Youtube video by "Mark Connelly"

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PROGRESSIVE MUSCLE RELAXATION

Progressive muscle relaxation (PMR) is a technique for learning to monitor and control the state of muscular tension in the body. This technique induces a deep state of relaxation by decreasing the arousal of the autonomic and central nervous system and by increasing parasympathetic activity. Initially, you may consider practicing away from bedtime until you are comfortable and confident using the technique; then we recommend that you practice either during your bedtime routine, at bedtime, if you are having difficulty falling asleep, or during night-time awakenings. PMR is also used in the treatment of anxiety and can be useful in situations such as before an exam, a presentation, if you are anticipating facing a difficult conversation with someone, or after a conflict.

You may listen to an audio like this by googling the following key words on your phone, tablet or computer:
myhealth Alberta relaxation audios

Long term effects of regular practice of PMR

- A decrease in generalized anxiety and anticipatory anxiety related to phobias
- Decreased frequency and duration of panic attacks
- Increased concentration, a sense of control over moods and self-esteem, increased spontaneity and creativity

Guidelines

- Tense and relax, in succession, sixteen different muscle groups of the body.
- Inhale and tense each muscle group hard (not so hard that you strain). Hold for 7 -10 seconds and then abruptly release the muscle contraction and exhale. Allow the other muscles in your body to relax.
- Relax for 15- 20 seconds, observing how the muscle group feels now versus when they were tensed. Think to yourself, "I am relaxing", "letting go" during each relaxation period.
- If your attention wanders, bring it back to the muscle on which you are focusing.

Technique

- Take three **deep abdominal breaths**, exhaling slowly. As you exhale imagine the tension in your body dissolving.
- Tense your **feet** by pointing your toes. Exhale and relax.
- Tense your **calf** muscles by flexing your toes toward your knees. Exhale and relax.
- Tense your **thighs muscles** by fully extending your legs or lifting them off the floor. Exhale and relax.
- Tense your **buttocks** by clenching them together. Exhale and relax.
- Tense your **lower back** by arching it. (If this hurts, omit this muscle group.) Exhale and relax.
- Tense your **stomach** muscles by drawing in your stomach in. Exhale and relax.
- Make tight **fists, then stretch out your fingers**. Exhale and relax.
- Tense your **biceps** by drawing your forearms up towards your shoulders with both arms. Exhale and relax.
- Tense your **triceps** by extending your arms out straight and locking your elbows. Exhale and relax.
- Tense your **chest muscles** by taking a deep breath. Exhale and relax.
- Tense your **upper back** by squeezing your **shoulder blade muscles** together. Exhale and relax.
- Tense your **shoulders** by squeezing them toward your ears. Exhale and relax.
- Tense the **back of your neck** by pushing your head into the surface that is supporting it. Exhale and relax.
- Tense your **jaw** by opening your mouth wide. Stretch out your tongue. Exhale and say Ahhh and relax.
- Tense the muscles around your **eyes** by squeezing your eyelids tightly shut. Exhale and relax.
- Tense your **forehead** by raising your eyebrows high. Exhale and relax.
- Tense **every muscle of your body**. Make a big SIGH while you exhale through your MOUTH and relax.
- If an area remains tense, **repeat one or two tense-relax cycles** for that group of muscles.
- Gradually open your eyes and bring the mindfulness of this state of relaxation into rest of your day.

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STRESS

Stress is an inevitable reaction our body experiences to change, and a certain degree of stress is beneficial for our personal growth. Our "fight-or-flight" response allows us to react to life-threatening situations i.e., animal attacks, fires, floods, and war. However, any situation you perceive as threatening can set it off i.e., traffic jams, work, and family tension. Even positive changes such as a promotion or the birth of a child can produce stress.

- **Short term:** the stress response can help you overcome adversity.
- **Long term:** can lead to **"distress"** a negative stress reaction and burnout.

