THE NEUROVANA CES CLINICAL PLAYBOOK

Quick Reference Guide for Practitioners

Table of Contents

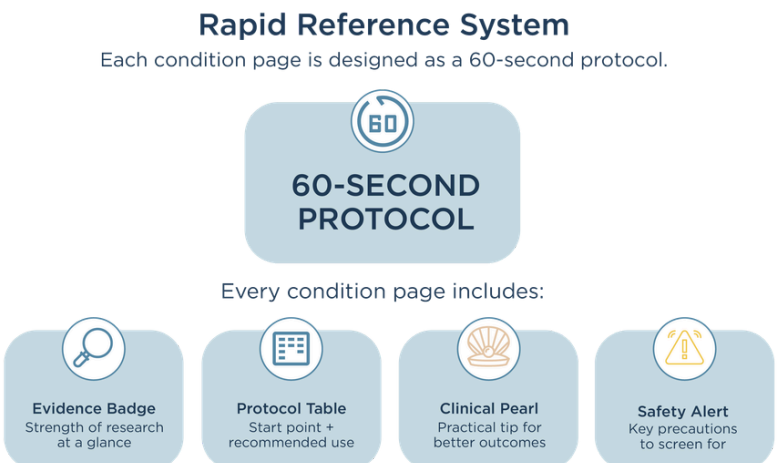
HOW TO USE THIS PLAYBOOK

RAPID REFERENCE SYSTEM

Each condition page = 60-second protocol.

Every Clinical Page Contains:

- **Evidence Badge** → Research strength (Strong/Moderate/Emerging)
- **Protocol Table** → Exact parameters
- **Clinical Pearl** → Practical wisdom from 7+ years
- **Safety Alert** → Red flags



EVIDENCE BADGES

STRONG EVIDENCE
Multiple RCTs + meta-analyses

STRONG = Multiple RCTs, meta-analyses → Use with confidence

MODERATE EVIDENCE
Pilot studies + case series

MODERATE = Pilot studies, case series → Reasonable to try

EMERGING EVIDENCE
Case reports + theory

EMERGING = Case reports, theory → Exploratory use

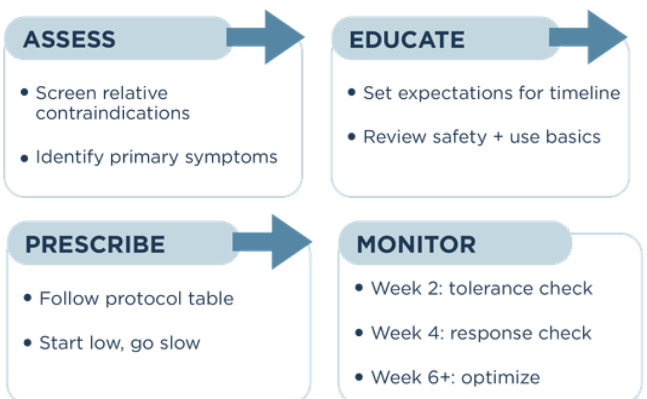
4-STEP IMPLEMENTATION

ASSESS
→ Check relative contraindications (Page 8), identify symptoms

EDUCATE
→ Set expectations, review safety

PRESCRIBE
→ Follow protocol table, start conservatively

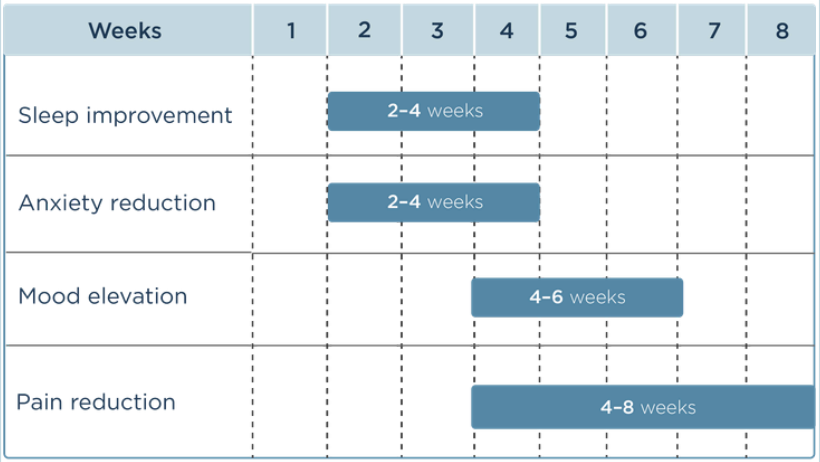
MONITOR
→ Week 2 (tolerance), Week 4 (response), Week 6+ (optimize)



TIME TO BENEFIT

Outcome	Timeline
Sleep improvement	2-4 weeks
Anxiety reduction	2-4 weeks
Mood elevation	4-6 weeks
Pain reduction	4-8 weeks

Typical Time to Benefit



Individual response varies; track changes over time.

CRITICAL SUCCESS FACTOR

Prioritize patient comfort and control

To ensure success, always begin at low intensity level. Empower the patient with autonomy; they must be allowed to maintain control and adjust the intensity based on their personal tolerance and preference. **Start Low, Go Slow.**

NEW TO CES THERAPY?

This playbook is designed for rapid clinical reference. If you're new to CES or want comprehensive background on mechanisms, research, and patient education, start here:

Free Master eBook

The Master Ebook covers FDA clearance, evidence reviews, deep-dives into mechanisms of action, and informed consent frameworks. This playbook assumes that foundation and provides fast-access protocols.

THE NEUROVANA SCIENCE

WHAT IS CES?

Cranial Electrotherapy Stimulation
Non-invasive microcurrent via ear clip electrodes
FDA-cleared: Anxiety, Insomnia
Also supported by evidence: Depression (not FDA-cleared)

THE MECHANISM: VAGUS NERVE ACTIVATION

Why stimulate near the ear?

The vagus nerve ("vagabond" = wandering) is the body's primary parasympathetic pathway. To calm the nervous system, stimulate it above the neck, on or around the ears where the auricular branch is accessible.

The Cascade:

1. Microcurrent activates auricular branch of vagus nerve
2. Majority of signal travels to thalamus, above brainstem
3. Parasympathetic response initiated
4. HPA axis regulation improves
5. Result: Reduced anxiety, better sleep, mood stabilization

4 KEY EFFECTS

Mechanism	Effect	Clinical Benefit
Neurotransmitters	↑ GABA, Serotonin, Endorphins	Calms anxiety, improves mood, reduces pain
Autonomic Balance	HRV ↑35-40%, Resting HR ↓8-12 bpm	Better stress resilience
Stress Hormones	Cortisol spikes ↓40%	Faster recovery from stress
Brain Regions	↓ Amygdala reactivity, ↑ Prefrontal control	Less "fight or flight" activation

WHAT PATIENTS EXPERIENCE

During session

Mild tingling (or nothing) fades to calm

After session:

Subtle alertness or continued relaxation

What they DON'T feel:

Pain, muscle contractions, altered consciousness

SAFETY & CONTRAINDICATIONS

EXCELLENT SAFETY RECORD

- ✓ Zero serious adverse events in 40+ years
- ✓ Safer than most psychiatric medications

RELATIVE CONTRAINDICATIONS & PRECAUTIONS

Precaution:	Reason	Required Action
Pacemaker/implanted device	Potential interference risk	Obtain cardiologist clearance before use
Active seizure disorder	Theoretical stimulation concern	Obtain neurologist approval; monitor closely
Pregnancy	Precautionary (limited studies)	Discuss with OB/GYN
Open wounds at electrode sites	Infection risk	Wait until healed OR use alternative placement

SIDE EFFECTS (UNCOMMON, UNLIKELY TO OCCUR AFTER 2 WEEKS OF USE)

Uncommon (<1%):

1. Skin irritation → Use gel, clean electrodes
2. Mild headache → Lower intensity, hydrate
3. Dizziness → Sit briefly post-session before standing
4. Paradoxical anxiety → Reduce intensity 50%
5. Vivid dreams → Shift to morning use

MEDICATION INTERACTIONS

Safe with: SSRIs, benzos, sleep meds, stimulants

Monitor:

No interaction, but monitor pts prescribed anticonvulsants (neurologist awareness)

DISCONTINUE CES AND CONSULT PROVIDER IF:

- Seizure occurs
- Severe or persistent headache
- Chest pain or palpitations
- Significant worsening of psychiatric symptoms
- Any concerning or unexplained symptoms

Most side effects = Weeks 1-2, then resolve

DEVICE SETUP & PATIENT PREP

FIRST SESSION PROTOCOL (4 STEPS)

1. **PREPARE**
   - Check battery connection
   - Clean electrode ear clips with alcohol wipe
   - Apply conducting gel or saline

2. **PLACE**
   - Clip firmly to earlobes (not painful)
   - Sensation = mild or absent

3. **START CONSERVATIVE**
   - Lowest intensity setting
   - 15-20 minutes only
   - Document baseline

4. **ENVIRONMENT**
   - Comfortable chair (not while driving)
   - Quiet space, dim lighting
   - Activities: Reading, music, meditation
   - Avoid: Stressful work

CES INTENSITY GUIDELINES:

The effectiveness of Cranial Electrotherapy Stimulation (CES) is independent of intensity; benefits are neither increased by high intensity nor diminished by low intensity.

While this book provides instructions for using a CES device for various conditions, the primary takeaway should be that CES devices are exceptionally safe, offering patients flexibility in how long, how often and how intensely they use the device. Instructions for various conditions are included to instill confidence in users who prefer clear guidance. The protocols are a reflection of the methods utilized in the clinical trials applicable to each condition.

However, this is merely guidance, not a strict requirement for achieving positive results. Ultimately, users can feel confident using the device for as long, as often, and as intensely as they personally prefer.

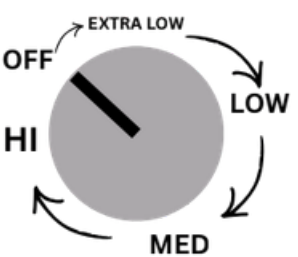
Patient Autonomy:

In general, allow patients to select their preferred intensity based on personal tolerance. Some patients find the sensation enjoyable and choose higher settings, while others prefer low intensity or settings just below the sensory threshold. For fully oriented patients (oriented X 4), we recommend complete patient autonomy regarding intensity selection.

Guidance for Others:

The following guide is provided for disoriented patients or those requiring caregiver assistance.

Level	Range	Use For
Very Low	Lowest setting	First-time, sensitive, patients with extensive trauma history
Low	Low setting	Weeks 1-2 (most patients)
Moderate	Moderate setting	Weeks 3+ if tolerated
High	High setting	Non-responders, chronic pain, monitor closely for tolerance



MAINTENANCE SCHEDULE

Task	Frequency
Clean electrode ear clips	After each use
Replace electrode ear clips	Every 3-6 months
Check connections	Weekly
Battery charge	Whenever battery indicator light is flashing (see device manual)

PATIENT HANDOUT CHECKLIST

- □ Device manual
- □ Clinical protocol (written)
- □ Symptom tracking form
- □ Follow-up schedule
- □ Emergency contact

Remember

START LOW, GO SLOW

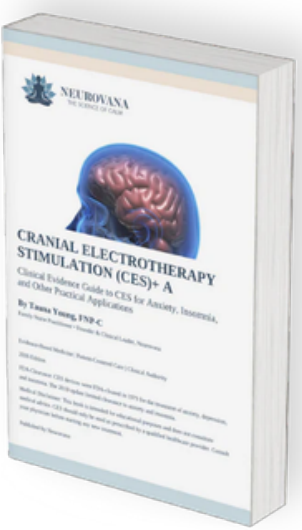
GENERALIZED ANXIETY DISORDER (GAD)

STRONG EVIDENCE
Multiple RCTs + meta-analyses

Multiple RCTs, meta-analysis (400+ patients), 50-60% symptom reduction, effect size = SSRIs

First time treating anxiety with CES?

