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Effects of Chronic Stress

Chronic stress refers to prolonged periods of mental stress, which can have lasting effects on the entire body. People who report higher levels of chronic stress are more likely to develop conditions including heart disease,[1–3] depression,[4,5] diabetes,[6,7] dementia,[5,8,9] cancer,[10–12] and digestive symptoms.[14,15] The following diagram shows potential harmful changes in the body as a result of unaddressed chronic stress.[16,17]

Brain & Nervous System:

- Activates "fight or flight" response[18]
- Reduces size and communication between areas of the brain responsible for decision making, memory, emotional regulation, and learning[13,14]
- Increases risk for dementia and Alzheimer's[15]

Respiratory System:

- Causes changes in breathing patterns that shift to rapid, shallow breathing as a part of the fight-or-flight response[16,17]
- Worsens asthma and chronic obstructive lung disease[18,19]

Hormone Regulation:

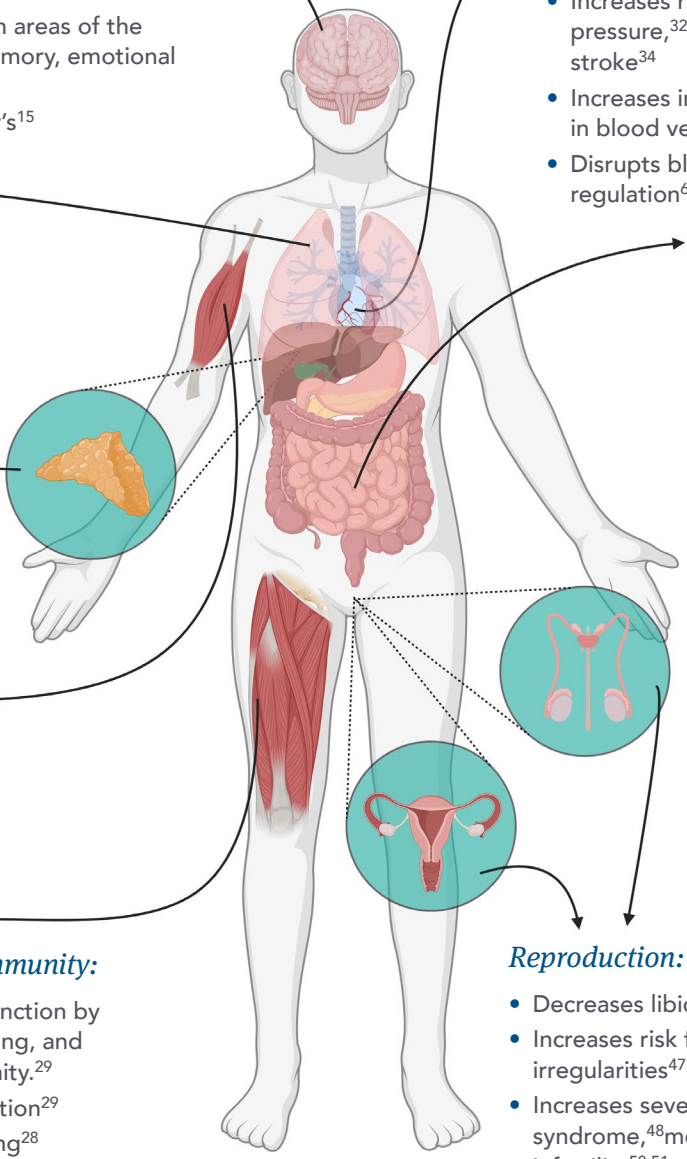
- Causes thyroid hormone fluctuations[20]
- Releases more cortisol (a stress hormone)[21,22] which increases the risk of other health conditions[23,24]

Musculoskeletal:

- Contributes to muscle tension
- Increases risk of headaches and migraines[25]
- Worsens joint pain and fibromyalgia[26,27]

Inflammation & Immunity:

- Impacts immune function by activating, weakening, and suppressing immunity.[29]
- Increases inflammation[29]
- Slows wound healing[28]



Cardiometabolic (Heart & Metabolism):

- Increases heart rate[31]
- Increases risk of high blood pressure,[32] heart disease,[33] and stroke[34]
- Increases inflammation and plaque in blood vessels[35]
- Disrupts blood glucose and insulin regulation[6,7]

Gut Health & Digestion:

- Causes alterations in the gut microbiota,[36] and an increased risk for intestinal permeability[37,38]
- Worsens digestive conditions like ulcers,[39] acid reflux,[40] and inflammatory bowel syndrome[41-43]
- Impairs gut motility[44]
- Decreases blood flow to digestive organs due to "fight or flight" response
- Triggers digestive discomfort (gas, bloating, nausea, and appetite changes)[45]

Reproduction:

- Decreases libido and fertility[46]
- Increases risk for menstrual irregularities[47]
- Increases severity of premenstrual syndrome,[48] menopause,[49] and infertility[50,51]

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Common Chronic Stressors

- Information overload from social media and news
- Relationship conflicts
- Expectations to multitask at work and home
- Social isolation
- Finances
- Managing chronic illness
- Traumatic events (e.g., death of a loved one, COVID-19)

Tips for Reducing Chronic Stress

Day-to-day stress may be unavoidable, but it does not have to turn into chronic unaddressed stress that negatively impacts your health. There are many ways to manage stress – from daily activities like deep breathing to longer-term strategies like counseling. Finding a variety of techniques that work for you will help you build resilience and support your overall wellbeing for years to come. Here are more ideas to help you manage stress:

- **Deep Breathing:** Try breathing exercises to encourage deep breathing, which activates your relaxation response[52]
- **Adequate Rest:** Prioritize getting adequate sleep. For adults, this means at least 7 to 9 hours of quality sleep each night[53,54]
- **Exercise:** Try exercise that combines physical movement with mental relaxation.[55,56] This includes aerobic exercises such as walking,[57] swimming,[58] cycling,[59] dancing,[60] tai chi,[61] Qigong,[62] yoga,[63,64] and strength training[65]
- **Therapy:** Talk to a counselor or therapist. Ask your functional medicine practitioner for a referral
- **Journaling:** Start a gratitude journal. Writing down things that you are grateful for can decrease stress and improve mood[66,67]
- **Meditate:** Meditating can help relieve stress.[68] There are many ways to meditate, so find what works for you.
- **Take a Mindfulness-Based Stress Reduction (MBSR) course:** Search online for virtual or in person courses near you[64,69]
- **Spend Time Around Nature:** Spending time in green spaces and natural environments can decrease stress.[70] Here are some ideas for increasing your exposure to nature:
    - Get outside for a walk or go for a hike at a park. Start a garden outside[71,72]
    - If you are unable to get outside, use images of nature, like landscapes or greenery, as your computer background or as art in your home or workspace[72,73]
    - Create a green space in your home. Consider adding a plant to your space indoors[74,75]

- **Digital detox:** Do a digital detox. Limit daily screen time or try to avoid electronic devices for 24 hours, or even a whole weekend[76,77]
- **Reframe your self-talk:** Changing the way we think about things that happen can help decrease our stress response to them. For example, instead of thinking "They rejected my job application," think, "I wasn't rejected. I'm being redirected toward something better"[78,79]
- **Create and reassess your "to-do" list:** Prioritize your top 3 tasks and shift your expectations. Ask for help or hand-off tasks others can take on
- **Optimize your nutrition:** Nutrition can help support a healthy stress response. Prioritize healthy protein and fats. Eat a variety of colorful vegetables and fruits[80-82]
- **Socialize with supportive friends or family:** Having people who listen and care can help decrease stressful situations
- **Consider music therapy:** Listening to different types of music creates different effects in the body. With music therapy, music is tailored to decrease stress by creating calmness and relaxation. Search for a practitioner near you who specializes in this[83]

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