

## Introduction:

Physician health and well-being are a priority issue for the Canadian Medical Association, and they have developed a policy that outlines strategies and recommendations for addressing various physician health issues (Canadian Medical Association, 2017). Since then, medical schools and associations of physicians have worked to develop and implement strategies to improve the health of physicians and medical learners. This project is in fulfillment of the Studentship in Physician Health and Wellbeing award to Colin Duffett (class of 2027), with assistance from Dr. Michael Wahl. The goal of this project is to create awareness of individual health and well-being for physicians and medical learners in Newfoundland and Labrador, provide some basic education on six influencing factors (Mindset, Exercise, Nutrition, Recovery, Connection, and Planetary Health) of health and well-being, and give some tips, tools and resources that they can use to improve their health and well-being. This project is in no way a complete guide, but rather a starting point or tool to assist in promoting health and well-being.

*While much of the project information is derived from scientific literature, individual differences may vary, and some of the application suggestions and resources are from the authors' personal and professional experience in the health and fitness industry. Please consult your healthcare professional before making any significant lifestyle changes. Any questions, comments, concerns, or suggestions can be directed to Colin Duffett at cad766@mun.ca, or the MUN Office of Learner Well-Being & Success. We hope to continually improve this tool-kit to benefit physicians and medical learners in Newfoundland & Labrador.*

The World Health Organization (WHO) defines Health as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity (WHO, 2021, p.3), Well-being as a positive state encompassing quality of life, the ability to contribute to the world with a sense of meaning and purpose, and is a measure of overall 'thriving' (WHO, 2021, p.10), and Health Promotion as the process of enabling people to increase control over, and to improve their health (WHO 2021, p.4).

Many health and well-being influences, risk factors, and outcomes can be divided into aspects we cannot control (such as age, genetics, or luck) or can control (our actions). Since choices and actions are within our control, we should focus on them to manage or improve our

health and well-being. In addition, since humans are creatures of habit, and small decisions are more accessible than big decisions, when directing our health and well-being in a positive direction, it makes sense to focus on small daily changes that get easier and progress over time. Furthermore, since health and well-being are dynamic, and we do not live in a vacuum, ‘perfection’ does not exist, nor is it the goal. The goal is to be equipped with the knowledge and tools to improve our health and well-being for a longer, healthier, happier, and more productive life with purpose and fulfillment.

Staying present and reflecting on our health and well-being can be challenging, and identifying effective strategies for positive change can be daunting. To help simplify effective strategies for health and well-being, we can focus on six factors we can influence: mindset, exercise, nutrition, recovery, connection, and planetary health. While we do need to be cognizant of the uncontrollable aspects of health and well-being (genetics, geography, age, luck, etc.), our time, energy, and resources are better spent on focusing on the controllable. While health and well-being are holistic, consistently reflecting on the six interdependent factors can help bring awareness, knowledge, accountability, and focused action to one’s current level of health and well-being and help simplify, guide, and empower positive action that compounds over time. It can also help screen and eliminate negative influences and help prevent feeling overwhelmed or developing learned helplessness by promoting self efficacy and an internal locus of control.

As physicians and medical learners, we know health and well-being are important, but our demanding careers often leave little time for self-care and we often neglect our health and well-being to prioritize our patients. The 2021 Canadian Medical Association National Physician Health Survey highlights many important findings. Physicians and medical learners are reporting low fulfillment, poor work-life integration, high levels of burnout, depression, stress, fatigue, and rarely getting enough sleep. While most report doing something for self-care (mainly physical activity, socializing, and hobbies), less than 10% feel they achieve a healthy lifestyle, with lack of time, workload/stress being the main reported barriers. Only 1% felt a healthy lifestyle was not important to them. Thankfully there is a culture shift towards prioritizing health and well-being, especially in the younger generation of professionals, and working with the institutions can work together to cultivate a positive health and well-being environment.

Interestingly, physicians and medical learners do not receive a comprehensive curriculum regarding health promotion. This project aims to promote basic health and well-being by focusing on six key influences of health and inspiring positive change in one's daily life. Furthermore, as physicians, medical learners, professionals, and leaders, it is important to promote health and well-being. Studies have shown that healthcare providers who maintain healthy behaviors are more likely to counsel their patients on similar behaviors, which can lead to improved patient outcomes (Frank & Segura, 2009). As well, physicians and medical learners who maintain a healthy lifestyle are more likely to influence their family, friends, patients, and community, positively impacting health and well-being on a much larger scale.

## Illness-Wellness Continuum

Health is multi-dimensional and dynamic, and it is not about being completely healthy or completely sick. Specific injuries/illnesses may exist to varying degrees, or health may be present in one aspect of life. Our state of health constantly changes across various domains. In the medical field, we often wait until illness or dysfunction arises before treatment, leaving many in a state of "not sick – yet." Therefore, it is essential for individuals to regularly assess their health across different factors to determine if their health status is moving towards illness or well-being. The Illness-Wellness Continuum concept attributed to Dr. John W. Travis in the 1970s helps highlight this idea. Focusing on health and well-being promoting factors helps individuals move to the right on the model, not only reducing or preventing risk or severity of injury, illness, or premature death, but promoting a more positive life experience that helps create a buffer from injury, illness, and/or premature death. The purpose of this project is to help individuals move the right, towards optimal health no matter where they may currently be.