Our **Master Ebook** provides comprehensive research review, patient education scripts, and mechanism explanations.



PROTOCOL TABLE

PARAMETER	INITIAL PHASE (Weeks 1-4)	MAINTENANCE (Weeks 5+)
Intensity	Low to moderate, or as tolerated/preferred	Low to moderate, or as tolerated/preferred
Frequency	Once or twice daily	Daily or 5-6 days/week
Duration	30 minutes	30-45 minutes
Timing	Evening (60-90 min before bed; if insomnia occurs/worsens, switch to morning or daytime use)	Continue evening OR add morning

CLINICAL PEARL

GAD responds best when paired with cognitive work (CBT). CES reduces physiological hyperarousal that makes worry uncontrollable; CBT addresses thought content. Together = exponential benefit.

IMPLEMENTATION

Primary Targets:

- Excessive worry (can't turn off thoughts)
- Physical tension (jaw, shoulders, stomach)
- Sleep onset difficulty (racing mind at bedtime)
- Chronic fatigue from hyperarousal

TIMELINE:

- Week 2: Subtle physical relaxation
- Week 4: Noticeable worry reduction
- Week 8: 50% or more GAD-7 score reduction

Track: GAD-7 score, sleep quality, physical tension, daily functioning (every 2-4 weeks)

SAFETY ALERT

STOP if:

- Anxiety worsens significantly (rare)
- No improvement after 8 weeks
- Patient avoids therapy
- Panic attacks increase

Tyson's Take

Consistency is one of the most important factors in successful CES treatment for anxiety. Repetitive stimulation appears to help recondition the nervous system toward a more relaxed baseline state over time. In addition to scheduled daily or twice-daily sessions, many patients report noticeable relief when using the device as needed during periods of acute stress or anxiety. While CES is most effective when used consistently, situational use can help interrupt escalating anxiety and reinforce the brain's shift toward a calmer baseline.

PANIC DISORDER

MODERATE EVIDENCE
Pilot studies + case series

Case series, pilot studies. Best for reducing panic frequency/intensity. Not effective for acute attacks.

PROTOCOL TABLE

PARAMETER	INITIAL PHASE (Weeks 1-4)	MAINTENANCE (Weeks 5+)
Intensity	Moderate, or as tolerated/preferred	
Frequency	Daily	Daily (consistency crucial)
Duration	30-45 minutes	45-60 minutes
Timing	Morning + Evening	Continue twice daily if helpful

CLINICAL PEARL

Use CES preventively. Works by reducing baseline arousal over time, not stopping acute attacks. For acute panic: use breathing, grounding, fast-acting meds.

IMPLEMENTATION

What CES Helps:

- Anticipatory anxiety (fear of next attack)
- Baseline hyperarousal
- Sleep disturbance
- Interoceptive sensitivity

What It Doesn't Replace:

- Acute interventions (breathing techniques)
- Panic-focused CBT (interoceptive exposure)
- Agoraphobia treatment (exposure therapy)

TIMELINE:

- Week 2: Reduced baseline anxiety between attacks
- Week 4: Panic frequency ↓30% (e.g., 5/week → 3/week)
- Week 8: Attacks less intense, faster recovery

SAFETY ALERT

STOP if:

- Panic attacks increase
- Patient avoids exposure therapy
- Psychological dependence develops
- Agoraphobia worsens

Tyson's Take

CES may not abort every panic attack once it has fully begun, but many patients report it grounds them and reduces escalation when used early. Encourage patients to use device at first signs of panic symptoms. In some cases this reduces intensity of the episode or prevents progression into full panic attack. As with other anxiety conditions, consistent baseline use improves overall responsiveness.

MAJOR DEPRESSIVE DISORDER (MDD)

LIMITED MODERATE EVIDENCE

Evidence is mixed overall but shows positive signal for anxious depression and depression with co-occurring anxiety or insomnia. Multiple RCTs support use for comorbid presentations.

PROTOCOL TABLE

PARAMETER	INITIAL PHASE (Weeks 1-4)	MAINTENANCE (Weeks 5+)
Intensity	Moderate, or as tolerated/preferred	Moderate, or as tolerated/preferred
Frequency	Daily	Daily
Duration	45 minutes	45 minutes
Timing	MORNING (supports energy)	Continue morning

CLINICAL PEARL

Morning timing is ideal for depression. Morning use of CES supports daytime energy, regulates circadian rhythm, and counters morning mood nadir.

IMPLEMENTATION

Best Candidates:

- Anxious depression (strongest evidence)
- Melancholic features (morning worse, anhedonia)
- Chronic low-grade depression (hypothymia)

Less Ideal:

- Severe depression (PHQ-9 >20) → CES as adjunct only
- Bipolar depression → Use with mood stabilizers
- Psychotic depression → May need antipsychotics or stabilization first

TIMELINE:

- Week 2: Improved sleep, slightly more energy
- Week 4: Subtle mood lifting
- Week 8: 30-40% PHQ-9 reduction
- Week 12: Some achieve remission (PHQ-9 <5)

Track: PHQ-9, energy level, anhedonia, functioning (every 2 weeks)

SAFETY ALERT

STOP if:

- Mood worsens
- New suicidal ideation
- Manic symptoms (racing thoughts, grandiosity, decreased sleep need)
- No improvement after 10 weeks

Tyson's Take

For many patients, morning and late-afternoon sessions appear most helpful for improving daytime energy, mood regulation, and circadian rhythm support. However, CES can be relaxing or sedating for some individuals. If patients feel fatigued during treatment, shifting sessions to late afternoon, evening, or bedtime may be more appropriate. Patients often begin noticing subtle emotional regulation benefits around weeks 2–3 of consistent use. A common patient description is not necessarily that stressors disappear, but that they feel less emotionally stuck or overwhelmed by them. Patients may report being able to move past difficult experiences more easily, regain motivation faster, and feel less weighed down by negative emotions.

INSOMNIA (SLEEP ONSET)

STRONG EVIDENCE
Multiple RCTs + meta-analyses

FDA-cleared. Polysomnography: 30-40 min faster sleep onset. Comparable to meds without side effects.

PROTOCOL TABLE

PARAMETER	INITIAL PHASE (Weeks 1-4)	MAINTENANCE (Weeks 5+)
Intensity	Low to moderate, or as tolerated/preferred	Low to moderate, or as tolerated/preferred
Frequency	Daily	Daily (may reduce to 5-6×/week)
Duration	45 minutes	45 minutes
Timing	30-60 min before bed unless hypersomnia occurs (if this occurs, avoid using w/in 3 hrs of bedtime)	Continue timing from previous phase

CLINICAL PEARL

Be thoughtful about timing. Use before bedtime, not in bed. This allows calming effects to build. Using in bed may condition wakefulness association.

IMPLEMENTATION

Sleep Onset Profile:

- Takes 45-120+ min to fall asleep
- Mind racing (thoughts, worry, planning)
- Physical tension (can't relax)
- Anxiety about not sleeping

TIMELINE:

- Week 1: 10-15 min faster fall-asleep
- Week 3: 20-30 min improvement
- Week 6: 30-40 min average reduction
- Week 7+: Sustained, may reduce frequency

If Not Responding by Week 3:

- Move timing earlier (60-90 min before bed)
- Increase duration to 60 min
- Increase intensity
- Address sleep hygiene (dark room, cool temp, no screens)

SAFETY ALERT

STOP if:

- Mood worsens
- New suicidal ideation
- Manic symptoms (racing thoughts, grandiosity, decreased sleep need)
- No improvement after 10 weeks

Tyson's Take

CES can be particularly helpful for individuals who struggle to fall asleep due to racing thoughts or physiologic arousal. While many patients notice sleep improvements after a few weeks of consistent use, some experience meaningful benefits even during early use. In certain cases, patients report improved sleep onset when the device is used at bedtime or immediately prior to sleep. Some individuals prefer the continuous setting, though clinicians should exercise caution, particularly with younger patients, to minimize risk from lead wires during sleep.

INSOMNIA (SLEEP MAINTENANCE)

MODERATE EVIDENCE
Pilot studies + case series

Less studied than sleep onset. Best for middle-of-night awakenings.

PROTOCOL TABLE

PARAMETER	INITIAL PHASE (Weeks 1-4)	MAINTENANCE (Weeks 5+)
Intensity	Low to moderate, or as tolerated/preferred	Low to moderate, or as tolerated/preferred
Frequency	Daily	Daily
Duration	60-90 min (longer)	60-90 minutes
Timing	AT BEDTIME (stays on)	Continue bedtime

CLINICAL PEARL

Sleep maintenance needs deeper stabilization. Longer duration sessions + higher intensity. Goal = autonomic stability that persists through sleep cycles, not just initial relaxation.

IMPLEMENTATION

Sleep Maintenance Profile:

- Falls asleep easily
- Wakes 2-5+ times/night
- Difficulty returning to sleep (15-60+ min)
- Non-restorative despite adequate time in bed

TWO APPROACHES:

A. Device On During Sleep (Preferred)

- Set timer 90 min OR let run all night
- Maintains parasympathetic tone
- May be uncomfortable for some

B. Pre-Bed + PRN Middle-of-Night

- 45-60 min pre-bed
- Keep at bedside, use 20-30 min if wake
- More comfortable, but doesn't prevent awakenings

TIMELINE:

- Week 2: Faster return to sleep (20-30 min vs. 45-60)
- Week 4: Awakenings ↓40% (5/night → 3/night)
- Week 8: Most achieve 0-2 brief awakenings

SAFETY ALERT

STOP if:

- Awakenings increase
- New sleep onset difficulty
- Suspected disorder (apnea, RLS)

  → Sleep study needed

Tyson's Take

For patients who awaken during the night, CES can sometimes be helpful when used prior to sleep or upon waking during the night. Some individuals benefit from the continuous setting if the device produces sedation. However, clinicians should monitor carefully, as a minority of patients experience a paradoxical "second wind" effect, which can worsen nighttime wakefulness.

CHRONIC STRESS & BURNOUT

STRONG EVIDENCE
Multiple RCTs + meta-analyses

Multiple studies. Cortisol spikes ↓40%. HRV improvements documented. Objective stress biomarkers improved.

PROTOCOL TABLE

PARAMETER	INITIAL PHASE (Weeks 1-4)	MAINTENANCE (Weeks 5+)
Intensity	Moderate or as tolerated/preferred	
Frequency	Daily	Daily OR twice daily if severe
Duration	45-60 minutes	45-60 minutes
Timing	EVENING (decompress)	Continue evening + add morning if needed

CLINICAL PEARL

Burnout requires system change. CES addresses physiological consequences but doesn't remove stress source. If workload/environment unchanged, CES = temporary relief, not cure. Address root causes.