Symptoms of Stress

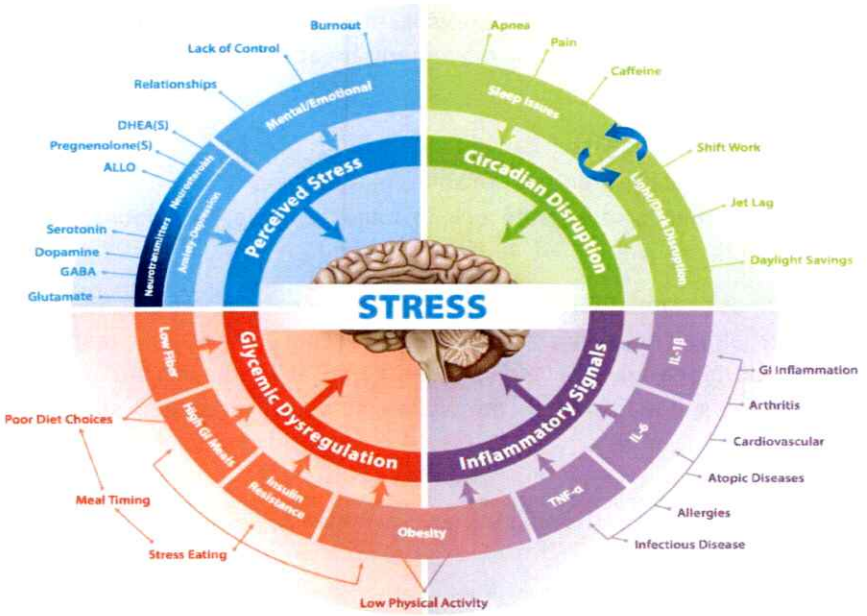
- Poor sleep, fatigue, sexual difficulties, racing heart-associated with increased cortisol (stress hormone).
- Headaches, muscle tension, teeth grinding, clenched jaw, increased pain, cold, sweaty palms, trembling.
- Indigestion, diarrhea, increased or decreased appetite, weight gain or loss.
- Poor concentration, indecisiveness, "busy brain," irritable, anxious, worried, depressed, frustration or crying.
- Maladaptive behaviours: speeding, addictions i.e., nicotine, drugs, gambling, food, alcohol, sex, shopping, gaming.

Factors That May Worsen stress

- Unpredictable, multiple stressors
- Long term, unresolved stress.
- Feeling unsupported when we are stressed.
- Using maladaptive behaviours to cope with stress which keeps us stressed and cause more problems.

Possible Consequences of Chronic Stress

- **Blood vessels and arterial damage:** increases blood pressure which raises the risk of heart attacks or strokes.
- **Elevated cortisol:** leads to increased appetite, fat buildup and weight gain.
- **Increased blood sugar:** this worsens diabetes.
- **Weakened immune system:** increases susceptibility to colds and infections; worsens asthma.
- **Premature aging**
- **Dental problems:** due to teeth grinding and clenching.
- **Inflammation:** adversely affects heart and brain health.
- **Brain changes:** increases risk for anxiety, depression, addiction, memory problems and dementia
- **Death from heart disease, cancer, lung ailments, accidents, and suicide.**



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Stress and Insomnia

Stress contributes to **hyperarousal**, where our body is "switched on." Hyperarousal plays a role in insomnia and anxiety. Sleep problems cause further stress which can worsen hyperarousal and anxiety. However, stress does not always cause sleep problems because of 2 things:

- **Not all stress is the same:** stress varies in its type, severity, and duration.
- **We each respond to stress differently**: this is called **resilience, emotional reactivity, or stress reactivity.**
  - **High resilience:** you may feel pain or sadness but can "bounce back" after stressful episodes and move forward.
  - **Low resilience**: you are more prone to insomnia. Low resilience is associated with genetics, gender, and external stressors.

Post-Traumatic Stress Disorder (PTSD) and Insomnia

PTSD is connected to insomnia. It can develop after someone is exposed to one or more traumatic event, many of which are violent, emotionally painful, and/or life-threatening. People with PTSD often experience symptoms including hyperarousal, negative emotions, avoidance, flashbacks, fatigue, sleep problems and headaches.

STRESS MANAGEMENT STRATEGIES

Slow Down, Say No and Let Go

- Set healthy boundaries; resist being a "people pleaser" and perfectionist.
- Avoid rushing, over-scheduling and learn to be in the present moment.
- Assert your feelings instead of being angry, defensive, or passive. Learn to accept things that are beyond your control.

Maintain a Healthy Routine

- Follow a consistent sleep schedule and bedtime routine. Your body needs time to recover from stress.
- Limit electronic device use two hours before bed as these create mental stimulation and emit blue light.
- Self-connect with one daily enjoyable activity i.e., physical activity, TV comedy, bath, play, music, creativity.
- Eat healthy meals, limit sugar, caffeine, and junk food.
- Do not rely on caffeine, energy drinks, alcohol, drugs, or compulsive/ binge behaviours to manage stress.

Practice the Relaxation Response

- These are techniques that lowers blood pressure, heart and breathing rates, oxygen consumption, hyperarousal, and stress hormones i.e., guided imagery, yoga, tai-chi, deep breathing, meditation, progressive muscle relaxation, guided imagery, and repetitive prayer or mantra. You can practice during the day or during your bedtime routine.

Physical Activity Improves Stress and Sleep Quality

- Our body fights stress better when it is strong. A fast walk after feeling stressed deepens breathing and helps relieve muscle tension. Yoga, tai chi, and qi gong combine movement, breath, and mental focus, which induces a state of calm.

Set Goals, Organize, and Simplify

- Make a to-do list; stress is less damaging if we can anticipate it.
- Set short and long-term goals in your career, relationships, play, or health.
- Donate unused items or throw them away; create a clean, uncluttered space in your home and office.

