STRESS THERAPY WITH BELLABEE

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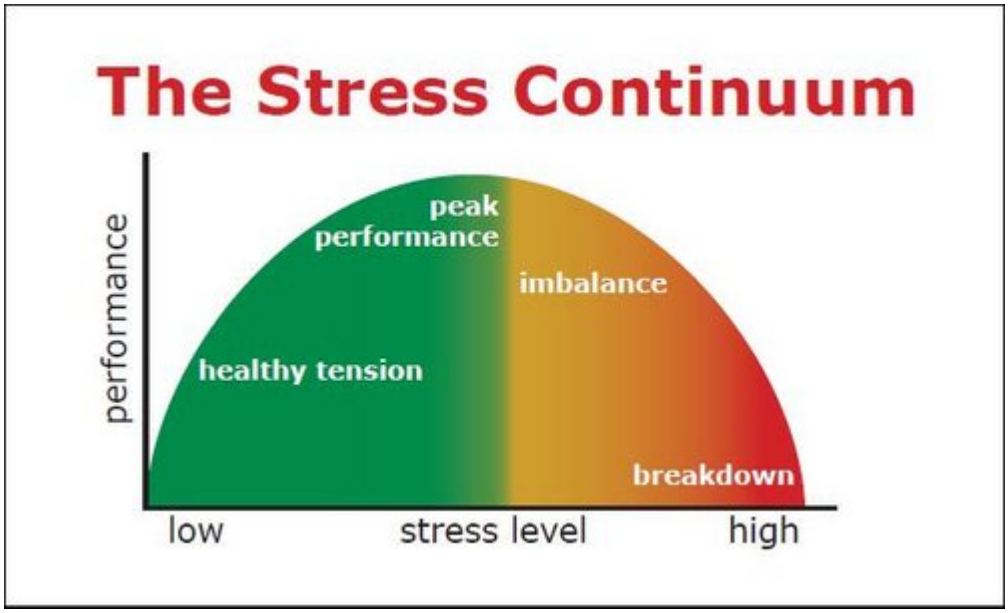
Categories: Case Studies, Stress

STRESS FACTS

- Stress and stress related problems are on the rise due to our lifestyle choices and other causes.
- Stress is the feeling of emotional or physical pressure. It can come from any incident or thought that makes you feel frustrated, angry, or nervous. Stress is your body's reaction to a challenge or demand.
- In short bursts, stress can be positive, such as when it helps you avoid danger or meet a deadline.
- Stress is unhealthy when it becomes severe and prolonged.
- More than 70% of people experience physical or psychological symptoms of stress.
- 33% of people feel they are living with extreme stress.
- Nearly half of Americans feel that their stress has increased over the last 5 years.
- Prolonged stress has short and long-term effects.



TYPES OF STRESS

- **Acute** - Acute stress is the most common form of stress. It comes from demands and pressures of the recent past and anticipated demands and pressures of the near future.
- **Acute Episodic** - There are people who suffer acute stress frequently, whose lives are so disordered that they feel they are in constant chaos and crisis. They seem perpetually in the clutches of acute stress.

- **Chronic** - This is the grinding stress that wears people away day after day, year after year. Chronic stress destroys bodies, minds and lives. It wreaks havoc through long-term excessive wear and tear.

TOP 10 CAUSES OF STRESS:

1. Death of a loved one.
2. Divorce
3. Loss of job.
4. Increased financial obligations.
5. Getting married.
6. Moving to a new home.
7. Chronic illness or injury.
8. Emotional problems (depression, anxiety, anger, grief, guilt, low self-esteem).
9. Taking care of an elderly or sick family member.
10. A traumatic event such as a natural disaster, theft, rape, or violence against you or a loved one.

Causes of work-related stress:

- Being unhappy with your job.
- Having a heavy workload or too much responsibility.
- Working long hours.
- Having poor management, unclear expectations of your work, or little say in decision-making processes.
- Working under dangerous conditions.
- Being insecure about your chance for advancement or risk of termination.
- Having to give speeches in front of colleagues.
- Facing discrimination or harassment at work, especially if the company isn't supportive.

Causes of stress from inside rather from outside

- Fear and uncertainty.
- Attitudes and perceptions.
- Unrealistic expectations.
- Change.