IMPLEMENTATION

Burnout Symptoms:

- Emotional exhaustion (depleted, drained)
- Depersonalization (cynicism, detachment)
- Reduced accomplishment
- Chronic fatigue despite rest
- Physical tension (shoulders, jaw, stomach)
- Cognitive fog

Physiological Markers:

- Elevated resting heart rate
- Low HRV (autonomic rigidity)
- Abnormal cortisol (blunted morning, elevated evening)

TIMELINE:

- Week 2: Improved sleep, slightly better tolerance
- Week 4: HRV improvement, less "on edge"
- Week 8: Cortisol normalization, 30-40% stress reduction
- Week 12: Sustained resilience

SEVERE BURNOUT = TWICE DAILY:

Morning (30 min)

- Regulate baseline

Evening (60 min)

- Deep recovery

SAFETY ALERT

STOP if:

- Sleep onset worsens
- New middle-of-night waking
- No improvement after 6 weeks
- Suspected sleep disorder (apnea, restless legs) → Refer

Tyson's Take

While CES does not remove external stressors, many patients report that it helps them respond differently to ongoing stress. Patients frequently describe feeling better able to tolerate challenges, regulate emotional reactions, and maintain composure in situations that previously felt overwhelming. Even when life circumstances remain unchanged, CES may help restore a more balanced stress response.

POST-TRAUMATIC STRESS DISORDER (PTSD)

LIMITED MODERATE EVIDENCE

Pilot studies, case series. Best for hyperarousal symptoms (not intrusive memories/avoidance). Effective for PTSD-related sleep disturbance.

TRAUMA-INFORMED PRACTICE

PTSD treatment requires careful, informed implementation. Before using CES with trauma patients, review the comprehensive trauma considerations in our Master Ebook.

Topics include: trauma neurobiology, window of tolerance, grounding techniques, and when CES supports (vs. complicates) trauma processing.

PROTOCOL TABLE

PARAMETER	INITIAL PHASE (Weeks 1-6)	MAINTENANCE (Weeks 7+)
Intensity	Start very low until tolerance is assessed, especially in pts prone to dissociation	Gradually increase according to tolerance
Frequency	3-4×/week	Daily OR 5-6×/week
Duration	30 min (or shorter initially)	45 minutes
Timing	Evening (support sleep)	Continue evening

CLINICAL PEARL

TRAUMA-INFORMED = ULTRA-CONSERVATIVE.

PTSD patients are highly sensitive to body sensations and may interpret CES tingling as threatening. Start extremely low, give complete control to patient, explain every sensation. Go 3× slower than other conditions.

IMPLEMENTATION

What CES Helps:

- ✓ Hyperarousal symptoms (startle, hypervigilance, irritability)
- ✓ Sleep disturbance
- ✓ Chronic sympathetic activation
- ✓ Physical tension

What It Doesn't Address:

> ✗ **Flashbacks/intrusive memories**
>
> → Needs trauma therapy (EMDR, PE, CPT)
>
> ✗ **Avoidance behaviors**
>
> → Needs exposure therapy
>
> ✗ **Negative cognitions**
>
> → Needs cognitive work

Gradual Introduction:

- Week 1: 10-15 min, 3×/week, lowest intensity (build trust)
- Week 2: 20 min, 3×/week (still very low)
- Week 3-4: Standard sessions, 4×/week (minimal intensity increase)
- Week 5+: Standard protocol IF tolerated

TIMELINE:

- Week 2: Reduced baseline anxiety, slightly less "jumpy"
- Week 6: Reduced startle, better stress tolerance
- Week 12: Improvements in PTSD symptoms, particularly insomnia (Rustad et al. reported ~34% insomnia reduction)

Coordinate with Trauma Therapist:

- Don't start during intensive trauma processing
- Use for stabilization phase
- May enhance therapy once established

SAFETY ALERT

STOP IMMEDIATELY if

- Dissociative episodes increase
- Flashbacks worsen
- Patient feels "out of control"
- Nightmares increase
- Suicidal ideation emerges
- Physical sensations feel threatening

Tyson's Take

When introducing CES for PTSD, it is often best to start slowly and allow the patient a high degree of control over treatment pacing and duration. Some patients find CES helpful during episodes of dissociation or emotional overwhelm, where the stimulation can provide a grounding effect and help reconnect attention to the present moment.

COMPLEX PTSD (C-PTSD) & DISSOCIATION

EMERGING EVIDENCE
Case reports + theory

Very limited specific research. Clinical observations suggest benefit. Requires specialized expertise. NOT for all trauma patients.

PROTOCOL TABLE

PARAMETER	INITIAL PHASE (Weeks 1-8)	MAINTENANCE (Weeks 9+)
Intensity	Extra low until pt tolerance is assessed, especially in pts prone to dissociation	Very gradual increases according to tolerance
Frequency	3×/week	4-5×/week (if tolerated)
Duration	15-20 min (very short)	30-45 minutes
Timing	Flexible (patient preference)	Evening preferred

CLINICAL PEARL

WINDOW OF TOLERANCE. C-PTSD patients have narrow windows (Dan Siegel).

Too little = shutdown. Too much = overwhelm. CES must stay within this window, which varies day-to-day. Some may never progress beyond brief sessions.

IMPLEMENTATION

C-PTSD Additional Features:

- Affect dysregulation (extreme reactivity)
- Negative self-concept (pervasive shame)
- Relationship difficulties (trust issues)
- Dissociative symptoms (depersonalization, time loss)
- Somatic dysregulation (chronic pain, body disconnection)

What CES Addresses:

✓ **Autonomic dysregulation**
(sympathetic dominance OR dorsal vagal shutdown)

✓ **Affect dysregulation**
(emotional reactivity slightly reduced)

✓ **Somatic symptoms**
(chronic tension, sleep)

What It Doesn't Address:

- ✗ **Attachment wounds**
  → Relational therapy
- ✗ **Identity disturbance**
  → Specialized trauma work
- ✗ **Self-concept**
  → Cognitive/relational therapy

Ultra-Conservative Introduction:

- Week 1-2: Show device, explain, NO use yet (build trust)
- Week 3-4: First trials (very brief sessions, 3×/week, absolute lowest intensity)
- Week 5-8: Gradual increase ONLY if tolerated
- Week 9+: May never reach "standard" protocol—meet patient where they are

Essential: MUST be in trauma-informed therapy (DBT, Sensorimotor, EMDR, IFS). CES is NEVER standalone for C-PTSD.

SAFETY ALERT

STOP IMMEDIATELY if

- Dissociation during/after CES
- Patient feels "trapped/controlled"
- Self-harm urges increase
- Emotional dysregulation worsens
- NOT in specialized trauma therapy

Tauna's Take

CES can be highly effective for treating chronic PTSD. However, initial implementation requires caution as calm may actually feel equivalent to a panic attack. Patients unaccustomed to a state of calm may find the experience of a resting nervous system highly stressful. For patients with C-PTSD, I recommend a gradual introduction to CES. Allow for extra time and space to acclimate the patient to feeling safe and in control to prevent them from dissociating from the experience. In my practice, we utilize a calm, relaxing room for CES trial sessions. This approach has proven particularly successful for patients with a chronically activated fight-or-flight nervous system.

ACUTE STRESS & ADJUSTMENT DISORDERS

MODERATE EVIDENCE
Pilot studies + case series

Limited specific research. Strong theoretical rationale based on autonomic regulation. Best for recent-onset stress responses.

PROTOCOL TABLE

PARAMETER	INITIAL PHASE (Weeks 1-4)	MAINTENANCE (Weeks 5-8)
Intensity	Low to moderate or as tolerated/preferred	Moderate or as tolerated/preferred
Frequency	Daily OR twice daily	Daily
Duration	30-45 minutes	30-45 minutes
Timing	Evening + Morning if severe	Continue as needed

CLINICAL PEARL

EARLY INTERVENTION = BEST OUTCOMES.

Acute stress/adjustment disorders respond faster than chronic conditions because nervous system dysregulation hasn't become entrenched. CES can prevent progression to chronic anxiety/PTSD.

IMPLEMENTATION

Acute Stress Disorder (within 1 month of trauma):

- Intrusive memories, hyperarousal, avoidance
- High risk of progression to PTSD
- CES targets hyperarousal to prevent chronification
- Pair with: Trauma-focused therapy immediately

Adjustment Disorders (stressor-related):

- Week 1: Improved sleep, reduced physical tension
- Week 2-3: Better stress tolerance, less reactive
- Week 4-6: Meaningful symptom reduction
- Week 8: Many achieve full remission if stressor resolved

TWICE DAILY PROTOCOL (SEVERE CASES):

Morning (shorter session)

- Regulate baseline for day

Evening (longer session)

- Deep recovery, sleep support

Key Difference from PTSD:

- Can start at standard intensity
- Don't need ultra-conservative approach
- Faster response timeline (4-6 weeks vs. 8-12)

SAFETY ALERT

STOP if

- Symptoms worsen
- Dissociation emerges
- Suicidal ideation
- No improvement after 6 weeks

  → Re-evaluate diagnosis

  (may be PTSD/MDD)

Tyson's Take

CES can be particularly useful during periods of acute stress, where early intervention may help prevent symptoms from progressing into chronic anxiety or stress-related disorders. Regular use during these periods may help interrupt the physiologic stress cycle, supporting faster recovery and helping the nervous system return to baseline more quickly.

EMOTIONAL DYSREGULATION (BORDERLINE/BIPOLAR SUPPORT)

EMERGING EVIDENCE
Case reports + theory

Case reports, theoretical basis. Use as ADJUNCT only with mood stabilizers. NOT monotherapy.

PROTOCOL TABLE

PARAMETER	INITIAL PHASE (Weeks 1-4)	MAINTENANCE (Weeks 5+)
Intensity	Low to moderate or as tolerated/preferred	Moderate or as tolerated/preferred
Frequency	3-4×/week	4-5×/week if stable
Duration	30 minutes	30-45 minutes
Timing	Evening (mood stabilization)	Continue evening

CLINICAL PEARL

CES SUPPORTS, DOESN'T REPLACE.

For Borderline: pair with DBT skills training. For Bipolar: Recommend mood stabilization first. CES addresses autonomic dysregulation underlying emotional reactivity, but doesn't treat core disorder.

IMPLEMENTATION

Borderline Personality Disorder (BPD):

- Target: Emotional reactivity, stress intolerance
- CES role: Autonomic regulation to support DBT skills
- Essential: Active DBT or similar skills-based therapy
- Start 3×/week to avoid overwhelming system

Bipolar Disorder (Depression/Maintenance):

- Target: Depressive episodes, sleep regulation
- WARNING: Risk of mood episode induction
- Strongly Recommended: On mood stabilizer (lithium, valproate, lamotrigine)
- Close monitoring for manic symptoms

What CES Addresses:

- ✓ **Emotional reactivity** (slightly reduced)
- ✓ **Stress tolerance** (improved window)
- ✓ **Sleep disturbance** (common in both)
- ✓ **Physical tension/agitation**

What It Doesn't Address:

- ✗ **Identity disturbance (BPD)**
- ✗ **Mood cycling (Bipolar)**
- ✗ **Interpersonal patterns**
- ✗ **Suicidal behavior**

Timeline:

- Week 2-3: Slightly better stress tolerance
- Week 4-6: Reduced emotional reactivity
- Week 8: Modest improvement in affect regulation

MONITOR WEEKLY:

- Mood stability (1-10 scale)
- Emotional reactivity episodes (#/week)
- Sleep quality
- Bipolar: Manic symptoms (racing thoughts, decreased sleep need, grandiosity)

SAFETY ALERT

STOP IMMEDIATELY if

- Manic symptoms appear (Bipolar)
- Self-harm increases (BPD)
- Mood destabilizes
- Suicidal crisis
- NOT on appropriate medications/therapy

Tauna's Take

While CES does not directly address root causes of BPD or BD, it can offer significant relief for many of the associated symptoms. Sleep, a critical aspect of BD management, is an area where CES can be particularly helpful. Individuals with BD often learn the hard way that sleep is essential for minimizing symptoms of mania. Beyond supporting sleep, extensive research supports CES's efficacy in treating depression. Given that people with bipolar disorder typically experience depressive episodes three times more often than manic episodes, this is a highly relevant benefit. A compelling study published in The Journal of Nervous and Mental Disease in Nov 2015 confirmed that CES could alleviate depressive symptoms linked to bipolar disorder. The article, "A Pilot Study of Safety and Efficacy of Cranial Electrotherapy Stimulation in Treatment of Bipolar II Depression," is worth looking up for a deeper dive into the results.