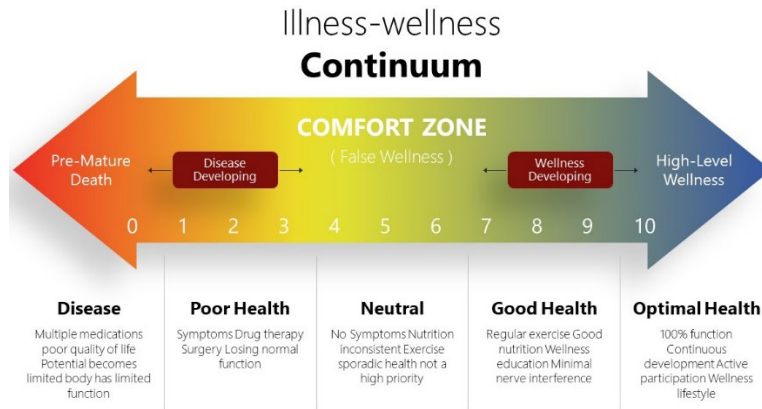


Figure 1: The Illness-wellness continuum. Image retrieved from <https://slidemodel.com/templates/the-wellness-continuum-powerpoint-template/>

## Wheel of Life:

Life is not just about being as healthy as possible. Life is about living and encompasses all the things that are involved with it. The Wheel of Life is a visual personal development tool that helps individuals evaluate distinct and common domains of life. While variable in how the tool is used, generally a scoring system is used to reflect balance and strengths/weaknesses in the domains. Some common domains include career, family and friends, finances, romance/intimacy, health, social, personal development, and physical environment. At the center of the wheel is your core values/purpose, representing what you want from your life and what is most important to you. It is the driver for everything else. Based on your core values/purpose and scores on the domains, you can evaluate where you are, where you want to improve, and plan to get there. This project plans to use a Wheel of Life type model to score the six factors similarly.

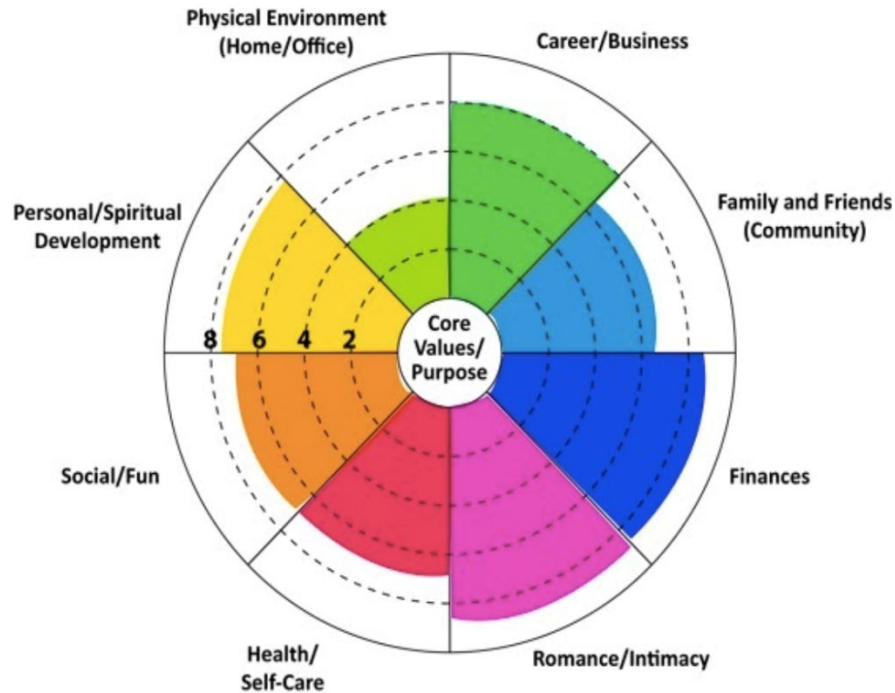


Figure 2: The Wheel of Life. Retrieved from <https://lifepurposeadvisor.com/what-is-the-wheel-of-life/>

## General Health:

The WHO describes the determinants of health as a range of interacting personal, social, economic, and environmental factors that determine the healthy life expectancy of individuals and populations (WHO, 2021, p.3). Keeping in mind the definition of health, general health can be expanded to well-being to include optimal health and vitality, and encompass eight components (physical, emotional, intellectual, interpersonal, cultural, spiritual, environmental, financial, and occupational well-being (Fahey, 2016). Physical well-being looks at the presence and absence of disease as well as its severity, and a healthy body can function normally or better and complete daily tasks with the absence, of minimal, or controlled level of issues. Emotional well-being reflects your ability to understand and deal with your feelings. Intellectual well-being involves a robust, healthy stimulated mind that enjoys challenges and life. Interpersonal (social) well-being sees the value in strong, meaningful, positive, and supportive relationships. Cultural well-being refers to the way and our ability to accept, value, celebrate, and positively interact with different cultures, a growing influence on health and well-being in today's globalized world. Spiritual well-being involves a sense of purpose or meaning to life, possibly with a strong meaningful connection to nature or a higher power. Environmental well-being is the livability, safety, and

sustainability of your surroundings. Financial well-being refers to your ability to live within your means and manage your financial resources in a way to avail of life's needs and wants satisfyingly. Finally, occupational well-being looks at the level of happiness and fulfillment in your work. The purpose of this project is to highlight six key areas that physicians and medical learners can focus on that directly impact health and cause health-promoting spillover effects that can influence their overall health domains.

## Reflection Questions:

Before progressing further, it helps to subjectively examine where you currently are. Try this self-reflection quiz. Score where you rank yourself on a scale of 1-5 for each question. With 1 being very poor, 2 being poor, 3 being okay, 4 being good, and 5 being very good. Your score is the total out of 30, divided by 30 and multiplied by 100. This is just to bring awareness to your current overall level of health and well-being. You will then use this score and relate it to how you feel you optimize your health and well-being in the six factors in the diagram at the end.

| Question:                                                                                            | Score: |
|------------------------------------------------------------------------------------------------------|--------|
| 1. I am sufficiently educated on the concepts of health and well-being.                              |        |
| 2. My health and well-being are important to me.                                                     |        |
| 3. I am able to optimize my health and well-being while practicing medicine/being a medical learner. |        |
| 4. I am healthy.                                                                                     |        |
| 5. I have a high level of personal well-being.                                                       |        |
| 6. I am always looking for ways to improve my health and well-being.                                 |        |

## Mindset:

The brain is our control center and determines how we think, feel, and act. Mindset refers to our individual established set of attitudes (Dweck, 2006), and dynamically impacts our health and well-being (positively or negatively). We will examine mindset first, as it often assists or inhibits the other factors. We live our lives and consciously or unconsciously think, feel, or act in ways that enhance or hinder our health and well-being. We only need to refer to the power of the placebo or nocebo effect to scratch the physiological power of the mind on the body. Three important components of a mindset that promotes health and well-being are being growth-minded, positive, and resilient.