The World Health Organization says STRESS has become a 'Worldwide Epidemic'

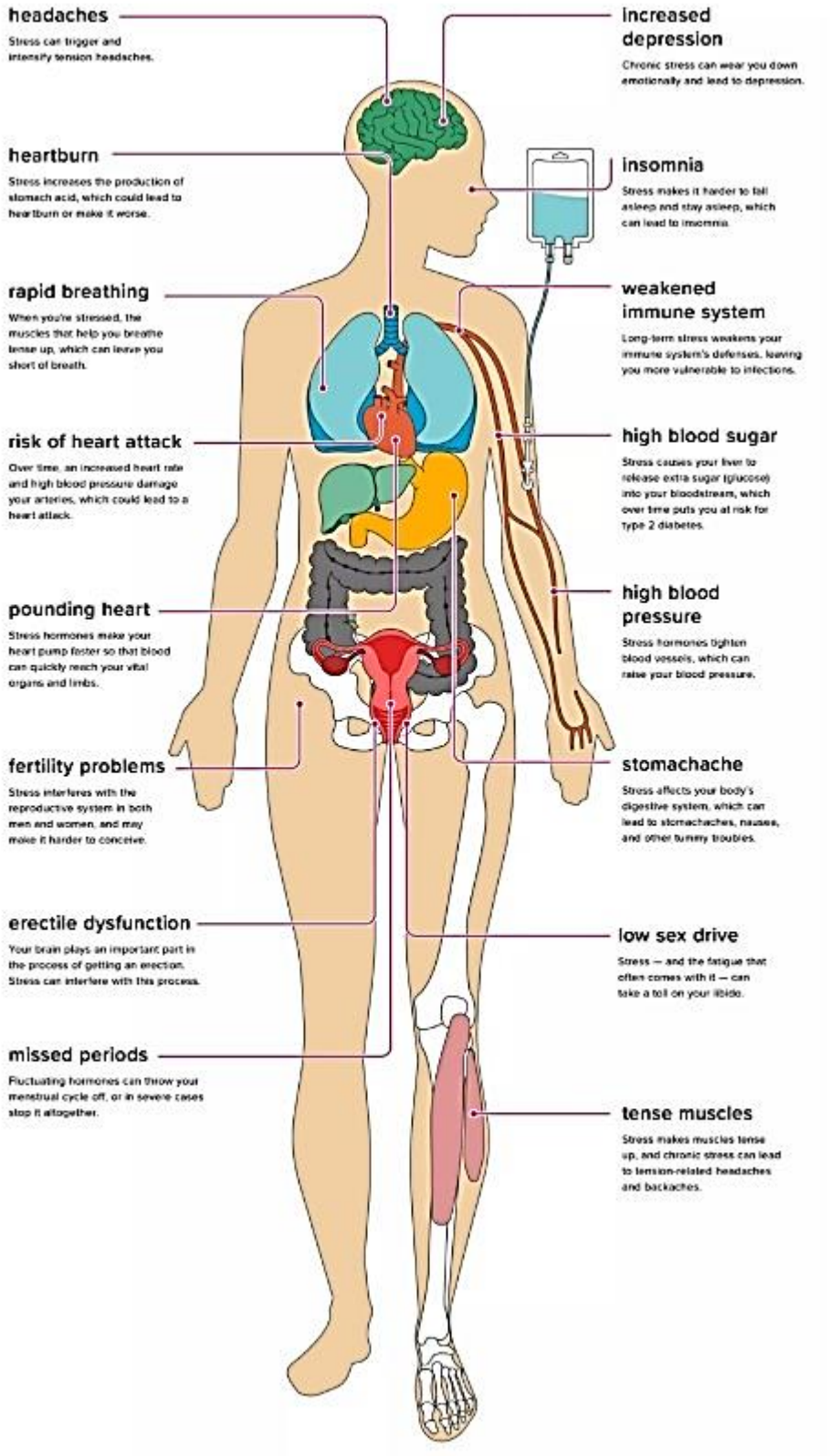
SYMPTOMS OF STRESS

Short Term Stress

- Headache
- Fatigue
- Difficulty sleeping
- Difficulty concentrating
- Upset stomach
- Irritability

Long Term Stress

- Depression
- High blood pressure (hypertension)
- Abnormal heartbeat (arrhythmia)
- Hardening of the arteries (atherosclerosis)
- Heart disease
- Heart attack
- Heartburn, ulcers, irritable bowel syndrome
- Upset stomach -- cramps, constipation, and diarrhea
- Weight gain or loss
- Changes in sex drive
- Fertility problems
- Flare-ups of asthma or arthritis
- Skin problems such as acne, eczema, and psoriasis



Effects of unhealthy stress on the human body

DIAGNOSIS OF STRESS:

A thorough stress-oriented face-to-face medical interview is currently the most practicable way to diagnose stress and its effects.