CHRONIC PAIN SYNDROMES (GENERAL)

MODERATE EVIDENCE
Pilot studies + case series

Multiple studies on pain reduction. Best for neuropathic and central pain. Takes longer than mood/anxiety (4-8 weeks).

PROTOCOL TABLE

PARAMETER	INITIAL PHASE (Weeks 1-4)	MAINTENANCE (Weeks 5+)
Intensity	Moderate to high or as tolerated/preferred	Moderate to high or as tolerated/preferred
Frequency	Daily	Daily (consistency critical)
Duration	45 minutes or more	45 minutes or more
Timing	Evening OR twice daily	Continue OR split AM/PM

CLINICAL PEARL

PAIN REQUIRES PATIENCE.

Unlike anxiety and insomnia (2-4 weeks), chronic pain takes 4-8 weeks for meaningful reduction. Set realistic expectations: goal is moderate pain reduction, not elimination. CES works best for neuropathic/central pain, less for structural.

IMPLEMENTATION

Pain Types That Respond:

- Neuropathic (nerve damage, diabetic neuropathy) — Best response
- Central sensitization (fibromyalgia, widespread pain)
- Chronic tension (muscle-based, stress-related)

Mixed (partially structural) — Moderate response

- Pure structural (fracture, torn ligament) — Minimal direct effect

Mechanism:

- ↑ Endorphins (natural pain relief)
- ↓ Central sensitization (brain amplification)
- Autonomic regulation (reduces pain-stress cycle)
- Improved sleep (pain tolerance ↑ with better sleep)

Timeline:

- Week 2: Improved sleep quality (indirect pain benefit)
- Week 4: Subtle pain intensity reduction
- Week 8: Meaningful pain reduction in responsive patients
- Week 12: Sustained benefit, may plateau

TWICE DAILY PROTOCOL (SEVERE PAIN)

Morning (moderate session)

- Baseline pain control for day

Evening (extended session)

- Deep relief, sleep support

TRACK WEEKLY:

- Pain intensity (0-10 scale)
- Pain interference with function (0-10)
- Pain-free hours per day
- Sleep quality

SAFETY ALERT

STOP if

- Pain significantly worsens (check for new pathology)
- No improvement after 10 weeks
- Patient avoids medical workup for pain source

Tyson's Take

CES may support pain management both through central nervous system modulation and through its effects on stress and sleep. In some cases, clinicians may consider placing electrodes closer to the region of pain (such as the lower back) when targeting localized symptoms. While this approach does not correct structural pathology, some patients report reduced pain perception when stimulation is directed toward the affected area.

FIBROMYALGIA & CENTRAL SENSITIZATION

MODERATE EVIDENCE
Pilot studies + case series

Multiple RCTs for fibromyalgia. Significant pain reduction. Improves sleep, fatigue, cognitive function ("fibro fog").

PROTOCOL TABLE

PARAMETER	INITIAL PHASE (Weeks 1-6)	MAINTENANCE (Weeks 7+)
Intensity	Moderate to high or as tolerated/preferred	Moderate to high or as tolerated/preferred
Frequency	Daily	Daily
Duration	45 minutes or more	45 minutes or more
Timing	Evening (sleep support)	Continue evening

CLINICAL PEARL

FIBROMYALGIA = MULTI-TARGET DISEASE.

CES uniquely addresses 4 core symptoms simultaneously: pain (reduced), sleep (↑quality), fatigue (↓), cognitive fog (↑clarity). Few treatments do all four. This makes CES especially valuable for fibromyalgia.

IMPLEMENTATION

Fibromyalgia Symptom Clusters:

- Widespread pain (central sensitization)
- Sleep disturbance (non-restorative)
- Fatigue (chronic exhaustion)
- Cognitive dysfunction ("fibro fog")
- Mood disturbance (anxiety/depression common)

CES Addresses ALL 5:

✓ **Pain:** Reduced intensity via endorphin ↑ and central sensitization ↓

✓ **Sleep:** Architecture improvement, deeper restorative stages

✓ **Fatigue**: Better sleep → less fatigue

✓ **Cognition:** HPA axis regulation → clearer thinking

✓ **Mood:** Anxiety/depression reduction

TIMELINE:

- Week 2: Improved sleep (often first change)
- Week 4: Subtle pain reduction, less fatigue
- Week 8: Meaningful pain reduction, "fibro fog" clearing
- Week 12: Sustained multi-symptom improvement

OPTIMIZATION STRATEGY:

- Start extended evening sessions
- If incomplete response at Week 6: Increase to 90 min OR add 30 min morning session
- Higher intensity often needed vs. anxiety

Pair With:

- Graded exercise (gentle, gradual)
- CBT for pain management
- Sleep hygiene optimization
- Medications (if needed): Pregabalin, duloxetine, etc.

TRACK EVERY 2 WEEKS:

- Pain intensity (0-10)
- Fibromyalgia Impact Questionnaire (FIQ) score
- Sleep quality, fatigue level, cognitive clarity

SAFETY ALERT

STOP if

- Pain worsens
- New symptoms emerge (rule out other conditions)
- No improvement after 10 weeks
- Patient avoids other evidence-based treatments (exercise, therapy)

Tauna's Take

Given that the majority of CES current is transmitted to the thalamus, the brain's primary sensory relay station, it is a reasonable hypothesis that CES may influence pain perception. Specifically, in conditions like fibromyalgia where pain-processing networks are heightened, CES offers a method for potential recalibration. For a deeper discussion on this subject, refer to Chapter 7 of our comprehensive e-book.

Free Master eBook

HEADACHE & MIGRAINE MANAGEMENT

MODERATE EVIDENCE
Pilot studies + case series

Pilot studies for tension headaches and migraine prevention. Best for prevention, not acute treatment. Reduces frequency/intensity.

PROTOCOL TABLE

PARAMETER	INITIAL PHASE (Weeks 1-4)	MAINTENANCE (Weeks 5+)
Intensity	Lower settings may be preferred by sensitive patients	As tolerated/preferred
Frequency	Daily (preventive)	Daily
Duration	45 minutes	45 minutes or more
Timing	Evening (tension reduction)	Continue evening

CLINICAL PEARL

CES IS PREVENTIVE, NOT ABORTIVE.

Use daily to reduce headache frequency/intensity over 4-6 weeks. NOT for stopping active migraine (use triptans, NSAIDs). Best for tension-type and stress-triggered migraines.

IMPLEMENTATION

Headache Types & CES Fit:

✓ **TENSION-TYPE (Best Response):**

- Muscle tension, stress-related
- Bilateral, band-like pressure
- CES reduces muscle tension + stress reactivity
- Significant frequency reduction typical

✓ **MIGRAINE (Moderate Response):**

- Best for: Stress-triggered, menstrual, chronic migraine
- CES reduces trigger sensitivity
- Moderate frequency reduction, intensity notably decreased
- Still need abortive medications for breakthrough

CLUSTER HEADACHES:

- Limited evidence
- May try, but may need specialized treatment

MECHANISM:

- Autonomic regulation (migraine has autonomic component)
- Stress reduction (major trigger)
- Muscle tension ↓ (tension headaches)
- Improved sleep (headaches worsen with poor sleep)

TIMELINE:

- Week 2: Slightly fewer headache days
- Week 4: Noticeable reduction in headache frequency
- Week 8: Significant frequency reduction (tension-type)
- Week 12: Sustained prevention

DUAL-USE STRATEGY:

- Daily evening CES: Prevention
- Acute medications: Breakthrough headaches (triptans, NSAIDs)
- Goal: Reduce medication overuse

TRACK DAILY:

- Headache days per week
- Intensity (0-10)
- Duration (hours)
- Medication use (# pills)

SAFETY ALERT

STOP if

- Headaches worsen
- New headache pattern (rule out secondary causes)
- No improvement after 8 weeks

Tauna's Take

Regular CES use has led to a significant reduction in the frequency of headaches for many patients. Furthermore, some patients find that using CES at the initial sign of headache symptoms can prevent the headache from fully developing. For other patients, CES has no impact on headaches. Importantly, to my knowledge, no patients who suffer from chronic headaches have reported that CES exacerbates their symptoms.

ADHD SYMPTOM SUPPORT (FOCUS & RESTLESSNESS)

EMERGING EVIDENCE
Case reports + theory

Case reports, theoretical basis. Best for hyperarousal/"overthinking" component. NOT replacement for stimulants. Addresses comorbid anxiety.

PROTOCOL TABLE

PARAMETER	INITIAL PHASE (Weeks 1-4)	MAINTENANCE (Weeks 5+)
Intensity	Low to moderate or as tolerated/preferred	Low to moderate or as tolerated/preferred
Frequency	Daily	Daily OR 5-6×/week
Duration	30-45 minutes	45 minutes
Timing	MORNING (focus support) OR Evening (sleep/anxiety)	Flexible based on target

CLINICAL PEARL

CES TARGETS ADHD'S ANXIETY/SLEEP COMPONENTS, NOT CORE ATTENTION.

Won't replace stimulants, but addresses comorbid anxiety (60% of ADHD), sleep issues (75%), and emotional dysregulation. Use as adjunct, not monotherapy.

IMPLEMENTATION

What CES Addresses:

- ✓ **Comorbid anxiety (60% have anxiety)**
  → Significant reduction
- ✓ **Sleep onset insomnia (75% have sleep issues)**
  → Improved
- ✓ **Emotional dysregulation (frustration intolerance)**
  → Modestly better
- ✓ **Physical restlessness (autonomic hyperarousal)**
  → Reduced
- ✓ **Stimulant side effects (anxiety, insomnia)**
  → Mitigated

What It Doesn't Fix:

- ✗ **Core inattention (distractibility, forgetfulness)**
- ✗ **Executive dysfunction (planning, organization)**
- ✗ **Impulsivity (core ADHD symptom)**

Strategy A: Morning Use (Focus Support)	Strategy B: Evening Use (Sleep/Anxiety)
• Standard session upon waking • May improve daytime regulation • Complements stimulant medication • Some report better "smooth" focus	• Standard session before bed • Addresses sleep onset difficulty • Reduces stimulant-induced evening anxiety • Improves next-day function via better sleep

TIMELINE:

- Week 2: Improved sleep quality (if evening use)
- Week 4: Reduced comorbid anxiety
- Week 6-8: Better emotional regulation, less restlessness
- Core ADHD symptoms: Minimal direct change

PAIR WITH:

- Stimulant medications (methylphenidate, amphetamines)
- Behavioral interventions (CBT for ADHD, coaching)
- Sleep hygiene
- Organizational systems

TRACK WEEKLY:

- ADHD symptoms (separate from anxiety)
- Comorbid anxiety (GAD-7)
- Sleep quality
- Emotional dysregulation episodes

SAFETY ALERT

STOP if

- Patient uses CES to avoid medication evaluation
- No improvement in anxiety/sleep after 6 weeks
- Worsening ADHD symptoms (rare)

Tauna's Take

Although CES does not directly treat ADHD, it appears to alleviate many of its secondary effects, which can result in improved focus. While the current evidence suggests CES is best utilized as a complementary tool rather than a primary treatment for ADHD, many patients have reported significant personal improvements in focus following its use. Benefits may be enhanced if used in the morning.

