



PURE PURR
RE-CHARGE YOUR SELF

Neurostimulation in five minutes¹

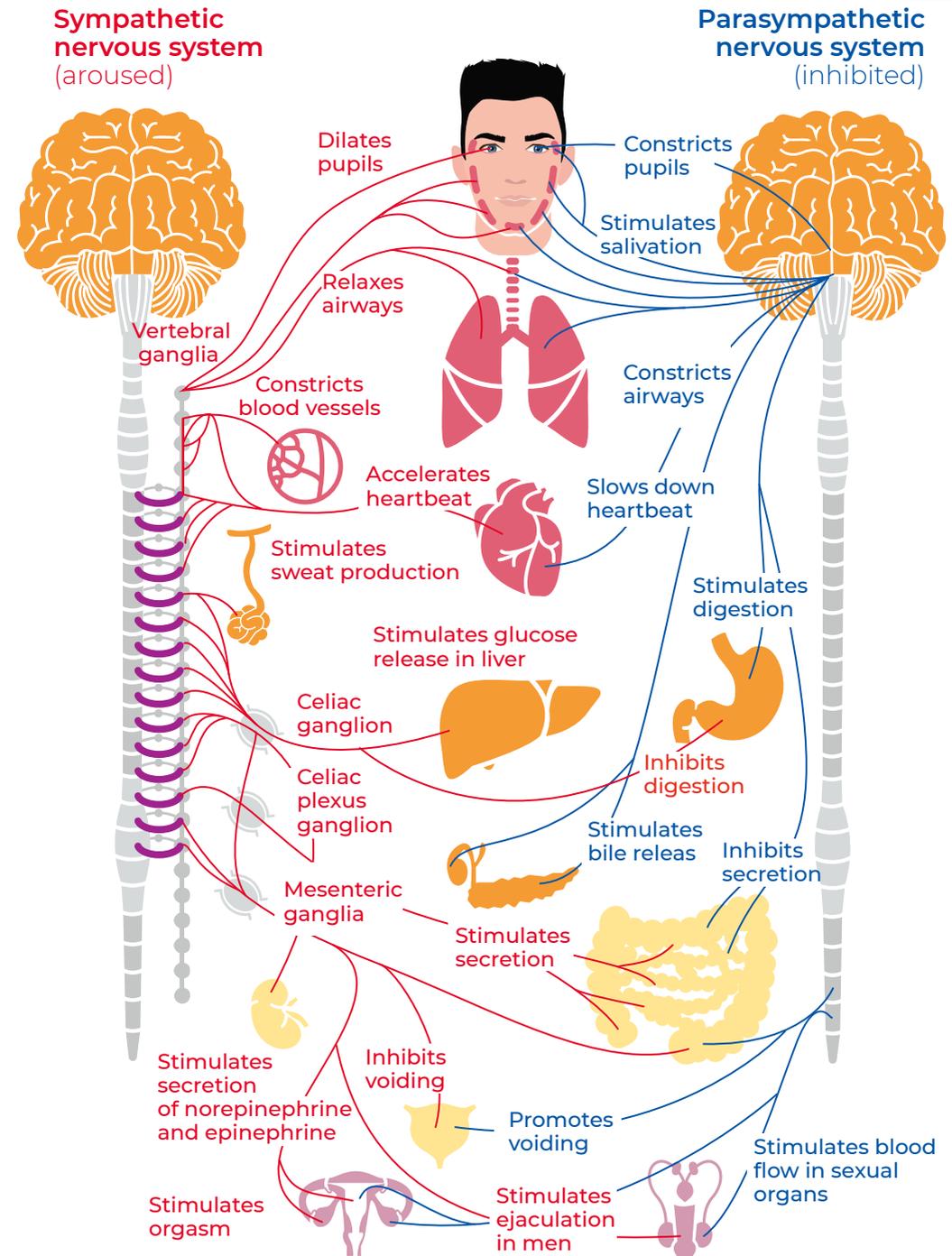
Why Do We Need Neurostimulation?