There is no **specific** test to diagnose stress. Typically, your healthcare professional conducts a variety of tests (which may include a personal and family health history, blood and urine tests and other assessments) to rule out various medical conditions.

You can observe the following behavioural signs in yourself or people around you in stress:

- No time for relaxation or pleasurable activities.
- Prone to accidents, forgetfulness.
- Increased reliance on alcohol, smoking, caffeine, recreational or illegal drugs.
- Becoming a workaholic.
- Poor time management and/or poor standards of work.
- Absenteeism.
- Self-neglect/change in appearance.
- Social withdrawal.
- Relationship problems.
- Uncharacteristically lying.
- Insomnia or waking tired.
- Reckless.
- Nervous.
- Aggressive/anger outbursts.

EEG (ELECTROENCEPHALOGRAPHY) AND QEEG FINDINGS IN STRESS

Numerous studies and research papers are conducted on this topic. Some of the relevant ones are:

QEEG Biomarkers: Assessment and Selection of Special Operators and Improving Individual Performance
A quantitative EEG Normative Database (qEND) will function as the benchmark for screening, assessment, selection and even training of targeted individuals required to work effectively as operators under extreme stresses and for extended periods of time.

EEG Signals to Measure Mental Stress
EEG signals are rich in temporal resolution and successfully be used to measure mental stress. This survey supplies information on EEG signals used in psychological studies to measure mental stress.

Table 2: EEG waveforms representation

Signal	Frequency	Amplitude	Activity
Delta (?)	Less than 4 Hz	20 – 200 ?V	Increased power during difficult conditions

Theta (?)	4 - 8 Hz	Around 20 ?V	Power increases during the **stress**
Alpha (?)	8 - 12 Hz	20 – 200 ?V	Power suppresses during the **stress**
Beta (?)	13 – 31 Hz	5 – 10 ?V	Power varies according to task difficulty

Analysis of EEG signals during relaxation and mental stress condition using AR modeling techniques

Electroencephalography (EEG) is the most important tool to study brain behavior. This paper presents an integrated system that detects brain changes during relax and mental stress condition.

THERAPY FOR STRESS

Treatment Options

Stress disorders are treatable, and the vast majority of people with a stress disorder can be helped with professional care. Several standard approaches have proved effective:

Pharmacological

- Antidepressants.

- Buspirone.
- Benzodiazepines.
- Beta-Blockers (Propranolol)