COGNITIVE FUNCTION & 'BRAIN FOG' OPTIMIZATION

MODERATE EVIDENCE
Pilot studies + case series

Emerging research on cognitive enhancement. Best for stress/anxiety-related cognitive impairment. Takes 6-12 weeks for full benefit.

PROTOCOL TABLE

PARAMETER	INITIAL PHASE (Weeks 1-6)	MAINTENANCE (Weeks 7+)
Intensity	Low to moderate or as tolerated/preferred	Low to moderate or as tolerated/preferred
Frequency	Daily	Daily OR 5-6×/week
Duration	45 minutes or more	45 minutes or more
Timing	MORNING (daytime clarity)	Continue morning

CLINICAL PEARL

COGNITIVE GAINS ARE INDIRECT, NOT DIRECT. CES doesn't "boost brain power" like a stimulant.

It improves cognition by: (1) reducing anxiety that interferes with focus, (2) improving sleep quality (crucial for memory), (3) regulating HPA axis (chronic stress impairs cognition).

IMPLEMENTATION

"Brain Fog" Causes CES Addresses:

- ✓ **Anxiety-related** (worry interferes with focus)
  → Strong benefit
- ✓ **Stress-induced** (chronic cortisol impairs memory)
  → Moderate benefit
- ✓ **Sleep deprivation** (poor sleep = poor cognition)
  → Strong indirect benefit
- ✓ **Depression-related** (psychomotor slowing)
  → Moderate benefit
- ✓ **Fibromyalgia "fibro fog"**
  → Moderate benefit (see Page 16)

Causes CES Doesn't Address:

- ✗ Neurodegenerative (Alzheimer's, dementia)
- ✗ Structural brain injury (TBI, stroke)
- ✗ Vitamin deficiencies (B12, D, iron)
- ✗ Thyroid dysfunction
- ✗ Medication side effects

COGNITIVE DOMAINS THAT MAY IMPROVE:

- Processing speed (mental quickness)
- Working memory (holding info in mind)
- Attention/concentration (sustained focus)
- Mental fatigue (cognitive endurance)

TIMELINE:

- Week 2-4: Improved sleep → indirect cognitive benefit
- Week 6: Subtle improvements in focus/clarity
- Week 10: Modest improvement in subjective cognitive
- Week 12: May plateau; sustained benefit with continued use

OPTIMIZATION:

- Morning use (supports daytime function)
- Pair with: Adequate sleep (7-9 hrs), exercise, cognitive challenges
- Rule out: Treatable causes (thyroid, B12, sleep apnea)

TRACK EVERY 2 WEEKS:

- Subjective cognitive clarity (1-10)
- Mental fatigue (1-10)
- Work/study performance (self-report)
- Objective if possible: Digit span, processing speed tests

SAFETY ALERT

STOP if

- Cognition worsens (rule out medical causes)
- No improvement after 12 weeks
- Patient avoids medical workup for reversible causes (thyroid, B12, sleep apnea)

Tauna's Take

CES may foster a more balanced mental state, potentially boosting focus and mental clarity by increasing alpha brain waves (associated with relaxed alertness). CES may aid in regulating neurotransmitter levels, decreasing stress, and improving sleep quality. These beneficial effects are subtle, develop gradually over time rather than being immediate, and are likely to be most pronounced when CES is administered in the morning.

ADDICTION RECOVERY & WITHDRAWAL SUPPORT

MODERATE EVIDENCE
Pilot studies + case series

Studies on alcohol, opioid, nicotine withdrawal. Reduces cravings, anxiety, sleep disturbance. ADJUNCT to comprehensive addiction treatment.

PROTOCOL TABLE

PARAMETER	INITIAL PHASE (Weeks 1-4)	MAINTENANCE (Weeks 5+)
Intensity	Moderate to high or as tolerated/preferred	Moderate to high or as tolerated/preferred
Frequency	Twice daily (withdrawal phase)	Daily OR twice daily (early recovery)
Duration	45 minutes or more; may benefit from continuous use in some cases	45 minutes or more
Timing	Morning + Evening (manage cravings/anxiety)	Continue twice daily as needed

CLINICAL PEARL

CES SUPPORTS RECOVERY, NOT SUBSTITUTES.

Reduces withdrawal symptoms (anxiety, insomnia, cravings) making early recovery more tolerable. MUST be part of comprehensive treatment: medical supervision, therapy, support groups, relapse prevention. NOT monotherapy.

IMPLEMENTATION

Withdrawal Symptoms CES Helps:

✓ **Anxiety/agitation** (common in all withdrawals)
→ Significant reduction

✓ **Insomnia** (severe in alcohol, opioid withdrawal)
→ Improved

✓ **Cravings** (neurobiological component)
→ Modest reduction

✓ **Irritability/mood** (dysphoria in early recovery)
→ Improved

✓ **Physical tension** (autonomic dysregulation)
→ Reduced

SUBSTANCES WITH BEST EVIDENCE:

- **Alcohol:** Reduces anxiety, insomnia, cravings during withdrawal/early recovery
- **Opioids:** Helps manage withdrawal discomfort (NOT replacement for MAT)
- **Nicotine:** Reduces cravings, irritability (adjunct to cessation)
- **Stimulants:** Supports mood, sleep in protracted withdrawal

CRITICAL: Medical Supervision Required

✗ **Alcohol/benzo withdrawal:** Can be life-threatening; needs medical detox

✗ **Opioid withdrawal:** Consider MAT (buprenorphine, methadone)

CES is ADJUNCT, not replacement for medical management

TWICE DAILY PROTOCOL:

Morning (extended session):

- Manage morning anxiety/cravings
- Support mood regulation
- Improve daytime function

Evening (extended session)

- Reduce evening cravings (high-risk time)
- Support sleep (often severely disturbed)
- Calm autonomic hyperarousal

TIMELINE:

- Week 1: Improved sleep, reduced acute anxiety
- Week 2-3: Cravings slightly reduced, better mood
- Week 4-8: Sustained support for early recovery stability
- Month 3+: May reduce to daily use; prevent relapse

PAIR WITH (ESSENTIAL):

- Medical detox (if needed)
- MAT (Medication-Assisted Treatment) if appropriate
- Therapy (CBT, motivational interviewing)
- 12-step or SMART Recovery
- Relapse prevention planning

DO NOT USE CES:

- **As sole treatment for addiction**
- **To avoid medically supervised detox**

SAFETY ALERT

STOP if

- Withdrawal worsens (medical emergency)
- Active suicidal ideation

Relapse occurs → Reassess treatment plan

Tauna's Take

Continuous use of CES is often highly beneficial for patients, particularly in the initial phase of addiction recovery. A key advantage of CES is its safety profile; patients cannot overdose, which allows for frequent or even continuous use (removed only for bathing) as needed to support their recovery.

EATING DISORDERS & BINGE EATING SUPPORT

EMERGING EVIDENCE
Case reports + theory

Case reports, theoretical basis. Best for anxiety/stress-triggered binge eating. Addresses comorbid anxiety/depression. NOT standalone treatment.

PROTOCOL TABLE

PARAMETER	INITIAL PHASE (Weeks 1-4)	MAINTENANCE (Weeks 5+)
Intensity	Low to moderate or as tolerated/preferred	Low to moderate or as tolerated/preferred
Frequency	Daily (especially high-risk times)	Daily
Duration	30-45 minutes	45 minutes
Timing	Evening (before typical binge window) OR PRN before urges	Continue strategic timing

CLINICAL PEARL

CES TARGETS THE ANXIETY/STRESS DRIVER, NOT THE EATING BEHAVIOR.

Most effective for stress/anxiety-triggered binge eating. Reduces autonomic hyperarousal that precedes binges. MUST pair with specialized eating disorder therapy (CBT-E, DBT). Not appropriate as monotherapy.

IMPLEMENTATION

What CES Helps:

- ✓ **Anxiety-triggered binges** (stress eating)
  → Reduces trigger intensity
- ✓ **Comorbid anxiety/depression** (90% have mood disorder)
  → Significant benefit
- ✓ **Emotional dysregulation** (difficulty tolerating distress)
  → Improves
- ✓ **Sleep disturbance** (common in ED)
  → Improved
- ✓ **Stress reactivity** (heightened response to stressors)
  → Reduced

What It Doesn't Address:

- ✗ **Cognitive distortions about food/body**
- ✗ **Restriction/compensation behaviors**
- ✗ **Underlying trauma** (if present)
- ✗ **Family/relationship dynamics**

Strategic Timing Options:

Preventive Evening Use

- Extended session before typical binge window (often 6-10 PM)
- Reduces baseline anxiety that triggers binges
- Supports alternative coping

PRN Before Urges

- Use when feeling binge urge building
- Standard to extended session to reduce physiological arousal
- Pair with DBT distress tolerance skills

TIMELINE:

- Week 2: Slightly better stress tolerance
- Week 4: Reduced binge frequency
- Week 8: Significant reduction in anxiety-triggered binges
- Important: Behavioral work (CBT-E) addresses pattern

ESSENTIAL COMBINATIONS

- Specialized ED therapy: CBT-E (gold standard), DBT
- Nutritional counseling: Regular eating, meal planning
- Medical monitoring: If purging, vital signs
- Medication if needed: SSRIs for comorbid anxiety/depression

DO NOT use CES:

- **As sole treatment**
- **To avoid specialized ED therapy**
- **During medical instability (severe malnutrition, cardiac issues)**

SAFETY ALERT

STOP if

- Binge frequency increases
- Patient uses CES to avoid meals ("I'll just use device instead")
- Medical complications arise

Tauna's Take

Anorexia nervosa carries one of the highest mortality rates among all mental illnesses, underscoring the critical need for careful treatment planning. It is essential to recognize that CES is not a standalone treatment for eating disorders, as it does not target the root causes.

However, CES serves as a valuable adjunctive therapy. By supporting emotional regulation, enhancing sleep quality, and improving impulse control and decision-making, CES can indirectly mitigate many symptoms and triggers associated with the disorder. Treatment protocols should be customized to manage specific symptoms, such as anxiety and mood dysregulation.

AUTONOMIC DYSREGULATION & POTS SUPPORT

EMERGING EVIDENCE
Case reports + theory

Case reports, theoretical rationale. POTS = Postural Orthostatic Tachycardia Syndrome. CES addresses autonomic instability. Investigational use.

PROTOCOL TABLE

PARAMETER	INITIAL PHASE (Weeks 1-4)	MAINTENANCE (Weeks 5+)
Intensity	Moderate to high or as tolerated/preferred	Moderate to high or as tolerated/preferred
Frequency	Daily OR twice daily	Daily
Duration	45 minutes or more	45 minutes or more
Timing	Morning (daytime regulation) + Evening (if needed/preferred)	Continue morning

CLINICAL PEARL

AUTONOMIC DISORDERS NEED MEDICAL MANAGEMENT FIRST.

CES may help symptom management (tachycardia, dizziness, fatigue) via vagal tone improvement, but NOT replacement for beta-blockers, fluids, salt, compression. Use as adjunct after medical optimization.