The American Institute of Stress (AIS) determines stress and adaptation dysfunction as the #1 problem of healthcare, and as the reason behind 60 to 90% of visits to a doctor.

The modern stress is typically more complex, all-permeating and vicious, because of it mostly being related to psychological threats rather than physical. Persistent stress causes repeating sympathetic reactions in the autonomic nervous system. These reactions may lead to hypertension, cerebral hemorrhage, heart attacks, diabetes mellitus, ulcers, and other so called “diseases of civilization.”

The Double Function of Autonomic Nervous System

The autonomic nervous system controls the autonomous (not regulated by consciousness) functions of the human body. Its sympathetic part is responsible for calming down and energy conservation, allowing us to perform effectively at routine activities. For instance, the sympathetic stimulation accelerates the heart-beat, while the parasympathetic one slows it down.



Powerful or severe stress may cause Autonomous Nervous System (ANS) to dysfunction.

Excessive load causes adaptation loss and adjustment disorders.

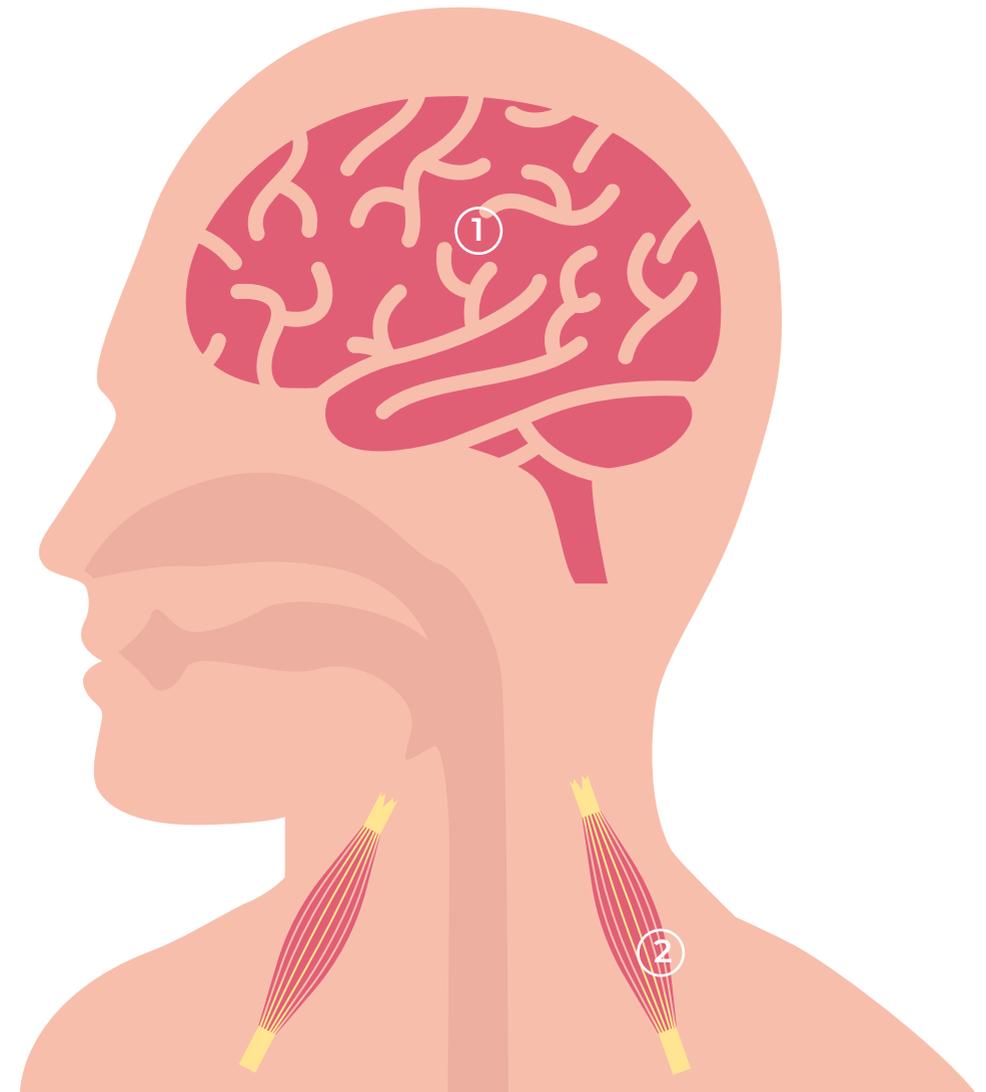
According to the International Disease Classification, the adjustment disorders belong to the group F43.