Reach Out

- People with close relationships to family and friends receive emotional support that helps sustain them during difficult times. A social worker, psychologist or psychiatrist can help you reduce stress, build resilience, and promote emotional well-being. Cognitive behavioral therapy can help you identify negative thinking and replace it with healthy thoughts. Reframing thoughts, facing fears, practicing self-compassion, as well as meditating all help build resilience.

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Stage W (Wakefulness)

- Shifting from being wide awake to being drowsy
- Eyes open: alpha waves (8-13Hz) and beta (>13 Hz)
- Eyes closed: primarily alpha waves

Non-REM Sleep (NREM)

This occurs 75% of night and is composed of stages 1-3 (stage 1 and 2 make up about 60% of our overall nighttime sleep and are termed "light sleep").

Stage 1 (Onset of Sleep)

- **Very light sleep;** between wakefulness and falling asleep
- Short duration unless sleep is disturbed
- May occur after being awake at night
- Transition to stage 1: alpha waves are replaced by low-amplitude mixed-frequency waves (4-7Hz)

Stage 2

- **Light sleep**: disengage from surroundings
- Breathing and heart rate are regular
- Body temperature drops (sleeping in a cool room is helpful)
- Brainwaves called sleep spindles (11-16Hz) and K-complexes are common in this stage
- Slow wave activity increases as stage 2 progresses

Stages 3

- **Deepest, most restorative, energizing sleep**
- Slow wave activity (0.5-2 Hz) makes up 15-18% of total nighttime sleep
- Blood pressure drops, breathing slows
- Muscles are relaxed, blood supply to muscles increases
- Tissue/ muscle growth and repair occur
- Growth hormone: released which is required for growth and development
- There may be either a sudden shift into REM sleep or slow wave activity decreases enough to move into stage 2 before REM sleep occurs

Rapid Eye Movement Sleep (REM)

This occurs 20-22% of night and begins about 90 minutes after falling asleep; recurs about every 90 minutes, lasting for longer periods in second half of the night

- **Brain is active; dreams occur**
- Rapid eye movements occur (eyes dart back and forth)
- Beneficial for daytime functioning and performance; energy is provided to body and brain
- Important for memory consolidation and creativity
- Body becomes immobile and relaxed; muscles are turned off, so you do not act out your dreams!
- Sleep spindles or K complexes are absent in this stage

REM Suppressing Medications:

- Alcohol, Cannabis, Cocaine, Heroin and Opioids
- Benzodiazepines e.g.: Temazepam, Clonazepam, Diazepam
- Tricyclic antidepressants e.g.: Nortriptyline, Doxepin, Amitriptyline
- MAOI e.g.: Phenelzine
- SSRIs e.g.: Fluoxetine, Sertraline, Paroxetine, Citalopram, Fluvoxamine
- Barbiturates e.g.: Phenobarbital
- SNRI e.g.: Venlafaxine, Cymbalta, Pristiq
- Buspirone

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SLEEP ARCHITECTURE AND SLEEP STAGES

We spend about 1/3 of our lives asleep and sleep has a big impact on our energy, hormones, immune system, and quality of life. Both the quality and quantity of our sleep is important:

- **Sleep quantity**: if sleep is cut short the body does not have time to complete all the phases needed for muscle repair, memory consolidation and the release of hormones regulating growth. As a result, we wake less prepared to concentrate, make decisions, or fully engage in life.
- **Sleep quality:** each stage of sleep plays a specific role in our health and recovery.
  - **First ½ of the night**: stage 3 (slow wave sleep) and stage 1 and 2 (light sleep) are dominant.
  - **2nd half of the night**: REM sleep and light sleep (stage 1 and 2) are dominant.

Sleep Affects Hormones

- **Ghrelin and leptin**: these hormones play a role in hunger and feeling full. When we have poor sleep and are sleep deprived, we may crave high fat/ carbohydrate rich food which leads to weight gain.
- **Cortisol:** this hormone dips at bedtime and increases over the night to promote alertness in morning.

Sleep Architecture

Sleep architecture refers to the **structural organization of normal sleep** that a person goes through each night. It follows an undulating pattern of **alternating NREM (non-rapid eye movement) and REM (rapid eye movement) in a cycle that repeats itself about every 90-120 minutes, called an ultradian rhythm**. At the end of each sleep cycle, we are all susceptible to waking, even children. However, we do not usually remember these **micro awakenings** as they last for a few seconds to minutes. The further the night progresses the more susceptible we are to waking due to having lighter sleep and REM sleep, as well as reduced sleep drive.

- **It is perfectly normal to wake during the night**: this is important to understand in terms of reducing your sleep related anxiety and helping you fall back to sleep. Awakenings only becomes a problem when they are too frequent and too long, which can disrupt your sleep and negatively affect your energy and mood the next day.