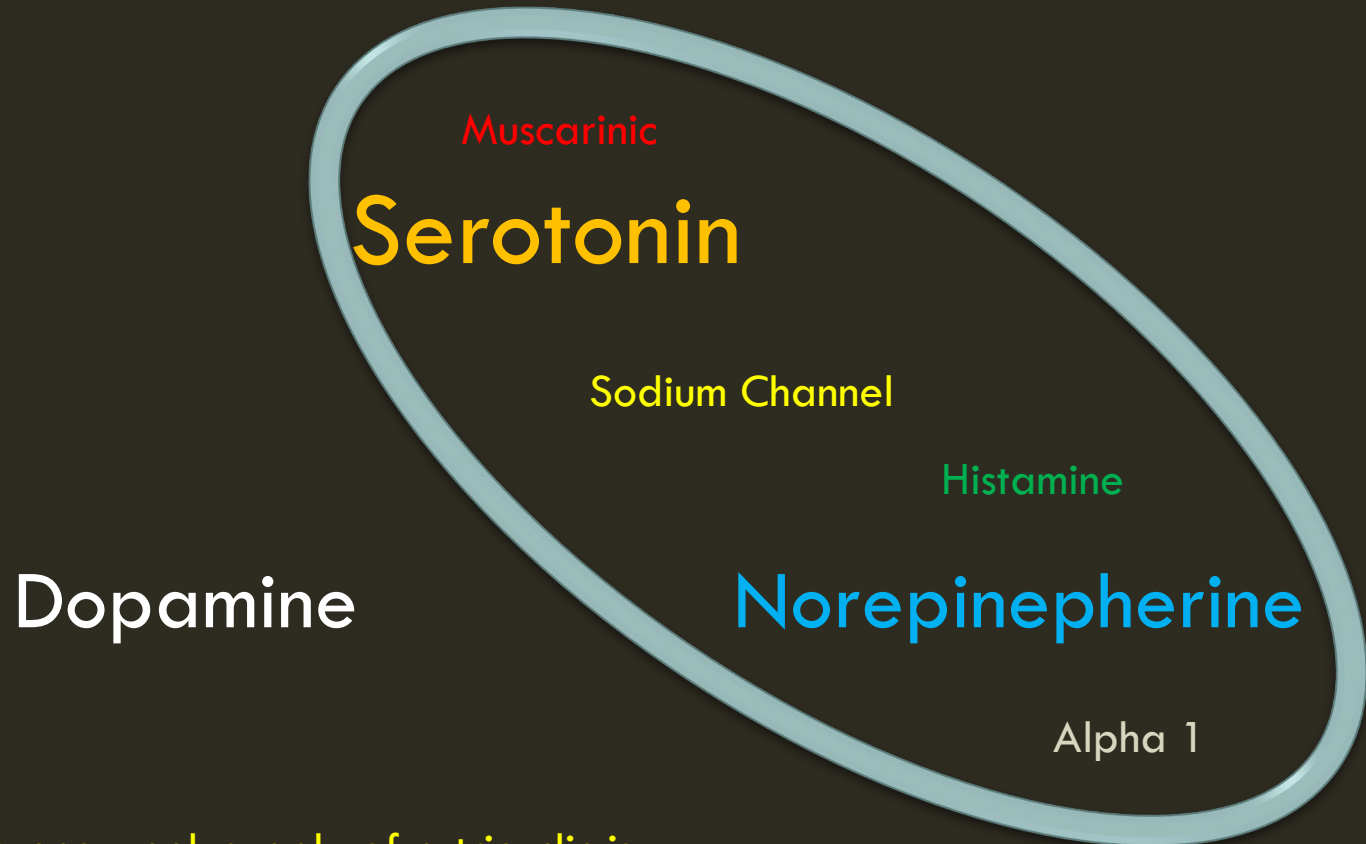
SEROTONIN NOREPINEPHERINE REUPTAKE INHIBITORS
EFFEXOR/VENLAFAXINE, CYMBALTA/DULOXETINE,
PRISTIQ/DESVENLAFAXINE, SAVELLA

Serotonin

Dopamine

Norepinephrine

TRICYCLICS
NON SELECTIVE SEROTONIN NOREPINEPHERINE REUPTAKE INHIBITORS
PLUS MORE



Remember a one week supply of a tricyclic is enough for a patient overdose with!

Receptor	Benefit	Side Effect
Dopamine Reuptake Inhibitor	Increased energy, Weight loss Improved focus Improves sexual side effects	Seizures Anxiety Contraindicated with seizures, alcohol, and eating disorders
Norepinephrine Reuptake Inhibitor	Increased energy, improve anxiety, reduced sexual side effects, treats pain/neuropathy	Anxiety Can raise blood pressure
Serotonin Reuptake Inhibitor	Improves anxiety, PTSD, OCD, Panic Disorder, IBS	Sexual dysfunction Initial nausea Serotonin Syndrome
5HT1A	Antidepressant; Anxiolytic	
5HT2C	Antidepressant	Cardiometabolic
5HT7	Reduced circadian rhythm dysfunction Improves vegetative symptoms Procognitive	
Alpha 1	Reduced nightmares	Dizziness; Sedation; Hypotension
Musc 1		Constipation; Sedation; Dry mouth; Blurred vision
Musc 3		Cardiometabolic; Constipation; Sedation; Dry mouth; Blurred vision
H 1	Hypnotic/ sleep aid	Cardiometabolic; Sedation

REFERENCES

1. Donegan, N. H., Sanislow, C. A., Blumberg, H. P., Fulbright, R. K., Lacadie, C., Skudlarski, P., Gore, J. C., Olson, I. R., McGlashan, T.H., & Wexler, B. E. (2003). Amygdala hyperreactivity in borderline personality disorder: implications for emotional dysregulation. *Biological Psychiatry*, *54*(11), 1284-1293.
2. **The National Institute of Mental Health Information Resource Center**
3. **NIDA:** <https://www.drugabuse.gov/>
4. thecarlatreport.com; Benzodiazepines: A Guide to Safe Prescribing. Dhwani Shah, MD
5. Murray A. Raskind , M.D., Elaine R. Peskind , M.D., Evan D. Kanter , M.D., Eric C. Petrie , M.D., Allen Radant , M.D., Charles E. Thompson , M.D., Dorcas J. Dobie , M.D., David Hoff , PA-C, Rebekah J. Rein , J.D., Kristy Straits-Tröster , Ph.D., Ronald G. Thomas , Ph.D., and Miles M. McFall , Ph.D. Reduction of Nightmares and Other PTSD Symptoms in Combat Veterans by Prazosin: A Placebo-Controlled Study. (*Am J Psychiatry* 2003; 160:371–373)
6. Tanya N. Alim, Elaine Graves, Thomas A. Mellman, Notalelomwan Aigbogun, Ekwenzi Gray, William Lawson, and Dennis S. Charney. Trauma exposure, posttraumatic stress disorder and depression in an African-American primary care population. *J Natl Med Assoc.* 2006 Oct; *98*(10): 1630–1636.
7. Higgins, N., Pickard, J., & Lever, A. (2015). Borderline Intracranial Hypertension Manifesting as Chronic Fatigue Syndrome Treated by Venous Sinus Stenting. *Journal of neurological surgery reports*, *76*(2), e244-7.