1. Nervous System

Not depending on the stress factor – physical or psychological – the human body directs resources to manage the problem. This phenomenon is known as a “fight-or-flight” response. On signal from the sympathetic nervous system, the suprarenal glands produce epinephrine and cortisol, speeding up the heartbeat, causing an increase in blood pressure and blood glucose level. After the stressors are removed, the stats above tend to normalize.

2. Muscular System

Under stress, the muscles of the entire human body are strained. Prolonged straining time may lead to headaches, migraines, and muscular pain.



3. Respiratory System

Stress may lead to troubled breathing or hyperventilation, which may cause panic attacks in some people.

4. Cardiovascular System

Acute stress leads to accelerating heartbeat and increased contraction rate of heart muscles. In such cases, the normal vascular supply of coronary vessels could be compromised. Repeated acute stress causes coronary arteries to inflame and may lead to heart attacks.

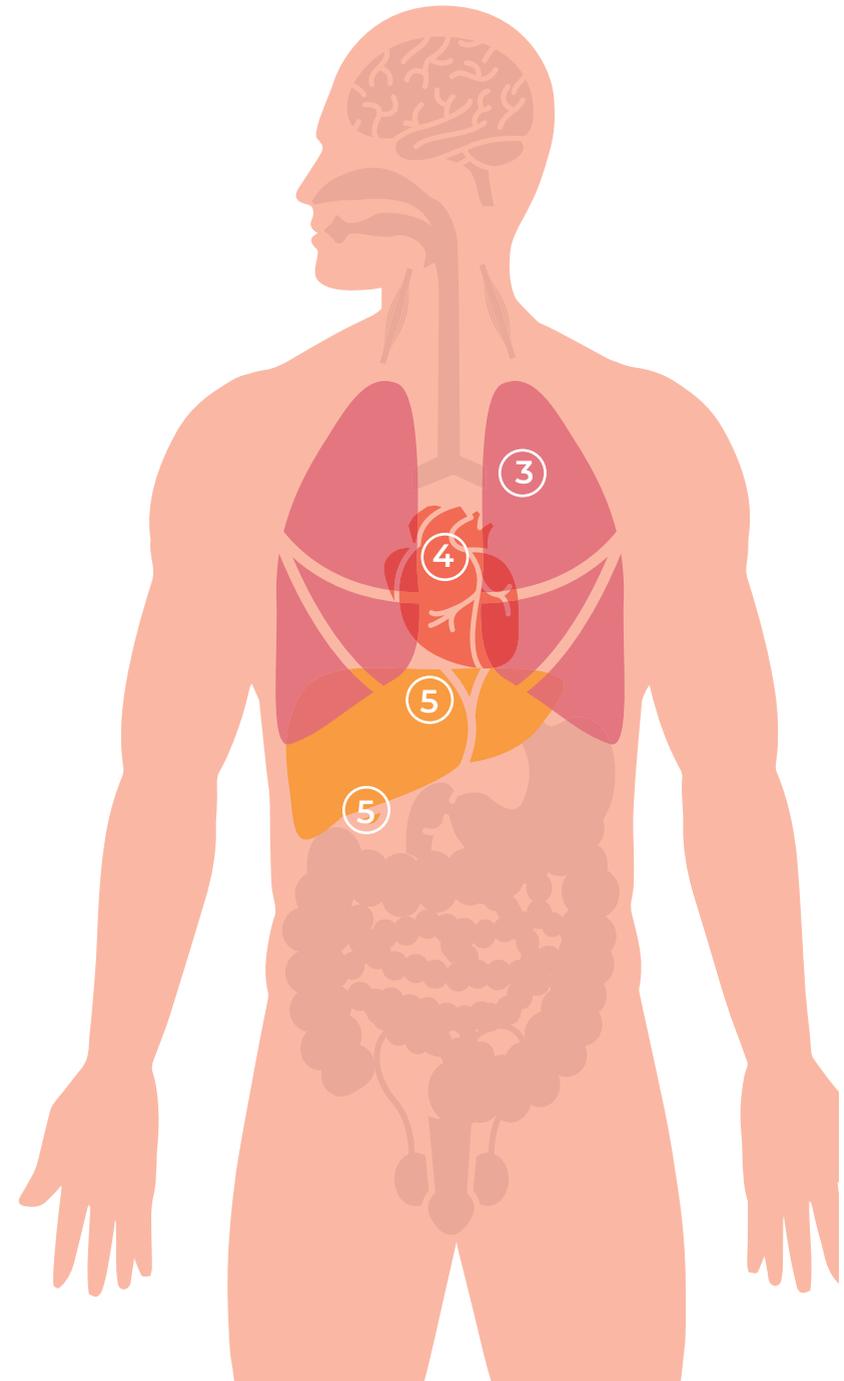
5. Endocrine System:

Suprarenal Glands

During stress, the brain signals them to start producing the “stress hormones”, cortisol and adrenalin.

Liver

Affected by the “stress hormones”, the liver produces more glucose in order to prepare the body for the “fight-or-flight” response.



6. Gastrointestinal System:

Esophagus

Under stress, your eating habits may change – you may start eating much more or much less. Combined with smoking or alcohol use, this may lead to heartburn or reflux.

Stomach

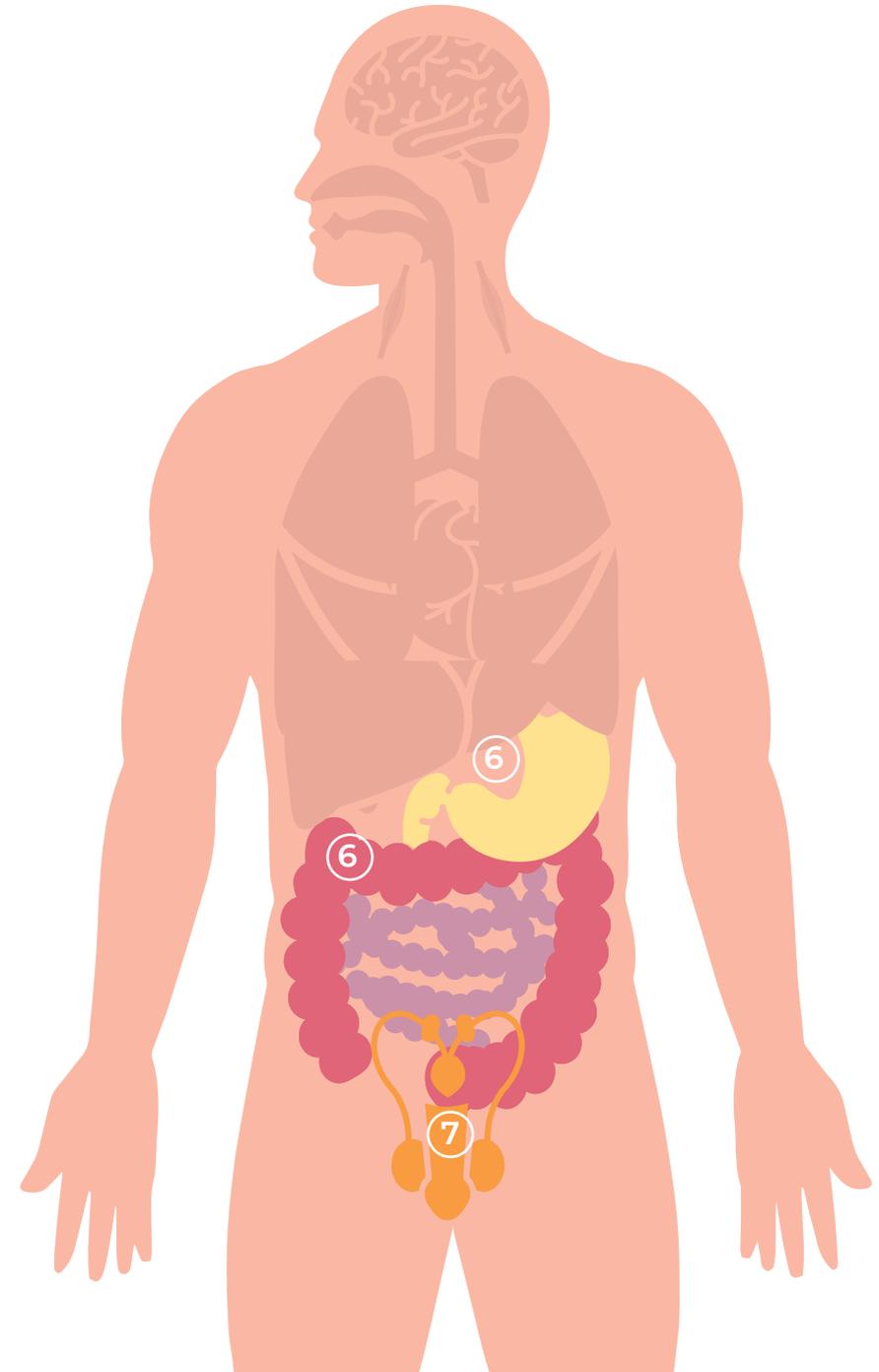
You may notice increased rumblings in the stomach, nausea, or, if the stress is considerably high, vomiting.

Digestive Canal

Stress may affect food digestion, the nourishment and peristaltic absorption abilities. This may lead to diarrhea or constipation.

7. Reproductive System

In men, the surplus cortisol produced during stress may affect the function of reproductive system. Chronic stress may lead to inhibited production of testosterone and semen, which may cause impotency. In women, stress may lead to decreased libido, irregular or absent period, more painful menstruations.



50 most often found symptoms of adjustment disorder (F43 according to ICD-10):

1. Increased headaches, bruxism or pain in the jaw muscles
2. Grinding teeth and their reduction
3. Stuttering
4. Tremors, namely in limbs or lips