A Growth Mindset is the belief that a person's capacities and talents are dynamic and can be developed through learning, effort, and experience, thus malleable over time (Dweck, 2007). In contrast, a fixed mindset is that they are static. A growth mindset is associated with greater health and well-being and allows a greater capacity to have positive immediate, downstream, and spillover effects (Van Tongeren & Burnette, 2016).

We often believe that how we think is fixed, something we are born with. However, we influence it. While we may be born with dispositions and develop tendencies through our education and experiences, it is never fixed. Mindset is a skill that requires deliberate practice if we want to build a strong, healthy, happy mind. A growth mindset shifts the focus to learning, effort, and mastery (Van Tongeren & Burnette, 2016). This is opposed to a pass/failure, win/lose, are/aren't, good/bad dichotomy often associated with a fixed mindset. With a growth mindset, we see challenges, obstacles, and losses as opportunities to learn, work hard, and improve instead of a loss cause. Reframing seeing stress as enhancing, can help buffer against the potential negative physiological responses of stress (Crum & Achor, 2013), and lead to more and improved active coping (Burnette et al., 2020). Furthermore, individuals who believe stress positively tend to be happier, healthier, and perform better during stress than those who believe it has negative effects (Crum & Phillips, 2015). It is important to keep in mind that we can hold different mindsets across a range of attributes and abilities (Burnette et al., 2020). A growth mindset highlights the idea that we are capable, and learning is powerful.

Positive thinking is the conscious act of finding the positive side of an act or encounter (Harvard Health Publishing, 2023). Being able to see the positive aspects of life can help create a happier, healthier, and longer life (Park et al., 2016) regardless of genetic disposition or current health status (Parsamanesh and Vysochyn, 2024). Based on their subjective perception, someone without injury/illness/poor life circumstances may not be living well, whereas someone may be suffering severely from injury/illness/poor life circumstances may be living quite well. A positive mindset provides the opportunity to see the good in all moments. Life is unpredictable, unjust, and filled with positive and negative experiences. A positive mindset does not suggest ignoring the negative moments but being able to find or acknowledge the positive components.

Positive psychology is the scientific study of a healthy and flourishing life focusing on thinking, feeling, and acting in positive ways. It is concerned with four related topics: positive

psychological states, traits, relationships, and institutions (Park et al., 2016). It aligns with the WHO and aims to foster thriving individuals, communities, and societies. It focuses on building on the best things as well as repairing the worst. It brings attention to building psychological health assets (positive emotions, life satisfaction, optimism, life purpose, social support, etc.). As we become aware and build our positive mindset, we open the door to spiraling upwards and compounding. The broaden and build theory suggests that positive emotions cause us to become more open-minded and seek to repeat more positive emotions while building resiliency to negative emotions (Fredrickson, 2001). As we build a more positive mindset, we set ourselves up to think more positively, feel more positive feelings, and act more positively more frequently, all of which can benefit our health and well-being.

A resilient mindset is the third piece of mindset to discuss. The WHO defines resiliency as processes and skills that result in good individual and community health outcomes in the face of negative events, serious threats, and hazards (WHO, 2021, p.29). Having resilience allows you to thrive in the face of poor circumstances and ‘build back better’. Life is full of obstacles, challenges, barriers, and ‘bad luck’, what matters is how we respond. Having resiliency allows us to utilize our growth and positive mindsets to acknowledge, learn, adapt, overcome, and progress in the direction we want to go despite what happens around us.

A growth, positive, and resilient mindset combination provides a strong framework to support health and well-being. Mindset is a skill that requires focused training to promote favorable adaptation. We can have enormous benefits for health and well-being over time by compounding and repeating purposeful, small, daily actions.

## Tips:

- **Learn Daily:** Learn a minimum of 15 minutes per day in self-improvement relating to one of the six factors. This allows for small, consistent, compounding progress. The duration can be variable, but consistency is more important, and applying what you learn is the key. This can look different for everyone, such as reading, audiobooks, podcasts, etc. Try different strategies to see what works for you. Try listening to an audiobook while commuting to/from work/school, scheduling time first thing in the morning, before bed, or perhaps while walking/cycling.



- **Acknowledge the Positives:** Try to highlight the positives in situations. Bringing attention to a positive can create the Frequency Illusion (the tendency to notice something more often once it has been brought to our attention), creating a spiraling effect. Note how often you do this.
- **Practice Reframing:** Reframing is the cognitive technique to change the perception and interpretation of events, situations, or experiences to a more positive view. It can change the perception of a negative aspect to a positive, opportunity, or lesson. Not all negative experiences are truly negative, or at least completely. Think about what happened to cause it, what could be done differently, or what you learned or could learn from it.
- **Create and Strengthen Positive Habit Loops (and weaken negative ones):**

Humans are creatures of habit, and we create strong patterns of behavior that are easy to repeat and are often difficult to break. The Habit Loop consists of the cycle of cue (trigger or stimulus that initiated the habit in the brain automatically), routine (behavior or action), and reward (reinforcer of the habit providing satisfaction or relief making it more likely you will perform the habit again in the future). *Note: Habit loops are extremely effective for all the six factors!*