IMPLEMENTATION

Autonomic Dysregulation Conditions

✓ **POTS (Postural Orthostatic Tachycardia Syndrome):**

- Excessive heart rate increase on standing (↑30+ bpm)
- Dizziness, fatigue, brain fog
- CES may improve: HRV, baseline HR, orthostatic tolerance
- Required: Medical management (fluids, salt, compression, beta-blockers)

✓ **Dysautonomia (General):**

- Abnormal autonomic function
- Variable symptoms: HR instability, temperature dysregulation, GI issues
- CES targets: Autonomic balance, vagal tone

What CES May Help:

- ✓ **Resting tachycardia** → Reduced via improved vagal tone
- ✓ **HRV (often very low in POTS)** → Improved
- ✓ **Orthostatic intolerance** → Modestly better (not cure)
- ✓ **Fatigue** → Reduced via better autonomic regulation
- ✓ **Comorbid anxiety (very common)** → Significant benefit

What It Won't Fix:

- ✗ **Underlying POTS pathophysiology**
- ✗ **Blood volume issues**
- ✗ **Structural autonomic damage**

TIMELINE:

- Week 2: Possible HRV improvement (if tracking)
- Week 4: Reduced resting heart rate (5-10 bpm)
- Week 8: Improved orthostatic tolerance (subjective)
- Week 12: Sustained autonomic regulation support

TRACK (IF POSSIBLE)

- Resting HR (daily upon waking)
- Orthostatic HR change (lying → standing, brief interval)
- HRV (wearable device: RMSSD [Root Mean Square of Successive Differences], HF power [High Frequency power])
- Symptom severity (fatigue, dizziness, brain fog)

ESSENTIAL MEDICAL MANAGEMENT:

- Fluids (2-3 L/day)
- Salt loading (6-10 g/day if tolerated)
- Compression stockings
- Beta-blockers or midodrine (if prescribed)
- Graded exercise (recumbent bike)

COORDINATION:

- Cardiologist or autonomic specialist aware of CES use
- Don't use CES to avoid medication adherence
- Report any worsening to MD

DO NOT use CES:

- **As replacement for medical management**
- **During acute POTS crisis**

SAFETY ALERT

STOP if

- Heart rate becomes abnormally low
- New arrhythmias
- Worsening symptoms
- Syncope (fainting) episodes increase

Tauna's Take

While cardiologist involvement is generally recommended for medical decision-making in patients with Postural Orthostatic Tachycardia Syndrome (POTS), CES does not trigger physiological mechanisms that are dangerous for POTS patients. In fact, CES is likely to be beneficial for POTS and/or autonomically dysregulated patients, as clinical evidence frequently demonstrates its ability to improve heart rate variability.

INTEGRATION WITH THERAPY

HOW TO USE CES DURING THERAPY SESSIONS

CES as Therapeutic Adjunct:

Can be used DURING or BETWEEN sessions to support therapeutic work. Enhances patient ability to engage in difficult emotional processing.

IN-SESSION USE (OPTIONAL)

Best For:

- Trauma processing (EMDR, PE, SE)
- Anxiety-provoking exposures
- Highly activated patients who struggle to engage

Protocol:

- Patient wears device during first portion of session
- Low-moderate intensity
- Removes when physiologically regulated
- Proceeds with therapeutic work

Benefits:

✓ Faster physiological calming
✓ Better access to prefrontal cortex (thinking brain)
✓ Reduced session "overwhelm"
✓ Improved therapeutic alliance (patient feels supported)

Cautions:

- **Don't let CES replace skill-building**
- **Patient should practice regulation without device too**
- **Some therapies require experiencing activation (PE, CPT)**

BETWEEN-SESSION USE (MOST COMMON)

Therapy Type	CES Role	Timing
CBT	Pre-session calming; supports thought records	Evening daily
EMDR	Reduces post-processing activation	Post-session + evening
Prolonged Exposure	Manages exposure homework anxiety	Before/after exposures
DBT	Physiological support for distress tolerance	PRN during crisis urges
CPT (Cognitive Processing)	Pre-session regulation	Morning of session

WHAT THERAPIST SHOULD KNOW:

Therapist-Prescriber Communication:

✓ **Resting tachycardia** → Reduced via improved vagal tone
✓ **HRV (often very low in POTS)** → Improved
✓ **Orthostatic intolerance** → Modestly better (not cure)
✓ **Fatigue** → Reduced via better autonomic regulation
✓ **Comorbid anxiety (very common)** → Significant benefit

What Prescriber Should Know:

- Therapy modality and phase
- Homework compliance
- Emotional processing intensity
- Any therapy-related distress

THERAPY-SPECIFIC PROTOCOLS

EMDR (Eye Movement Desensitization & Reprocessing):

- CES BETWEEN sessions (not during)
- Supports nervous system regulation during processing
- Evening use to manage activation overflow
- Improves sleep disrupted by trauma work

Prolonged Exposure (PE):

- CES on non-therapy days
- Helps manage hyperarousal from exposure homework
- Before exposures: May reduce baseline anxiety to tolerable level
- After exposures: Supports habituation process

DBT (Dialectical Behavior Therapy):

- CES as "biological distress tolerance skill"
- Use during emotional crises (alongside skills)
- Not replacement for TIP, TIPP, or self-soothing
- Addresses physiological component skills can't

CBT (Cognitive Behavioral Therapy):

- Use before sessions if anxiety interferes with engagement
- Evening use supports homework completion
- Reduces arousal that makes cognitive work harder

CLINICAL PEARL

Don't let CES replace therapeutic work.

Best used to create physiological state conducive to therapy, not avoid emotional processing. Patient should also practice regulation skills without device.

Tauna's Take

CES is a highly effective tool that I frequently integrate into therapy, and witnessing its positive effects on patients is truly rewarding. I utilize CES in my practice daily, to help patients achieve a state of physiological calm. This induced calmness is particularly valuable when patients are discussing traumatic memories or emotionally charged events. By establishing this calm, patients are better able to explore deeper therapeutic content, which maximizes their overall progress.

INTEGRATION WITH MEDICATIONS

CES + MEDICATION SYNERGY & MONITORING

General Principle:

CES is safe with most psychiatric medications. Often works synergistically—addressing different mechanisms. May allow medication dose reduction over time.

MEDICATION COMBINATIONS

Medication Class	Interaction	CES Role	Monitoring
SSRIs/ SNRIs	Safe, often synergistic	Addresses anxiety component meds miss	Track if med dose can ↓ over time
Benzo diazepines	Safe	May reduce need; supports taper	Weekly benzo use tracking
Sleep Medications	Safe	Often replaces need for meds	Track sleep without medication
Stimulants (ADHD)	Safe	Reduces stimulant-induced anxiety/insomnia	Monitor sleep, anxiety levels
Mood Stabilizers	Safe	Coordinate with prescriber	Watch for mood destabilization
Anti psychotics	Safe (monitor)	No known interaction	Track any unusual symptoms
Anti convulsants	Use with caution	Neurologist awareness	Seizure threshold monitoring

SYNERGISTIC COMBINATIONS (BEST OUTCOMES)

CES + SSRI for Anxiety/Depression:

- Different mechanisms: Chemical (SSRI) + Electrical (CES)
- Timeline synergy: CES works faster (2-4 wks) than SSRI (4-6 wks)
- Outcome: Often better than either alone
- Dose consideration: May allow lower SSRI dose → fewer side effects

CES + Benzo for Acute Anxiety:

- Immediate relief: Benzo (minutes-hours)
- Long-term regulation: CES (weeks)
- Taper strategy: Stabilize on CES, then slowly reduce benzo
- Goal: Eliminate benzo dependency while maintaining anxiety control

CES + CBT for Any Condition:

- Physiological: CES (nervous system regulation)
- Cognitive: CBT (thought patterns, behaviors)
- Comprehensive: Addresses mind AND body
- Outcome: Synergistic—better together than separate

MEDICATION TAPER PROTOCOLS

Benzodiazepine Taper (Example):

Phase	Duration	CES Protocol	Medication
Stabilization	Weeks 1-4	Daily CES; more frequently if desired	Continue current benzo dose
Initiate Taper	Weeks 5-8	Daily CES, consistent	Reduce benzo 25%
Continue Taper	Weeks 9-16	Daily CES, increase if needed	Reduce additional 25% every 4 weeks
Completion	Week 17+	Daily CES for 3+ months	Benzo discontinued

SSRI Discontinuation (If prescribing provider has been consulted and recommends stopping):

Phase	Duration	CES Protocol	Medication
Stabilization	Weeks 1-8	Daily CES, establish benefit	Continue SSRI
Begin Taper	Weeks 9-12	Daily CES, monitor closely	Reduce SSRI 25-50%
Monitor	Weeks 13-20	Daily CES	Reduce additional 25-50% every 4-8 weeks
Post-Taper	6+ months	Daily CES to prevent relapse	SSRI discontinued

MONITORING PARAMETERS

Weekly During Medication Changes:

- Symptom severity (GAD-7, PHQ-9)
- Sleep quality
- Side effects (med vs. CES)
- Withdrawal symptoms (if tapering)

Red Flags Requiring MD Contact

- **Symptoms worsen significantly during taper**
- **New psychiatric symptoms emerge**
- **Withdrawal symptoms severe despite slow taper**
- **Suicidal ideation**
- **Manic symptoms (if bipolar history)**

CLINICAL PEARL

Never stop medications abruptly.

CES can support medication tapers but requires gradual, medically supervised approach. Coordinate with prescriber. Document everything.

Tauna's Take

In clinical practice, I often work with patients who are resistant to using medication, even when this refusal compromises their safety and mental well-being. When introducing CES, it is crucial to establish realistic patient expectations. While CES may, in some cases, lessen or remove the need for medication, it is generally not advisable as monotherapy for many mental health disorders. Suggesting that CES is a suitable replacement for medication in a broad sense would be both unrealistic and potentially irresponsible.

OUTCOME MONITORING & TRACKING

The measurement approach in this section is based on systematic research reviews and clinical outcome studies detailed in our **Master Ebook**.

For the evidence behind these monitoring recommendations:

STANDARDIZED MEASUREMENT TOOLS

Use validated scales to track progress objectively. Document baseline and reassess every 2-4 weeks.

PRIMARY OUTCOME MEASURES

Condition	Measure	Frequency	Clinically Significant Change
Anxiety	GAD-7	Every 2 weeks	↓ 30-50% (5+ point reduction)
Panic	Panic attack log	Weekly	↓ 50% frequency OR intensity
Depression	PHQ-9	Every 2 weeks	↓ 50% (response); <5 (remission)
Insomnia	Sleep diary	Daily → weekly average	Sleep onset <30 min; efficiency >85%
PTSD	PCL-5	Every 2 weeks	↓ 30% hyperarousal cluster
Pain	Pain intensity (0-10)	Daily → weekly average	↓ 30-50% intensity
Stress/ Burnout	PSS-10	Every 2 weeks	↓ 30-40% stress score

GAD-7 (GENERALIZED ANXIETY DISORDER-7)

7 items, 0-3 scale each (Total: 0-21)

Interpretation:

- 0-4: Minimal anxiety
- 5-9: Mild anxiety
- 10-14: Moderate anxiety
- 15-21: Severe anxiety

Track:
Baseline → Week 2 → Week 4 → Week 8

Response = 30-50% reduction

PHQ-9 (PATIENT HEALTH QUESTIONNAIRE-9)

9 items, 0-3 scale each (Total: 0-27)

Interpretation:

- 0-4: Minimal depression
- 5-9: Mild depression
- 10-14: Moderate depression
- 15-19: Moderately severe
- 20-27: Severe depression

Track:
Baseline → Week 2 → Week 4 → Week 8 → Week 12

Response = 50% reduction | Remission = <5

SLEEP DIARY (DAILY TRACKING)

Track Nightly:

- Time to bed
- Time to sleep (sleep onset latency in minutes)
- Number of awakenings

- Total awake time (minutes)
- Final wake time
- Time out of bed
- Sleep quality (1-10 scale)

Calculate Weekly:

- Average sleep onset latency
- Total sleep time (TST)
- Sleep efficiency (TST / time in bed × 100)

Goal: Efficient sleep onset, Efficiency >85%

HRV TRACKING (HEART RATE VARIABILITY)

Optional but Valuable:

Tools:

- Wearable devices (Apple Watch, Garmin, Whoop, Oura Ring)
- Smartphone apps (Elite HRV, HRV4Training)
- Measure: RMSSD (root mean square of successive differences)

What to Track:

- Baseline RMSSD: First 2 weeks average
- Weekly RMSSD: Track trend over time
- Expected improvement: ↑ 35-40% by Week 8

HRV Indicates:

- Autonomic balance (parasympathetic vs. sympathetic)
- Stress resilience
- Recovery capacity

Clinical Use:

- Objective biomarker of CES effect
- Validates subjective improvement
- Tracks autonomic regulation over time

Tauna's Take

To explore an enhanced care model that represents the gold standard for Cranial Electrotherapy Stimulation (CES) care delivery, please consult our related E-book, Neurovana: Bringing CES to the Forefront of Mental Wellness.