5. Neck pains, back pains, muscle spasms
6. Vertigo, nausea, weakness
7. Tinnitus: ringing or humming ears
8. Face often reddened, hyperhidrosis
9. Cold or sweaty palms, feet
10. Dry mouth, trouble swallowing
11. Often respiratory illnesses, infections, herpes activation
12. Rash, itching, hives, "goosebumps"
13. Unexplained or intensified "allergic" attacks
14. Heartburn, stomach pain, nausea
15. Excessive belching, flatulence
16. Constipation or diarrhea
17. Troubled breathing, excessive sighing
18. Sudden panic attacks
19. Chest pains, intensified heartbeat, quickened pulse
20. Excessive urination
21. Reduced libido and erection or sexual act longevity
22. Excessive worrying, rumination, guilt feelings, neurotic behavior
23. Increased anger, frustration, aggression
24. Depression, quick or considerable mood fluctuations
25. Increased or decreased appetite
26. Insomnia, nightmares, troubled sleep
27. Troubled concentration, racing thoughts
28. Problems with learning new information
29. Forgetfulness, disorganization, loss
30. Trouble making decisions
31. Feeling of overload
32. Persistent crying impulses or suicidal thoughts
33. Feelings of loneliness and futility
34. Low interest in own appearance, low punctuality
35. Neurotic habits, indecisiveness, shaking of legs
36. Frustration, irritancy, boastfulness