  - **Positive Habit Loop:** Intentionally start a new positive behavior you want to turn into a habit such as listening to a self-improvement audiobook on your drive to school/work. While you normally listen to music, listening to an audiobook might be challenging. Over time to finish the book in a month you power through. Partway through the book and beyond, you look forward to your morning audiobook. After you finish the book, you immediately reward yourself by purchasing another audiobook you want to listen to.
  - **Negative Habit Loop:** Intentionally breaking or reducing a bad habit such as late-night snacking on chips (if you do it frequently or in excess). Quitting or breaking the habit of cold turkey can be extremely challenging. Luckily, there are ways to flip the script to help you out. You know as soon as you home and settled you will want the chips, so as soon as you are done your craving comes, go brush your teeth with minty toothpaste. You will unlikely want to

eat after brushing because you have to brush again, or if you do eat, they will taste bad and you will not want them. Over time this will turn down the habit of chips. Perhaps you could reason with yourself to eat an apple instead.

- **Set SMART Goals:** Set small, short-term goals that bring you closer to your larger long-term goals. Goals should be Specific, Measurable, Achievable, Relevant, and Time-bound. Next, make and complete actions that will bring you towards your goal. *Note: SMART goals work well for all of the other factors as well.* Example: To improve my mindset, I want to read a book per month. To do so I will listen to an audiobook every day going to school. I will also listen on the way home, or during school breaks if I feel up for it.
- **Positive Affirmations:** Using positive affirmations like repeating “I am capable” or “challenges make me stronger” helps reinforce positive, growth, and resilient mindsets. Take it a step further and write a positive affirmation on a sticky note each morning and stick it to your bathroom mirror.
- **Seek Constructive Feedback:** When feedback is given without asking or wanting, we often react negatively. When we seek out feedback, we are more likely to see it positively. Seek it out!
- **Daily Gratitude Practice:** Gratitude is the positive emotional response in response to recognizing and appreciating the good things in one’s life. This can be incorporated in many ways. One way is by gratitude journaling. For example, each morning write one thing you are happy about in your life, or something good that happened to you, or you experienced the day before. A gratitude practice can shift focus from negative experiences to positive aspects, fostering a sense of fulfillment and purpose. Practicing gratitude can shift focus from the stressors of the profession to its rewarding aspects, fostering a sense of fulfillment and purpose.
- **Practice Daily Mindfulness:** Mindfulness is the practice of bringing awareness to the present moment and one’s thoughts, feelings, and environment in a non-judgemental and accepting manner allowing them to experience life more greatly with increased clarity. Mindfulness involves staying present and fully engaging in each moment,

which can reduce stress and burnout. There are many ways to practice mindfulness daily, but one example is Mindful meditation by sitting quietly and focusing on slow, deep, controlled breaths for five minutes per day.

- **Focus on effort, not outcome:** Life is not pass/fail, and even many of the things we feel are, are not, or need not be. When we focus on effort, doing our best, and being accepting of the outcome whatever it is, we can live free of fear of failure and focus on progress and being happy with outcomes. Work hard but fail a test? No problem now is a chance to relearn and retake it and know the material better, you are not starting from zero. Good news? What you got wrong could make the difference in a life or death at some point, now with increased attention to the topic you will be less likely to make the mistake.

## Reflection Questions:

Score where you rank yourself on a scale of 1-5 for each question. With 1 being very poor, 2 being poor, 3 being okay, 4 being good, and 5 being very good. Your score per category will be out of 50. Multiple it by 2 to get a score out of 100. We will then use each score to fill in the snowflake analysis at the end of the project for each category.

| Question:                                                                                                                                   | Score: |
|---------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 1. I feel sufficiently educated on the concept of mindset and how it relates to health and well-being                                       |        |
| 2. I maintain a growth mindset always looking for ways to improve                                                                           |        |
| 3. I feel like I am in control of my health and well-being                                                                                  |        |
| 4. I maintain a positive mindset (as opposed to annoyed/irritable/down)                                                                     |        |
| 5. I maintain a resilient mindset and adapt well to challenges and changes                                                                  |        |
| 6. I practice mindfulness or meditation regularly                                                                                           |        |
| 7. I have a positive sense of purpose, satisfaction, and fulfillment in my work/school/life                                                 |        |
| 8. My health and well-being are important to me                                                                                             |        |
| 9. I feel I am able to influence and optimize my health and well-being                                                                      |        |
| 10. I am able to effectively manage my emotions and actions positively are rarely experience burnout, anxiety, or depression-like episodes. |        |
| <b>Total:</b>                                                                                                                               |        |

## Resources:

- See references in the reference list.
- Atomic Habits (James Clear)

- Can't Hurt Me (David Goggins)
- Chasing Excellence (Ben Bergeron)
- Grit (Angela Duckworth)
- Mindset (Carol Dweck)
- The Daily Stoic (Ryan Holiday)
- Unlocking Potential (Ben Bergeron)
- The Seven Habits of Highly Effective People (Stephen Covey)
- The Obstacle is the Way (Ryan Holiday)
- Ikigai (Hector Garcia & Francesc Miralles)
- Man's Search for Meaning (Viktor Frankl)

## Exercise:

The WHO defines physical activity as any bodily movement produced by skeletal muscles that requires energy expenditure (WHO, 2024). This occurs as part of activities of daily living, work, and leisure. Regular and proper physical activity provides significant short and long-term physical and mental health and well-being benefits as well as primary and secondary prevention/management of several chronic diseases and premature death (Warburton et al., 2006). They strongly recommend “adults do at least (more is better) 150– 300 minutes of moderate-intensity aerobic physical activity; or at least 75–150 minutes of vigorous-intensity physical activity; or an equivalent combination of moderate- and vigorous-intensity activity throughout the week, for substantial health benefits”. In addition, they recommend adults should also do muscle-strengthening activities at a moderate or greater intensity that involve all major muscle groups on two or more days a week, as these provide additional health benefits. Acute bouts and regular physical activity improve sleep (to be discussed in the Recovery section) and health-related quality of life outcomes in adults (Physical Activity Guidelines Advisory Committee, 2018).