Check the eBook here

TRACKING TEMPLATE (CUSTOMIZE PER PATIENT)

Week 0 (Baseline):

□ GAD-7 or ISI
□ Sleep diary (7 nights)
□ HRV baseline (if using)
□ Target symptom severity (0-10)

Week 2:

□ GAD-7 or ISI
□ Sleep quality average
□ Tolerance check (side effects?)
□ Device usage compliance

Week 4:

□ GAD-7 or ISI
□ Sleep quality average
□ HRV (if tracking)
□ Response assessment
□ Protocol adjustment if needed

Week 8:

□ GAD-7 or ISI
□ Sleep quality average
□ HRV (if tracking)
□ Decide: Continue, optimize, or discontinue

CLINICAL PEARL

Objective data prevents bias.

Patients (and providers) often remember only recent experiences. Validated scales + sleep diaries provide objective progress tracking. Document baseline before starting—you'll be glad you did.

TROUBLESHOOTING COMMON ISSUES

DEVICE & TECHNICAL ISSUES

Problem	Possible Reason	Troubleshooting Steps
No improvement after 4 weeks	1. Not using frequently enough 2. Wrong timing 3. Inconsistent use 4. Wrong diagnosis	1. Use more frequently 2. Adjust timing (AM vs PM) 3. Review compliance 4. Reassess diagnosis
Initial benefit, then plateau	1. Tolerance (rare) 2. New stressor 3. Underlying condition	1. Increase session duration 2. Address stressor 3. Medical workup

Worsening symptoms	1. Paradoxical reaction 2. Unrelated progression 3. Wrong condition	1. Reduce intensity 50%; if persists, discontinue 2. Medical evaluation 3. Reassess diagnosis
Inconsistent response	1. Variable use patterns 2. Inadequate frequency of use 3. Complicating factors	1. Emphasize daily consistency 2. Optimize intensity/duration 3. Identify interfering variables

SIDE EFFECT MANAGEMENT

Skin Irritation (Rare, but occurs in some users):

Management Steps:

1. Use water or conducting gel liberally
2. Clean electrode ear clips after each use
3. Rotate clip position slightly
4. Take 10-min break mid-session
5. Try hypoallergenic gel
6. If severe: Discontinue, try different electrode type

Mild Headache (uncommon):

Management Steps:

1. Reduce intensity by 50%
2. Shorten session to brief duration
3. Ensure adequate hydration
4. Usually resolves by Week 2
5. If persists: Rule out other causes

Dizziness on Standing (uncommon):

Management Steps:

1. Sit briefly post-session before standing
2. Rise slowly (supine → sit → stand)
3. Use device while lying down
4. Stay well-hydrated
5. If orthostatic hypotension suspected: Medical evaluation

Paradoxical Anxiety (rare):

Management Steps:

1. Reduce intensity by 50% immediately
2. Shorten to brief sessions
3. Try different timing (AM vs PM)
4. If persists after adjustments: Discontinue
5. Consider: May not be right modality for this patient

Vivid Dreams (uncommon):

Management Steps:

1. Shift use to morning instead of evening
2. Reduce evening duration if using twice daily
3. Usually resolves by week 2-3
4. If bothersome: Adjust timing; if persists, accept or discontinue

COMPLIANCE ISSUES

Patient Reports "Not Using Regularly":

Troubleshooting:

1. Identify barriers: Time? Discomfort? Skepticism? Forgot?
2. Problem-solve: Set phone reminder; pair with existing routine (coffee, bedtime); address concerns
3. Simplify: Start with brief sessions (more doable) vs. extended sessions
4. Motivate: Review baseline scores; emphasize consistency needed for benefit

Patient "Doesn't Feel Anything":

Reassure:

- CES effects are cumulative, not immediate
- Many don't feel dramatic shifts during initial use
- Benefits noticed between sessions (better sleep, less anxious throughout day)
- If truly no sensation: Check device function, increase intensity slightly

WHEN TO DISCONTINUE

- Seizure occurs
- Severe persistent headache
- Worsening psychiatric symptoms despite adjustments
- Severe skin reaction
- Patient expresses strong desire to stop
- No benefit after 8-10 weeks
- Side effects persist despite management
- Patient non-compliant repeatedly
- Better treatment option available

CLINICAL PEARL

Most issues resolve with simple adjustments.

Don't give up after first complaint. Reduce intensity, adjust timing, improve compliance. True non-responders are a minority. Troubleshoot systematically before discontinuing.

PATIENT EDUCATION SCRIPTS

WHAT TO SAY TO A SKEPTICAL PATIENT

"How can something this gentle possibly work?"

"I understand your skepticism—I felt the same way at first. CES uses a very low electrical current, far below what you'd feel from a TENS unit or muscle stimulator. It's not about overpowering your nervous system; it's about gentle regulation. Think of it like a dimmer switch instead of an on/off switch. The research shows it works as well as medications for anxiety and insomnia, but because it's so subtle, many people are surprised. The proof is in trying it consistently for 4 weeks and tracking your symptoms."

"If this really worked, why haven't I heard about it?"

"That's a great question, and honestly, it's mind-boggling to me too. CES has been FDA-cleared for over 40 years, and there are hundreds of studies showing it works. But it's not heavily marketed like medications are—there's no pharmaceutical company spending billions on advertising. Most doctors don't learn about it in medical school. I discovered it myself through research and started using it with my patients because the evidence was so strong. Now it's one of the most effective tools I have.

"Is this going to make me dependent on it?"

"No. There's no physical dependency or withdrawal with CES. You can stop anytime without any rebound effects. That's one of its biggest advantages over medications like benzodiazepines. What sometimes happens is people feel so much better using it that they want to keep using it—but that's preference, not dependency. It's like exercise: when you stop, you don't go into withdrawal, but you might miss the benefits."

"What if it doesn't work for me?"

"CES shows promising results for many people with anxiety or insomnia, though individual responses vary. Like other treatments, not everyone responds equally. That's why we'll track your symptoms closely every 2 weeks. If you're not seeing at least 30% improvement by 6-8 weeks, we'll try something else. You're not committing to this forever—we're just testing whether it's a good fit for you."

SETTING REALISTIC EXPECTATIONS

Timeline Script:

"Here's what to expect: Week 1-2, you might notice better sleep and feeling a bit more relaxed, but it's subtle. Week 3-4, you'll likely notice clearer improvements—less anxiety, falling asleep faster, better mood. Week 6-8, that's when most people see the full benefit. This isn't a quick fix like a medication that works in 30 minutes. It's more like physical therapy for your nervous system—it takes consistent use to see results."

What It Feels Like Script:

"During the session, most people feel a mild tingling at the ear clips for the first few minutes, then it fades. Some people feel nothing at all. You might feel calm or even a little drowsy. What you won't feel is pain, muscle contractions, or a 'high.' The real effect shows up in how you feel between sessions—better sleep, less worry, more calm throughout your day."

ADDRESSING SAFETY CONCERNS

"Is it safe?"

"CES has an excellent safety record. In over 40 years of use, there have been no adverse events ever reported from appropriate use. The most common side effect is mild skin irritation from the clips, which we can manage with conducting gel. Compare that to medications: SSRIs can cause sexual side effects, weight gain, and emotional blunting. Benzodiazepines can cause dependency and withdrawal. CES has none of those concerns."

"Can I use it with my medications?"

"Yes. CES is safe to use with almost all psychiatric medications—antidepressants, anxiety medications, sleep aids. There are no dangerous interactions. In fact, many of my patients use CES along with their medications because they work through different mechanisms. Over time, some people are able to reduce their medication doses with their doctor's guidance, but that's a conversation we'd have down the road if you're interested."

PARTNERSHIP LANGUAGE

"You're in the driver's seat"

"I view myself as your partner in this. You're in the driver's seat—you decide the destination (your goals), and you're doing the hard work. I'm in the passenger seat holding the navigation, offering guidance and tools like CES. If this doesn't feel right at any point, we adjust. Your input is essential."

"Let's try this together"

"I'm not saying this is definitely the answer—I'm saying it's worth trying based on strong research and my clinical experience. Let's commit to 6 weeks of consistent use, track your symptoms, and then evaluate together. If it's helping, great. If not, we'll try something else. Sound fair?"

CLINICAL PEARL

Transparency builds trust.
Acknowledge limitations, share your own discovery journey, use partnership language, and set realistic timelines. Patients appreciate honesty over overselling.

FAQ FOR PRACTITIONERS

COMMON CLINICAL HURDLES

How do I bill for CES?

Use standard E/M codes (99213, 99214) for follow-up visits where you monitor CES response. Some practices bill for device (retail model) or use a rent-to-own structure with regularly monitoring visits. Not separately billable as a procedure, but visits for management are. Check with a billing specialist for your specific setup.

What if the patient can't afford the device?

Options:

1. Rent-to-own model (spread cost over several months via office visits)
2. FSA/HSA (pre-tax payment for FDA-cleared devices)
3. Payment plans (Care Credit, Afterpay, Klarna, etc.)
4. Trial period (some practices stock devices for in-office trials before purchase)

Not sure how to position CES with your patients?

Discover the Neurovana Treatment Model and learn how to increase adherence, improve outcomes, and **create recurring revenue for your practice**

Explore the Program

How long should patients continue using CES?

Acute conditions (adjustment disorder, acute stress): 2-3 months, then taper. Chronic conditions (GAD, MDD, chronic insomnia): Often 6-12+ months. Some use indefinitely for maintenance (like exercise or meditation). If stable for 3+ months, can trial reducing frequency (daily → 5×/week → 3×/week) and monitor for symptom return.

What if CES stops working after initial benefit?

Troubleshoot:

1. Check compliance (actually using daily?)
2. Increase frequency of sessions (may need to use more often)
3. Assess for new stressors (life changes interfering?)
4. Consider device malfunction (test with new electrode)
5. Reassess diagnosis (was it right condition?)

Can I use CES with pregnant patients?

Limited safety data due to limited studies with pregnant patients; discuss with OB/GYN; may be preferable to medications if anxiety/insomnia severe. Use conservative approach (low intensity, shorter duration). Document thoroughly.

My patient with PTSD got worse. What happened?

Possible explanations:

1. Too much, too fast: PTSD needs ultra-conservative approach (very low intensity, brief sessions, 3×/week initially)
2. Dissociation triggered: Relaxation can trigger dissociation in trauma patients—discontinue or reduce session frequency if this occurs
3. Wrong phase of treatment: Shouldn't start during intensive trauma processing
4. Not right modality: Some trauma patients don't tolerate CES—try other approaches

How do I know if it's CES working or placebo?