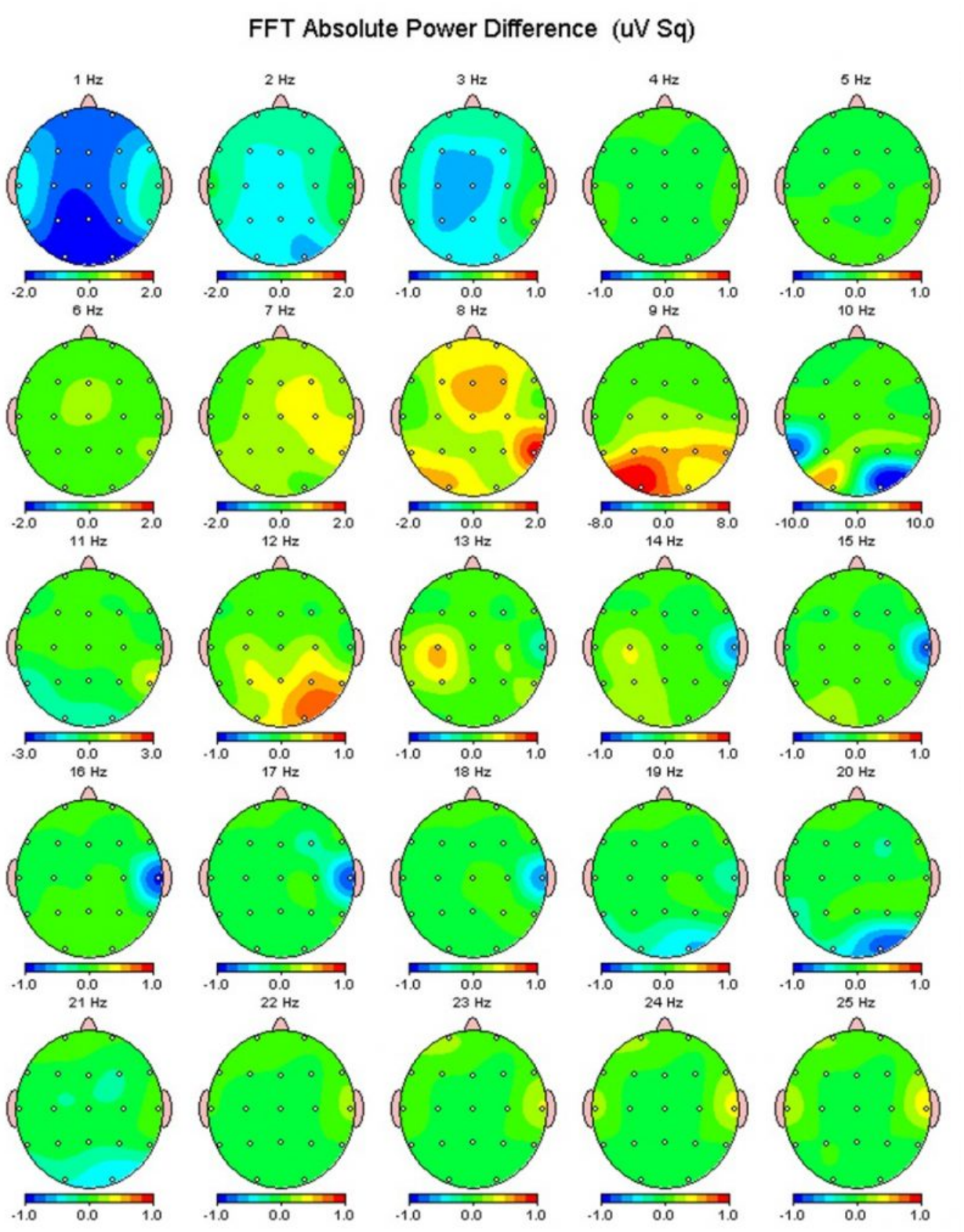
Psychotherapy

Sessions with a therapist to lessen symptoms of stress.

Neurofeedback (NFB)

NFB trains the brain to change the brainwave frequencies to get the desired result. Usually, NFB sessions are conducted 2-5 times a week for a total of 40-50 sessions. Each session lasts 30-60 minutes. This seems like a lengthy procedure, but the results are long-lasting. NFB is becoming increasingly popular as a stand-alone therapy or used in combination by a specialist to help wean the patient off pharmacological agents that tend to produce undesirable side-effects.

> **Biofeedback Intervention for Stress, Anxiety, and Depression among Graduate Students in Public Health Nursing**
> Results indicated that biofeedback intervention is effective in significantly reducing the levels of stress, anxiety, and depression over the 4-week period.
>
> **Waking QEEG to assess psychophysiological stress and alertness during simulated on-call conditions**
> Our aim was to determine whether quantitative electroencephalography (QEEG) would reflect changes in cortical activity in on-call conditions, predicting that the high-stress condition would display faster QEEG frequencies compared to the control and low-stress condition.



Decrease in Anxiety after PEMF treatment. The above is a representation of the electrical activity of the brain by frequency after 20 minutes of use of Alpha-Stim®

CES at 0.5 Hz. The EEG of 30 research volunteers was averaged and analyzed by computer to generate the average of brain changes in brain activity after 20 minutes of Alpha-Stim®. This is a difference brain map, where a decrease in activity after the use of Alpha-Stim® is shown in shades of blue and an increase in activity is seen in shades of yellow and red (green indicates no change). The above map shows that there is a decrease in delta, the 1, 2, and 3 Hz frequencies associated in waking individuals with impaired cognitive functioning. Significant increases are seen in alpha frequencies with peak activity at 9 Hz. Increases were also seen in activity at 12, 13 and 14 Hz, with 13 and 14 Hz activity centring on C3.