When physical activity is completed in a planned, structured, repetitive, and purposeful to improve or maintain a component of fitness, physical performance, or health, it is called exercise (WHO, 2021). Physical fitness is then defined as a measure of the body's ability to function efficiently and effectively in work and leisure activities. Health-related physical fitness involves the components of physical fitness related to health status, including cardiovascular fitness,

musculoskeletal fitness, body composition, and metabolism (Warburton et al., 2006). While physical fitness and health-related fitness are both positively associated with regular and appropriate exercise and are important, physical fitness is more about performance, and health is more about absences, preventing, treating, or managing injuries/illnesses. It is important to keep in mind that physical activity is cumulative and focusing on physical activity from activities of daily living, work, leisure, and exercise all have an important role to play in health and well-being benefits. Physical inactivity is defined as insufficient physical activity to meet current minimum recommendations and is a growing individual and societal concern and a major cause and exacerbation of noncommunicable disease, lower well-being, and other poor health outcomes (WHO, 2024). While all physical activity comes with some risks, and some adverse effects and harms occur, although serious events are extremely rare, these possibilities often cause people, especially those who are sedentary or with chronic disease or illness to avoid it. However, evidence demonstrates that the risks are low, and the risks of being physically inactive generally greatly outweigh the risks of adverse effects of inactivity, especially when exercise is the moderate intensity with the appropriate progressions of frequency, intensity, time, and type (Physical Activity Guidelines Advisory Committee, 2018). Overall evidence demonstrates a curvilinear inverse dose-response association with exercise for all-cause mortality and health benefits, and a curvilinear dose-response with injury (Physical Activity Guidelines Advisory Committee, 2018). Doing some physical activity is better than none, even some will benefit health. Adults should start by doing small amounts and gradually increase the frequency, intensity, and volume. When examining what an appropriate exercise program looks like, it is useful to use the FITT principle (Frequency, Intensity, Time, and Type) to visualize independent but interacting factors that impact physical activity levels and impacts.

**Frequency** refers to how often we engage in physical activity. This can be for daily living, work, leisure, or exercise. For habit formation and health-related fitness, more tends to be better. Any opportunity to move, even a little, is beneficial for health. To optimize health and fitness, exercising plays an increasing role. It is suggested that exercising most days is important, with at least twice a week to maintain functional status, promote lifelong physical activity, and enhance overall quality of life (Blair et al., 2004).

**Intensity** refers to how much exertion/effort the physical activity requires—intensity matters. The exercise SAID principle (Specific Adaptations to Imposed Demands) suggests that our bodies adapt to the demands placed on them. We need to exercise at intensities that promote positive physiological adaptations to optimize health and fitness. Intensity can be measured and quantified in numerous ways. Some practical ways are using Heart Rate, Rating of Perceived Exertion, or percentage of relative maximum. Sedentary behavior is defined as any waking behavior while in a sitting, reclining, or lying posture with low energy expenditure, near resting heart rate, and minimal exertion. Low can refer to 1-4 on a 0-10 scale where 0 is sedentary and 10 is maximal exertion. Moderate intensity can refer to a 5 or 6, High or vigorous intensity to a 7 to 8, and maximal with 9-10. While low intensity, especially for sedentary individuals can provide many health and fitness benefits and is a great place to start, moderate and at least some vigorous intensity are associated with great improvements in health, fitness, and cognition such as processing speed, memory, executive function (Physical Activity Guidelines Advisory Committee, 2018).

**Time (Volume, Duration)** refers to the total amount of time engaging in physical activity. As mentioned above there is a curvilinear relationship with physical activity, health, and injury. A good way to summarize health benefits increase the most early with activity, but benefits continue to increase at a decreasing rate. While some are better than none, and more tends to be better, the sweet spot seems to be between 150-300 minutes per week. However, this refers to activity done at least a moderate intensity. If breaking into realistic exercise sessions is about 20-43 minutes per day every day (depending on time, people often break this up in different ways, such as 50-100 minutes 3 times per week, etc). Low-intensity activity such as seeking out any opportunity to move is an important bonus. Some people suggest aiming for 10,000 steps per day (about 8km, or 100 cumulative minutes). A good way to think about it is to move as much as you can at low intensities and aim for 150-300 minutes per week of at least moderate intensity.

**Type (modality)** refers to the category of the exercise. Physical activity Type can be examined through multiple lenses. It can be to categorize activity into activities of daily living, work, leisure, or exercise as above, or the dominant system utilized (aerobic vs muscular strength, etc), the specific activity (running, cycling, sport, weights, bands) as well as many others. Regardless of how it is classified, it is a variable to be considered that is highly unique to

the individual. Firstly, regular physical activity is important for everyone for health and well-being benefits, however, it may look drastically different from person to person. It is important to meet recommendation guidelines, ideally in ways you enjoy, that work with your body. For example, someone with a knee injury may need to avoid or reduce impact activities like running, but cycling may be an appropriate switch. Also, a variety of activities tends to be better than focusing on one type to help reduce boredom and the potential for overuse injuries. Undertaking aerobic physical activity alone, or combined with strength-promoting exercise shows beneficial associations, although performing recommended levels of both types is optimal (Stamatakis et al., 2018).

**Pre-exercise medical clearance** is generally unnecessary for starting small amounts of physical activity of moderate intensity and increasing frequency, intensity, and time gradually (WHO, 2024). However, those who develop new symptoms when increasing their levels of activity should consult a healthcare provider, as well as appropriate physical activity can be impacted by many acute and chronic health conditions and individual differences.