You don't definitively, but:

- Use objective measures (GAD-7, PHQ-9, sleep diary, HRV)
- Expect gradual improvement over 4-6 weeks (placebo often immediate then fades)
- Look for physiological changes (resting HR ↓, HRV ↑)
- If "placebo" produces 50% symptom reduction sustained over 6 months, does it matter?

Patient says it's "too boring" to use daily. How do I motivate?

1. Pair with existing routine: Morning coffee, bedtime wind-down
2. During enjoyable activity: Reading, TV, podcast
3. Shorten if needed: brief sessions more doable than extended sessions
4. Show data: Review baseline vs. current scores—visual proof of benefit
5. Reframe: "A brief session to feel less anxious all day—seems like good ROI"

Can children use CES?

Adolescents (13-17): Emerging research shows safety; limited pediatric data; parental consent required; may help avoid medication in developing brain. Children (<13): Very limited data due to limited studies; consult pediatrician.

What's the difference between CES and tVNS (transcutaneous vagus nerve stimulation)?

CES: Microcurrent via ear clips or gelled electrode pads; FDA-cleared for anxiety and insomnia (depression supported by evidence but not FDA-cleared); 40+ years of research. tVNS: Stimulation of auricular vagus nerve branch; newer modality; some overlap in mechanism; less established evidence base. Both work on vagus nerve; CES has more robust regulatory clearance and research for psychiatric conditions.

Should I stop medications when starting CES?

NO. Never stop medications abruptly. Start CES while continuing medications. After 6-8 weeks of CES benefit, THEN discuss gradual taper with prescribing provider IF patient desires. CES can support medication reduction but requires slow, supervised taper. Many patients continue both long-term.

What if patient wants to use CES instead of therapy?

Discourage. CES addresses physiology (nervous system regulation). Therapy addresses psychology (thoughts, behaviors, trauma processing). Both are valuable. Best outcomes = CES + therapy. If patient refuses therapy, CES alone is better than nothing, but set expectation that results may be limited.

CLINICAL PEARL

Transparency builds trust.
Acknowledge limitations, share your own discovery journey, use partnership language, and set realistic timelines. Patients appreciate honesty over overselling.

QUICK REFERENCE SUMMARY TABLE

MASTER CHEAT SHEET: ALL CONDITIONS AT-A-GLANCE

CONDITION	EVIDENCE	INTENSITY	FREQUENCY	DURATION	TIMING	KEY NOTES
GAD	Strong	Low to moderate intensity	Daily	Standard session	Evening	Pair with CBT. 60-70% response rate.
Panic Disorder	Moderate	Low to moderate intensity	Daily	Standard to extended session	Morning + Evening	Preventive, not acute. Reduce frequency, not stop attacks.
MDD	Limited-Moderate	Moderate intensity	Daily	Standard session	MORNING	Morning timing optimal. Synergistic with meds.
Insomnia (Onset)	Strong	Low to moderate intensity	Daily	Standard session	BEFORE bed (not in bed)	NOT in bed. Faster sleep onset.
Insomnia (Maintenance)	Moderate	Moderate to high intensity	Daily	Extended session	AT BEDTIME (stays on)	Longer duration. Device on during sleep.

Insomnia (Maintenance)	Moderate	Moderate to high intensity	Daily	Extended session	AT BEDTIME (stays on)	Longer duration. Device on during sleep.
Chronic Stress/ Burnout	Strong	Moderate to high intensity	Daily (or 2×/day)	Standard to extended	Evening (+ Morning if severe)	Address stressor source.
PTSD	Limited-Moderate	Very low to low intensity	3–4×/week initially	Brief to standard session	Evening	ULTRA-CONSER-VATIVE. Hyperarousal only, not intrusions.
C-PTSD	Emerging	Very low intensity	3×/week	Brief session	Flexible	Window of tolerance. Must be in specialized therapy.
Acute Stress/ Adjustment	Moderate	Low to moderate intensity	Daily (or 2×/day)	Standard session	Evening + Morning	Early intervention prevents chronification. Faster response (4–6 weeks).
Emotional Dysregulation (BPD/Bipolar)	Emerging	Low to moderate intensity	3–4×/week	Standard session	Evening	ADJUNCT ONLY. Bipolar: Must be on mood stabilizer.
Chronic Pain	Moderate	Moderate to high intensity	Daily	Standard to extended	Evening (or 2×/day)	Takes 4–8 weeks. Best for neuropathic/ central pain.
Fibromyalgia	Moderate	Moderate-high intensity	Daily	Extended session	Evening	Addresses pain, sleep, fatigue, fog. Multi-target benefit.
Headache/ Migraine	Moderate	Low to moderate intensity	Daily (preventive)	Standard to extended	Evening	Preventive, not abortive. Reduces frequency (tension-type).
ADHD Support	Emerging	Low to moderate intensity	Daily	Standard session	Morning OR Evening	Targets comorbid anxiety/sleep, not core attention. Adjunct only.

Cognitive Function / "Brain Fog"	Moderate	Moderate to high intensity	Daily	Standard to extended	MORNING	Indirect via sleep/anxiety/ stress. Takes 6–12 weeks.
Addiction/ Withdrawal	Moderate	Moderate to high intensity	2×/day	Standard to extended	Morning + Evening	ADJUNCT to comprehensive treatment. Reduces withdrawal symptoms.
Eating Disorders	Emerging	Low to moderate intensity	Daily (or PRN)	Standard session	Evening (before binge window)	Targets anxiety trigger. NOT standalone. Must have ED therapy.
Autonomic Dysregulation /POTS	Emerging	Moderate to high intensity	Daily (or 2×/day)	Standard to extended	Morning (+ Evening)	ADJUNCT to medical management. May improve HRV.

KEY PRINCIPLES ACROSS ALL CONDITIONS

START LOW, GO SLOW:
Always begin conservatively, especially trauma/sensitive populations.

CONSISTENCY MATTERS:
Daily use (or protocol-specific frequency) essential for benefit.

TIMING IS STRATEGIC:
Morning (depression, cognitive, energy), Evening (anxiety, sleep, pain).

PATIENCE REQUIRED:
Most conditions take 4-6 weeks for meaningful benefit (pain: 6-8 weeks).

ADJUNCT, NOT MONOTHERAPY:
CES works best alongside therapy, medication, lifestyle changes.
TRACK OBJECTIVELY:

Use validated scales (GAD-7, PHQ-9, sleep diary, HRV) to measure progress.

Tauna's Take

CES treatment should not be overcomplicated. While these formal protocols are available for patients and providers who want them, remember that CES has one of the best safety records of any medical treatment. Providers should feel comfortable adjusting protocols based on the individual needs of each patient, as no adverse events have ever been reported from CES use.

ABOUT THE AUTHORS & DISCLAIMER

ABOUT THE AUTHORS

Tauna Young, FNP-C

CEO & Founder, Neurovana Calm

Tauna Young is a board-certified Family Nurse Practitioner with over 7 years of clinical experience in psychiatry. Her journey into mental health began as a hospital nurse, where she witnessed the profound impact of overlooked mental health on patient outcomes across all medical conditions.

After years of clinical practice, Tauna discovered Cranial Electrotherapy Stimulation (CES) while researching evidence-based treatments for medication-resistant anxiety. Initially skeptical ("If this was that good, why wouldn't I know about it?"), she reviewed the research, tested it with patients, and was "flabbergasted" by the results.

Driven by the mission to make CES a well-known treatment option, Tauna founded Neurovana Calm. She is passionate about patient-centered care, viewing herself as a partner in treatment rather than a prescriber. She lives by the philosophy: "They're in the driver's seat; I'm holding the navigation."

Notable: Tauna's 101-year-old grandmother uses Neurovana Calm for dementia-related stress management.

Tyson Flower, Chief Medical Officer

Co-Founder, Neurovana Calm

Tyson Flower brings expertise in clinical implementation and practice integration for CES technology. With extensive experience in healthcare operations and patient education, Tyson has developed protocols for introducing CES into diverse clinical settings—from solo psychiatric practices to integrative health centers.

Tyson's contribution to the Neurovana mission focuses on making CES accessible and practical for practitioners. He has trained hundreds of patients and providers on evidence-based CES protocols, troubleshooting common challenges, and optimizing patient outcomes.

His work emphasizes the "low and slow" approach for trauma-informed care and the importance of combining CES with comprehensive treatment plans that honor patient autonomy and holistic wellness.

CONTINUE YOUR CES EDUCATION

This Clinical Playbook provided rapid-reference protocols for off-label applications.

For comprehensive CES education, including:

- Complete research reviews and evidence summaries
- FDA-cleared indications (Anxiety, Insomnia) and evidence-based use for Depression
- Detailed mechanism explanations and neuroscience
- Patient education frameworks and informed consent templates
- Safety meta-analyses and decades of clinical data

Access our **free Clinical Guide on Cranial Electrotherapy Stimulation (CES)**

Master the science. Implement with confidence.

CLINICAL PLAYBOOK DISCLAIMER

Professional Use Only:

This playbook is intended for licensed healthcare providers (physicians, nurse practitioners, physician assistants, psychologists, licensed therapists) with appropriate scope of practice to recommend or prescribe Cranial Electrotherapy Stimulation.

Not Medical Advice:

Information provided is for educational purposes and clinical reference. All treatment decisions must be individualized based on patient presentation, medical history, contraindications, and clinical judgment.

Evidence Levels Vary:

Evidence badges (Strong/Moderate/Emerging) reflect current research as of publication date (2025). Providers should review primary literature and stay updated on evolving evidence.

FDA Clearance:

CES devices are FDA-cleared for anxiety and insomnia. Depression is supported by evidence but not FDA-cleared. Use for other conditions ("off-label") should be disclosed to patients and based on informed consent.

Safety First:

Although there are no absolute contraindications for CES use, always screen for possible relative contraindications (pacemakers, active seizure disorder, pregnancy, open wounds at electrode sites). Monitor for adverse effects. Discontinue if safety concerns arise.

Not a Substitute for Comprehensive Care:

CES is most effective as part of comprehensive treatment plans that may include psychotherapy, medication management, lifestyle modification, and medical management of underlying conditions.

Coordinate Care:

When using CES with patients in psychotherapy or on psychiatric medications, coordinate with other providers. Document all interventions.

Patient Autonomy:

Respect patient preferences. CES is an option, not a mandate. Partnership-based care yields best outcomes.

MISSION STATEMENT

Neurovana's Mission:

To ensure that Cranial Electrotherapy Stimulation is widely recognized as a viable, evidence-based treatment option for individuals experiencing anxiety, depression, and insomnia.
CES deserves to be on the list of treatment options for anxiety and insomnia management, alongside medications, therapy, meditation, and other established interventions. This playbook is our contribution to that awareness.

CONTACT & RESOURCES

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ACKNOWLEDGMENTS

This playbook synthesizes research from hundreds of CES studies, clinical experience from thousands of patient encounters, and wisdom from colleagues dedicated to improving mental health care.

Special thanks to:

- The patients who trusted us enough to try something new
- The researchers who built the evidence base over 40+ years
- The clinicians who integrate CES thoughtfully into their practices
- The Neurovana team who makes this mission possible every day
- Michael Stevens and Richard Daab, for being true CES pioneers

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THE NEUROVANA CES CLINICAL PLAYBOOK

Evidence-Based Protocols for Practitioners

"Making CES a well-known option—one patient, one provider at a time."

NEUROVANA
THE SCIENCE OF CALM