Meditation

This list of references isn't the be all and end all. New results come out all the time, and it's always possible to find contrasting results. However, the cited publications support the things that have worked for me. Please don't send me emails trying to draw my attention to work that contradicts what I've said here because that isn't what's worked for me, and that's all I want to show people. I`ve also included older references to demonstrate to clients that some of this knowledge isn't new.

Copy each reference then paste it into a search engine to find it. If you're not used to reading scientific papers, skim the abstract, introduction and discussion sections to get an idea about what is being said, then do it again.

Stress and trauma dysregulate connections between cells in the brain.

Arnsten, A. F. (2015). Stress weakens prefrontal networks: molecular insults to higher cognition. *Nature neuroscience, 18(10),* 1376-1385. doi: 10.1038/nn.4087

Cook, F., Ciorciari, J., Varker, T., Devilly, G. J. (2009). Changes in long term neural connectivity following psychological trauma. *Clinical Neurophysiology, 120(2),* 309-314.doi: 10.1016/j.clinph.2008.11.021

Woo, E., Sansing, L. H., Arnsten, A. F., & Datta, D. (2021). Chronic stress weakens connectivity in the prefrontal cortex: architectural and molecular changes. *Chronic Stress, 5,* 24705470211029254. doi: 10.1177/24705470211029254

That trauma can be from development, from chronic situations in adulthood, or from recent acute events.

Laricchiuta, D., Panuccio, A., Picerni, E., Biondo, D., Genovesi, B., Petrosini, L. (2023). The body keeps the score: the neurobiological profile of traumatized adolescents. *Neuroscience & biobehavioral reviews, 145,* 105033. doi: 10.1016/j.neubiorev.2023.105033

Huang, D., Liu, Z., Cao, H., Yang, J., Wu, Z., Long, Y. (2021). Childhood trauma is linked to decreased temporal stability of functional brain networks in young adults. *Journal of affective disorders, 290,* 23-30. doi: 10.1016/j.jad.2021.04.061

Jin, C., Jia, H., Lanka, P., Rangaprakash, D., Li, L., Liu, T., Hu, X., Deshpande, G. (2017). Dynamic brain connectivity is a better predictor of PTSD than static connectivity. *Human brain mapping, 38(9),* 4479-4496. doi: 10.1016/j.jad.2021.04.061

Leite, L., Esper, N. B., Junior, J. R. M. L., Lara, D. R., Buchweitz, A. (2022). An exploratory study of resting-state functional connectivity of amygdala subregions in posttraumatic stress disorder following trauma in adulthood. *Scientific Reports, 12(1),* 9558. doi: 10.1038/s41598-022-13395-8

That's why you don't feel as mentally sharp when you're stressed.

Girotti, M., Bulin, S. E., & Carreno, F. R. (2024). Effects of chronic stress on cognitive function–from neurobiology to intervention. *Neurobiology of Stress,* 100670. doi: 10.1016/j.ynstr.2024.100670

Hayes, J. P., VanElzakker, M. B., & Shin, L. M. (2012). Emotion and cognition interactions in PTSD: a review of neurocognitive and neuroimaging studies. *Frontiers in integrative neuroscience, 6,* 89. doi: 10.3389/fnint.2012.00089

Kim, E. J., & Kim, J. J. (2023). Neurocognitive effects of stress: a metaparadigm perspective. *Molecular psychiatry, 28(7),* 2750-2763. doi: 10.1038/s41380-023-01986-4

Weis, C. N., Webb, E. K., deRoon-Cassini, T. A., Larson, C. L. (2022). Emotion dysregulation following trauma: shared neurocircuitry of traumatic brain injury and trauma-related psychiatric disorders. *Biological psychiatry, 91(5),* 470-477. doi: 10.1016/j.biopsych.2021.07.023

If specific negative thoughts are experienced often enough, they become entrenched and reflex-like.

Bomyea, J., Feng, S., Moore, R. C., Simmons, A. N., Thomas, M. L. (2024). Change in resting-state functional connectivity following working memory training in individuals with repetitive negative thinking. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging, 9(12),* 1262-1270. doi: 10.1016/j.bpsc.2024.04.017

Misaki, M., Tsuchiyagaito, A., Guinjoan, S. M., Rohan, M. L., Paulus, M. P. (2023). Trait repetitive negative thinking in depression is associated with functional connectivity in negative thinking state rather than resting state. *Journal of affective disorders, 340,* 843-854. doi: 10.1016/j.jad.2023.08.052

Tsuchiyagaito, A., Sánchez, S. M., Misaki, M., Kuplicki, R., Park, H., Paulus, M. P., Guinjoan, S. M. (2023). Intensity of repetitive negative thinking in depression is associated with greater functional

connectivity between semantic processing and emotion regulation areas. *Psychological medicine, 53(12),* 5488-5499. doi: doi:10.1017/S0033291722002677

The brain is constantly changing, even in adults, through a process called neuroplasticity.

Dahl, C. J., Wilson-Mendenhall, C. D., Davidson, R. J. 2020. The plasticity of well-being: A training-based framework for the cultivation of human flourishing. *Proceedings of the National Academy of Sciences, 117,* 32197-32206. doi: 10.1073/pnas.201485911

Neuroplasticity allows us to recover, for example from a stroke or trauma, and it allows us to learn, both as children and as adults.

Agonis, C. (2023). Neuroplasticity Knowledge and Perceived Self-Efficacy in Western Adults: A Qualitative Examination. *Graduate Student Journal of Psychology, 21.* doi: 10.52214/gsjp.v21i.11004
Alexander, R. *et al.* 2021. The neuroscience of positive emotions and affect: Implications for cultivating happiness and wellbeing. *Neuroscience & Biobehavioral Reviews, 121,* 220-249. doi: 10.1016/j.neubiorev.2020.12.002
Guidotti, R., Del Gratta, C., Perrucci, M. G., Romani, G. L., Raffone, A. 2021. Neuroplasticity within and between functional brain networks in mental training based on long-term meditation. *Brain Sciences, 11,* 1086. doi: 10.3390/brainsci11081086

Meditation is brain training that improves metacognition and executive function.

Bremer, B., Wu, Q., Mora Álvarez, M. G., Hölzel, B. K., Wilhelm, M., Hell, E., Tavacioglu, E.E., Torske, A., Koch, K. 2022. Mindfulness meditation increases default mode, salience, and central executive network connectivity. *Scientific reports, 12,* 13219. doi: 10.1038/s41598-022-17325-6
Yue, W. L., Ng, K. K., Koh, A. J., Perini, F., Doshi, K., Zhou, J. H., Lim, J. 2023. Mindfulness-based therapy improves brain functional network reconfiguration efficiency. *Translational Psychiatry, 13,* 345. 345 doi: 10.1038/s41398-023-02642-9