## Tips:

- **Make physical activity easier:** What is making your exercise routine harder than it needs to be? Proximity? Find a closer gym or start a home gym. Knowledge? Hire a trainer, learn, and reach out to a knowledgeable friend. Work commitments? Find a way (put a stand-up desk in front of your treadmill/stationary bike).
- **Increase physical activity frequency:**
  - **Schedule your exercise first, making it a priority.** Create a **fitness contract**. Plan to exercise daily. Missing 1 day becomes a rest day and exercise becomes a priority the next day. By the third day, it is a non-negotiable, find a way to get it done.
  - **Seek out opportunities for physical activity:** These are the easy, small, everyday changes that can add to big results. Examples include taking stairs, purposefully parking further away from places, doing your physical labor (lawn care, house cleaning), scheduling movement time every hour (walking breaks), utilize a standup desk or under-desk treadmill/bicycle.

- **Combine It (also good for the other factors):** Being creative can help you combine physical activity with almost anything, including the other five factors. Walk outdoors in a park while you listen to your audiobook (planetary health and mindset), find yourself a workout buddy or join a workout group/class (connection), tend your vegetable garden (nutrition), or even justify exercise solely for de-stress (recovery). We only have 24 hours in a day, and our days and physicians and medical learners are already overfull, find a way to get it in. Combine it with studying/administrative work by walking/cycling at a standup desk.
- **Increase Physical Activity Intensity:**
  - Monitor intensity using a heart rate tracker on a smart device, utilize a Rating of Perceived Exertion (RPE), or track loads to create intensity goals and measurements. Understand and reinforce the idea that spending some time in higher-intensity physical activity is beneficial to the mind and body.
- **Increase Physical Activity Time (Volume):**
  - **Block it off:** As physicians and medical learners, there will always be something to do or learn. Blocking off adequate time and making it nonnegotiable might be necessary to achieve recommended levels. If you have an issue justifying, try and remember that you are a better professional when you reap the benefits of exercise, therefore, you will likely gain more in improvement and fewer mistakes by exercising and taking care of yourself, then squeezing in the extra time. If you are able, utilize airplane mode or do not disturb settings.
- **Increase Physical Activity Type (Modality):**
  - **Find what you Enjoy:** The best way to build a long-term physical activity regime is by finding a way to enjoy it. Keep trying different activities until you find one you enjoy and works for your life and your body.



- **Seek Variety:** Not all activity needs to be the same. Be open to new experiences and modalities. Instead of only using a treadmill, go outdoors, do a hike, and throw in a swim every week. Instead of just using barbells, use bands, free weights, and different exercises. Personalize your sports to get a variety of benefits.

## Reflection Questions:

Score where you rank yourself on a scale of 1-5 for each question. With 1 being very poor, 2 being poor, 3 being okay, 4 being good, and 5 being very good. Your score per category will be out of 50. Multiple it by 2 to get a score out of 100. We will then use each score to fill in the snowflake analysis at the end of the project for each category.

| <b>Question:</b>                                                                                                                                                                                                                                     | <b>Score:</b> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 7. I am educated on physical activity and how it relates to health and well-being.                                                                                                                                                                   |               |
| 8. I engage in at least 150 minutes of moderate to high-intensity physical activity per week.                                                                                                                                                        |               |
| 9. I exercise with strength training at least twice per week and aerobic training at least three times per week.                                                                                                                                     |               |
| 10. I do not have any illness or injuries that restrict my involvement in activities of negatively influence my quality of life.                                                                                                                     |               |
| 11. I am trending towards my health, fitness, and well-being goals.                                                                                                                                                                                  |               |
| 12. I feel strong, fit, and capable of performing all activities of daily living at a high level.                                                                                                                                                    |               |
| 13. I have access to quality healthcare and utilize it when necessary.                                                                                                                                                                               |               |
| 14. I seek out, create, and act on opportunities to move more often in my activities of daily living (not including exercise, hobbies, or employment-specific tasks) achieving at least 10,000 steps per day (about 8km or 100 minutes of movement). |               |
| 15. I avoid overtraining and undertraining.                                                                                                                                                                                                          |               |
| 16. I vary my physical activity.                                                                                                                                                                                                                     |               |
| <b>Total:</b>                                                                                                                                                                                                                                        |               |

## Resources:

- See references in the references list
- Strength Training Anatomy (Frederic Delavier)
- Starting Strength (Mark Rippetoe)
- 4-Hour Body (Timothy Ferris)
- Born to Run (Christopher McDougall)
- Essentials of Strength and Conditioning (National Strength & Conditioning Association)

- Canfitpro Personal Training Essentials

## Nutrition:

Nutrition may be defined as the science of food and its relationship to health (Kumar et al., 2017). Nutrition is the biochemical and physiological process by which an organism uses food and drink to support its life and is a critical part of life, health, growth, and well-being. Diet refers to the kinds of food or drinks that a person or community habitually consumes. The definition of what constitutes a healthy diet has general concepts, but exact make-up be extremely variable based on individual characteristics, culture, and access but still provide health and well-being benefits such as lowering the risk of malnutrition, non-communicable diseases, and longevity (WHO, 2024). This both simplifies and complicates nutrition practices and guidelines. In essence, a healthy diet ensures essential nutrients are consumed appropriately to support energetic and physiologic needs without excess (Stark, 2013). In contrast to a healthy diet, an unhealthy diet promotes malnutrition which refers to deficiencies, excesses, or imbalances in a person's intake of energy and nutrients, and includes three broad groups of conditions (undernutrition, micronutrient-related, and overweight/obesity/diet-related noncommunicable diseases), and presents significant threats to human health (WHO, 2024). Physicians do not eat or drink adequately during working hours which has negative impacts on their health, performance, well-being, as well as patient care and safety (Hamidi, et al., 2016; Wallace et al., 2009). While the reasons may be known (limited access during shifts, lack of time, and a medical culture that traditionally deemphasizes self-care, etc.) it remains a consistent issue. However, nutrition for health and well-being does not need to be complicated. It can be simplified down to seven words "Eat food, not too much, mostly plants" by Michael Pollan in his book *In Defence of Food: An Eater's Manifesto*, and improved by giving focus and action in small ways. It also automatically aligns with the WHO recommendations of achieving energy balance and a healthy weight, limiting energy intake from total fats (shifting as well to unsaturated fats and eliminating trans fats), increasing consumption of fruits and vegetables, legumes, whole grains, and nuts limit the intake of free sugars, limit salt (sodium) consumption from all sources, and ensure that salt is iodized (WHO, 2020). Additionally reassuring are the similarities between "Eat Food, Not Too Much, Mostly Plants" and the WHO healthy diet guidelines with Canada food guide such as eating plenty of vegetables and fruits,