37. Excessive reaction to small issues
38. Growing rate of minor household incidents
39. Obsessive or compulsive behavior
40. Lowered labor effectiveness and productivity
41. Lies or invented explanations to hide the poor performance
42. Quickened speech or muttering
43. Excessive suspicion
44. Trouble communicating and sharing with others
45. Social detachment and isolation
46. Persistent tiredness, weakness
47. Medicine often used without prescription
48. Weight gain or loss without dieting
49. Increased tobacco, alcohol, or drug consumption
50. Compulsive gambling or shopping

According to “Diagnostic and management guidelines for mental disorders in primary care”⁵, in order to treat this kind of patients, anti-anxiety medicine and hypnotics (benzodiazepines) may be used.

In case of a disorder that arises as a delayed or protracted response to a stressful event or situation, beta blockers, serotonin re-uptake inhibitors, anti-epileptic medicine, and glucocorticoids⁶ may be used. Non-drug treatment may include various psychotherapeutic practices and physiotherapy. Recently, more and more methods of clinical rehabilitation based on virtual reality technologies become accessible^{7,8,9}

Diagnosing General Adaptation Syndrome and Heart Rate Variability Analysis^{10,11,12,13}

General Adaptation Syndrome describes the reaction of a human body affected by short-term and long-term influence of stress factors. These factors may be physical – hunger, traffic accident, hypothermia. They may be psychological – hard day at work, personal loss, family issues.

First described by Hans Selye back at 1920s, the General Adaptation Syndrome is divided in 3 stages.

STAGE 1: Alarm Reaction

This is an immediate response reaction towards an active stressor. The organism is ready for the physical “fight-or-flight” manifestation, at the same time, the capabilities of the immune system decrease, and a chance of developing an illness at this stage is high.

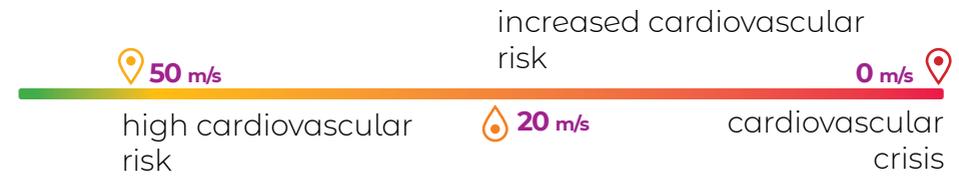
STAGE 2: Resistance or Adaptation Reaction

If the stress is to persist, the body attempts to adapt to the stress factors. This leads to changes of many levels meant to reduce the effects of stress. For instance, when the stressor is starvation, the person may feel reduced want for physical activity, which is required to save the energy, plus the absorption of nourishments from the food increases.

STAGE 3: Exhaustion

The stress persists for a while now, so the body's resilience slowly fades. This normally means the immune system activities and the ability of the organism to resist illnesses was eliminated almost completely.

SDNN



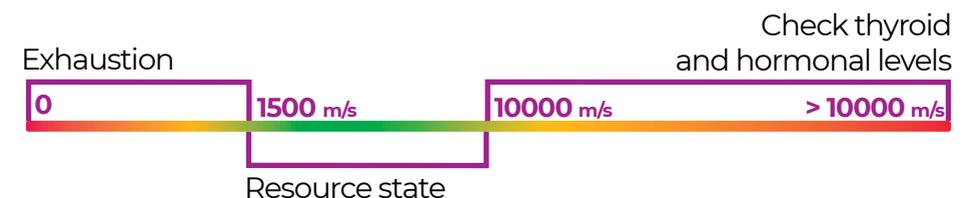
RMSSD



LF/HF



TOTAL POWER



Pure Purr – parasympathetic activation in 5 minutes

A software-hardware bundle for parasympathetic activation. During a blind randomized shamcontrolled study, Pure Purr demonstrated its capability to:

↑ Increase parasympathetic activation by **46,8%**
 In just 5 minutes

Pure Purr is prescribed as a 10-session course in order to restore autonomous regulation as a part of complex therapy of adaption and stress-related dysfunctions, or as a part of complex rehabilitation activities, including the post-op period.