QEEG Analysis of Cranial Electrotherapy: A Pilot Study

After a single 20-minute treatment with CES there is a significant increase in alpha frequency activity and a significant decrease in delta and theta activity. The post treatment maps indicate the effect of single session cranial electrotherapy treatment (CES) on QEEG is congruent with the reports of the research volunteers of decreased anxiety and increased relaxation.

Electromagnetic Therapy

Some of the recent, modern electromagnetic techniques are TMS (Transcranial Magnetic Stimulation) and PEMF (Pulsed Electromagnetic Field) therapy. The use of electromagnetic therapy to alleviate many conditions have been used for over hundreds of years till the end of 19th century/ start of 20th century. Interest in it was subdued in the middle period of 20th century, but now the interest has again increased, as evidenced by increase in research and clinical studies in this field.

PEMF Therapy

TMS equipment is costly, needs a clinical set-up and treats with current in the range of 1-2 Tesla. On the other hand, PEMF costs tremendously less, can be performed anywhere and anytime and the current used is in the range of 100-200 micro-tesla, significantly lower than TMS. This has led to popularity and preference for PEMF therapy, which is also used for other conditions like SLEEP (sleep disturbance), anxiety, depression, sleep improvement, PTSD (Post-Traumatic Stress Disorder) and meditation. The beneficial effects of PEMF are increasingly growing and gaining popularity because it is simple to use.

Mental Health: Stress, Anxiety, Depression and PEMF

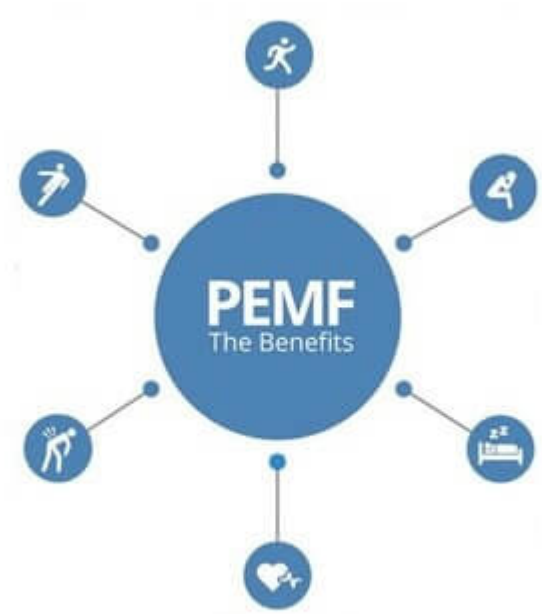
PEMF has been found to be a very effective in the treatment of stress, anxiety and depression without the side effects that medications can cause. Rather than introducing foreign substances into the brain, PEMF electrically excites the neurons to dispense their own natural chemicals, helping to balance out deficiencies and restore normal brain function.

Effects of Pulsed Electromagnetic Fields (PEMFs) on Stress

Long term use of weak PEMFs may be able to remodel tissues that are hyper-reactive to chronic or acute stress so that over time they will be less reactive.

Alleviating Stress with PEMF

Research has shown that daily use of PEMF therapy can alter stress responses by acting directly on the nervous system, glands, cells, tissues, and organs.



The FDA (USA) accepted the use of PEMF devices for the healing of depression and anxiety (two major consequences of unhealthy stress) in 2006

HOW TO USE BELLABEE PEMF THERAPY FOR STRESS

You can select "**Anti-Stress**" mode or use "**Create Therapy**" mode to customize therapy for Stress on Bellabee software. This software can be used with any android or IOS device.

Bellabee is:

- Safe – energy range is in micro-Tesla.
- Portable – just a headband connecting to your mobile device.
- Wearable – a band around the head and wired or Bluetooth connection to mobile device.
- Customizable – pre-set protocols with “Create Therapy” mode to make as many therapies as you want.
- Validated – numerous studies to back-up the results.
- Without Side Effects – unlike pharmacological agents.
- Versatile & Non-Invasive – use alone or as a part of your ongoing therapy.
- Easy to Use - Just download the software, plug the headband into microphone jack or use Bluetooth and start the therapy.

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