whole grains and protein foods that come from plants more often, limiting processed foods, and make water your drink of choice (Health Canada, 2019).

The act of improving nutrition for health is based upon trends, or improvement rather than the perfection of a greater consumption of health-promoting foods and limited or reduced intake of unhealthier options. If we pay attention and put in the effort, we will find better alternatives and options for our diet. While health and diet have genetic and environmental factors, taking an active role as an individual in improving nutrition is a modifiable risk factor that plays a large role (WHO, 2020). For this project, the goal is to briefly outline some general healthy eating principles and suggest some ways to incorporate them easily into daily life that align with Canada's Food Guide and the WHO recommendations. It is also important to acknowledge that foods are not one nutrient, but a mixture of them, so while a brief overview of some nutrients and their sources are warranted, foods are a mixture of different compositions of nutrients and substances.

**Eat Food (Quality):** This means choosing whole, unprocessed foods over highly processed or food-like products. This includes things like fruits, vegetables, whole grains, unprocessed meats and fish, nuts, seeds, etc. rather than packaged industrialized items. The main idea here is to eat foods that tend to closely resemble their most natural form, that have less processing, more often, for improved health and well-being by helping to ensure you obtain the right amounts of essential nutrients. The further we move towards processed foods, we tend to consume relatively less of some (like fiber), and excess of other nutrients (like sugars, fats, and salts), as well as consume other food-like substances that may be harmful to us.

**Not Too Much (Quantity):** This means being mindful, portion control, moderation, and balanced with our eating habits. It reminds us to keep energy intake (calories) should be in balance with energy expenditure.

**Mostly Plants:** This highlights many of the health benefits of a plant-based diet, recommending that the majority of what we consume should come from plant sources such as vegetables, fruits, legumes, and whole grains which are rich in nutrients such as vitamins, minerals, fiber, protein, antioxidants, etc., and lower in calories than many animal products.

**Nutrient Basics:**

- **Macronutrients (required in relatively large amounts):**
  - **Carbohydrates:** Function primarily as a source of energy for the body that can be broken down into two main types, simple carbohydrates (sugars) and complex carbohydrates (starches and fiber), and are found primarily in fruits, vegetables, grains, legumes, and dairy products.
  - **Proteins:** Function primarily as building blocks for growth, repair, and maintenance of tissues, muscles, enzymes, and hormones and are made up of amino acids, some of which are essential and must be obtained from the diet. The main sources are meat, fish, poultry, dairy products, legumes, nuts, and seeds.
  - **Fats (or lipids):** Functions as a concentrated source of energy, vital for cell membrane structure, hormone production, overall health, heart and cognitive function, and absorption of fat-soluble vitamins (A, D, E, K). Has several types, such as saturated fats, unsaturated fats (monounsaturated and polyunsaturated), and trans fats. Comes from a variety of sources such as oils, butter, avocados, nuts, seeds, fatty fish, and meat.
  - **Water:** The main constituent of the body and has numerous functions such as a building material, solvent, reaction medium, and reactant, carrier for nutrients and waste products, thermoregulation, lubricant, shock absorber, and others (Jequier & Constant, 2010).
- **Micronutrients (required in relatively small amounts):**
  - Vitamins (organic) and minerals (inorganic) substances **are** required in comparatively small amounts for normal growth, development, metabolism, and physiologic functioning (Cena & Calder, 2020).
- **Dietary Supplements:**
  - In some cases, dietary supplements may be required to meet nutritional needs, particularly during specific life phases or under certain health conditions (Ames, 2004). A healthy well-balanced diet consumed by a healthy normal functioning body is likely to contain all of the nutrients in sufficient levels. It is important to consult with a healthcare provider before starting any supplement regimen to ensure it is appropriate and beneficial for individual health needs.

## Tips:

### - **Eat Food:**

- Opt for lean meats and wild game
- Steam, bake, or boil instead of frying
- Eat less processed foods: Employ a ‘step down’ approach to minimize the processing of food. Can also help reduce preservatives, added sugars, salt, and fats, etc.
- Drink 3000mL/2200mL/day (M/W). An easy way to do this is to track your intake with a jug and use it for the whole day to accumulate the amount. Dehydration, defined by  $>2\%$  weight loss can negatively impact physical and cognitive performance (Hamidi et al., 2016).
  - Note: Exercise and other daily factors may greatly impact hydration recommendations. When exercising, be sure to consume 250mL per 15 min of exercise. You can also weigh yourself before and after exercise and aim to replenish the lost weight with additional water intake (1L of water equals 1kg).
  - A way to estimate hydration level is to examine the color of your urine. For most people, it should be clear with a faint yellow tint. Darker yellow suggests dehydration.
- **Shop the peripheral aisles** at the grocery store (tend to be healthier)
- **Look for foods with less than 5 ingredients** (usually less processed)
- **Eat foods that rot quickly:** Indicates whole food with less preservatives.
- **Drink Water** (coffee or tea with little to no sugar): Make water your drink of choice.