The key mechanisms of positive influence:

-  Cutting off of external irritants using an ergonomic VR headset VR¹⁵
-  Filling of prefrontal cortex with positive visual stimulus¹⁶
-  Concentration on a rhythmically moving object¹⁷
-  Elements of empathic and conscious meditation¹⁸
-  Rhythmical audio-visual impulses synchronized to physiological breathing and heartbeat rates¹⁹
-  60 BPM music synchronized to the rhythm of other irritants²⁰
-  Modulated frequency ensemble spanning 25-150 Hz²¹
-  Dynamic binaural influence on the entire sound spectrum with frequency of delta waves of the brain^{22, 23}

Before using the product, please read through the user manual carefully

1. User manual of the Pure Purr medical appliance is registered according to the Responsibility Declaration N° MD/UA753-001-21/09/2018 from 2018.09.21
2. Job Stress: America's Leading Adult Health Problem, by Paul J. Rosch, M.D., F.A.C.P., in USA Magazine, May 1991. American Academy of Family Physicians Survey, 1988, U.S. News & World Report, December 11, 1995. Also, Research by Perkins (1994). Retrieved from: bit.ly/ppsource2
3. Kellie Marksberry, Stress Effects [online]October 6th, 2011. Retrieved from: bit.ly/ppsource3
4. ICD-10 Version:2010. Reaction to severe stress, and adjustment disorders. Retrieved from: bit.ly/ppsource4
5. Diagnostic and management guidelines for mental disorders in primary care: ICD-10. Chapter V, Primary care version. WHO/Hogrefe & Huber Publishers, Gottingen, Germany, 1996. Retrieved from: bit.ly/ppsource5
6. VA/DoD Clinical Practice Guideline for the Management of Posttraumatic Stress Disorder and Acute Stress Disorder. Version 3.0 – 2017. Retrieved from: bit.ly/ppsource6
7. Lan Li, Fei Yu, Dongquan Shi, Jianping Shi, Zongjun Tian, Jiquan Yang, Xingsong Wang, Qing Jiang. Am J Transl Res, Application of virtual reality technology in clinical medicine. 2017;9(9):3867-3880. Retrieved from: bit.ly/ppsource7
8. Julieta Dascal, Mark Reid, Waguhih William Ishak, Brennan Spiegel, Jennifer Recacho, Bradley Rosen, Itai Danovitch. Virtual Reality and Medical Inpatients: A Systematic Review of Randomized, Controlled Trials. Innov Clin Neurosci. 2017;14(1-2):14–21. Retrieved from: bit.ly/ppsource8
9. Shaun W Jerdan, Mark Grindle, Hugo C van Woerden, Maged N Kamel Boulos. Head-Mounted Virtual Reality and Mental Health: Critical Review of Current Research. JMIR Serious Games. 2018 Jul-Sep; 6(3): e14. Retrieved from: bit.ly/ppsource9
10. General Adaptation Syndrome. Martin Guha, (2007) "The Gale Encyclopedia of Medicine (3rd edition)", Reference Reviews, Vol. 21 Issue: 4, pp.27-29, DOI: 10.1108/09504120710744556. Retrieved from: bit.ly/ppHRV1
11. Stress and Heart Rate Variability: A Meta-Analysis and Review of the Literature. Psychiatry Investig. 2018 Mar; 15(3): 235–245. DOI: 10.30773/pi.2017.08.17. PMID: 29486547. Retrieved from: bit.ly/ppHRV2
12. Inter-relation between autonomic and HPA axis activity in children and adolescents. Biol Psychol. 2016 May; 117: 16–25. Published online 2016 Feb 2. DOI: 10.1016/j.biopsycho.2016.01.015. PMID:

26835595. Retrieved from: bit.ly/ppHRV3
13. An Overview of Heart Rate Variability Metrics and Norms. *Front Public Health*. 2017; 5: 258. DOI: 10.3389/fpubh.2017.00258. PMID: 29034226. Retrieved from: bit.ly/ppHRV31
 14. Yevhen Vasylenko, Sam Aganov. Clinical Study of the Effect of the Virtual Reality (VR) Technology on Recovery of the Indicators of the Autonomic Nervous System in Healthy Volunteers Affected by Moderate Stress. November 2, 2018. *ClinicalTrials.gov* Identifier: NCT03532152. Retrieved from: bit.ly/ppsource10
 15. Virtual Reality in Health System: Beyond Entertainment. A Mini-Review on the Efficacy of VR During Cancer Treatment. Chirico A, Lucidi F, De Laurentiis M, Milanese C, Napoli A, Giordano A. *J Cell Physiol*. 2016 Feb;231(2):275-87.
 16. Hemodynamic (fNIRS) and EEG (N200) correlates of emotional inter-species interactions modulated by visual and auditory stimulation. *Scientific Reports*. Balconi M, Vanutelli ME. 2016;6:23083. DOI:10.1038/srep23083.
 17. Meditation-related activations are modulated by the practices needed to obtain it and by the expertise: an ALE meta-analysis study. *Frontiers in Human Neuroscience*. Tomasino B, Fregona S, Skrap M, Fabbro F. 2012;6:346. DOI:10.3389/fnhum.2012.00346.
 18. Lara Hilton, Susanne Hempel, Brett A. Ewing, Eric Apaydin, Lea Xenakis, Sydne Newberry, Ben Colaiaco, Alicia Ruelaz Maher, Roberta M. Shanman, Melony E. Sorbero, Margaret A. Maglione; Mindfulness Meditation for Chronic Pain: Systematic Review and Meta-analysis, *Annals of Behavioral Medicine*, Volume 51, Issue 2, 1 April 2017, Pages 199–213, DOI: 10.1007/s12160-016-9844-2.
 19. Pulse and meter as neural resonance. Large EW et al. *Ann N Y Acad Sci*. 2009 Jul;1169:46-57.
 20. The Effects of Music Assisted Relaxation on Preoperative Anxiety. Sheri L. Robb Ray J. Nichols Randi L. Rutan Bonnie L. Bishop Jayne C. Parker. *Journal of Music Therapy*, Volume 32, Issue 1, 1 March 1995, Pages 2–21, <https://doi.org/10.1093/jmt/32.1.2>
 - The effect of music, therapy, and relaxation on adrenal corticosteroids and the re-entrainment of circadian rhythms. Rider MS, Floyd JW, Kirkpatrick J.J *Music Ther*. 1985 Spring;22(1):46-58. PMID: 10271532.
 21. The felid purr: A healing mechanism? Elizabeth von Muggenthaler *The Journal of the Acoustical Society of America* 2001 110:5, 2666-2666
 22. Auditory beats in the brain. Oster G. *Sci Am*. 1973 Oct;229(4):94-102. Cortical evoked potentials to an auditory illusion: binaural beats. Pratt H et al. *Clin Neurophysiol*. 2009 Aug;120(8):1514-24. DOI: 10.1016/j.clinph.2009.06.014. Epub 2009 Jul 18.
 23. The brain responses to different frequencies of binaural beat sounds on QEEG at cortical level. Jirakittayakorn N, Wongsawat Y. *Conf Proc IEEE Eng Med Biol Soc*. 2015;2015:4687-91.



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