### - **Not Too Much:**

- **Alcohol:** Less than 15/10 drinks per week, with no more than 3/2 per day most days (M/W), and plan nondrinking days every week to avoid developing a habit (Health Canada, 2022).
- **Track your nutrients:** It helps to gain a stronger understanding of what you are consuming, and how much. This can easily be done through some apps, and some simple weighing and measuring. While this can be tedious, it can be beneficial early in your nutrition journey to evaluate your current diet and highlight some nutrients you may over or under-consume. If this is not for you (it isn't for most people) then after a little while you can scale back and use a more generalized approach such as the 'hand portion method'
  - Based off of the average sedentary adult males require about 2400 calories of energy per day, and 1900 for sedentary females (amounts increase by up to an extra 1500 calories per day with a heavy daily workload (Kumar et al., 2017). Alternatively, the Mifflin-St. Jeor equation can be used to estimate basal metabolic rate (BMR):  $10 \times \text{weight in kilograms} + 6.25 \times \text{height in centimeters} - 5 \times \text{age in years} + 5$  (1800-1900 calories for a 180-pound man).
  - Protein provides 4 calories of energy per gram and should make up 10-20% of daily energy intake, with a minimum of 0.8 grams per kilogram of body weight (65 grams for an 83-kilogram person) (Fahey et al., 2017). Those who engage in regular physical activity may seek to increase protein consumption by up to 2.0 grams per kilogram of body weight.
  - Fat (and lipids) provide 9 calories per gram and should make up 15-30% of daily energy intake, 0.8 to 1.2 grams per kilogram of body weight, or at least 60 grams (for a 2000-calorie diet).
  - Carbohydrates provide four calories of energy per gram, should be the remainder 50-75% of daily energy intake, 3-5 grams per kilogram of body weight, or about 225-236 grams per day (for a 2000 calorie diet).

While the amounts of protein and fats can remain relatively stable, carbohydrates are the energy-providing macronutrient that is most variable based on goals, activities, and performance. Holding proteins and fat stable, carbohydrates are normally reduced to lose weight, maintained to maintain weight, and increased to gain weight. For athletes who participate in high-intensity activity, carbohydrates also become increasingly important.

- **Estimate portion sizes using the Hand method:** Use the size of your palm (excluding fingers) to measure a portion of protein, such as meat, fish, or poultry (typically about 3-4 ounces), clenched fist represents a portion of vegetables or carbohydrates such as rice, rice, grains, fruits, or vegetables. A cupped hand can be used to measure a portion of starches or nuts (about half a cup). The size of your thumb corresponds to a portion of fats, such as butter, oils, or nut butter (about 1 tbsp).
- **Put Food Away Right Away after cooking:** After you cook, take up your plate and put the rest away right away, you will be less likely to overeat, and can have your planned amount left over for another meal.

- **Mostly Plants:**

- Eating at least 400g (five servings) of fruits and/or vegetables per day (not including starches like potatoes).
- Include a vegetable in most meals
- Utilizing fresh fruit and raw vegetables as snacks: Chopped fruits and veggies make great snacks (carrots, broccoli, cauliflower, celery, berries, apples, oranges, bananas, etc)
  - Canned, frozen, and dried are also good options (just be aware of additives such as canned fruit in syrup and add for 'in water' instead)
  - Always having healthy snacks will allow you to eat versus impulse buying at the vending machine or fat food.

- **Eat your colors:** different colored leaves and plants contain different nutrients that your body needs.
- **Check nutrition labels:** Ingredients are listed in descending order by weight!
- **Meal Prep:** Preparing meals in advance, cooking extra, and keeping them in containers can save you time and keep you from impulse buying unhealthy meals at the moment.
  - **Smoothies** can be a great meal on the go tool to manage a busy schedule. They can be made quickly, stored, and accessed or consumed quickly or in multiple settings. Make a healthy smoothie and have it ready for a long or extended shift, an unexpected call in, or long study sessions.
- **Meal delivery service:** If you do not have the time to cook, then a meal delivery or prep service can help you obtain healthy packaged meals. Although they usually cost more than making yourself, the healthiness factor can be worth it! It also gives you a variety of dishes that you can then learn to make yourself.
- **Smoking Reduction/Cessation:** Smoking costs an average of seven years off one's life (Peterson, 2006).
- **Caffeine in moderation:** While caffeine can have physical, cognitive, and alertness benefits, beneficial to a physician or medical learner, (Franke et al., 2015) too much can have adverse effects such as agitation, and stomach upset. A regular 8 oz cup of coffee can have between 90-200mg of caffeine. The recommended dietary intake is less than 400mg (Ruxton, 2008). As caffeine is a stimulant, it takes about 15-30 minutes to enter the bloodstream, and another 60-90 to reach peak concentration, with a half-life of 2.5-4.5 hours with individual differences. Ingesting caffeine too close to sleep time may affect sleep and recovery (to be discussed later) (Ruxton, 2008). Because regular consumption can lead to tolerance, it is best to consume it when feeling tired, with or after lunch, or when waking up before 0500 (in the window of circadian low).
- **Avoid going to the grocery store hungry** (we tend to buy things we don't need).



- **Have a Plan:** One thing about medicine we can count on is things not going to plan, whether it is breaks, call-ins, etc. Have a plan for when it doesn't and what you will do to respond. For example, when caught on an extended shift, if you already know you are going to get a salad at the cafeteria, it is less tempting than the pizza.
- **Cut down on the sugar in your coffee, and opt for reduced and lactose-free milk in your coffee.**
- **Eat a balanced plate:** For meals, a good trend is to allow half of your plate for non-starchy vegetables, a quarter for carbohydrates such as fruits, whole grains, or starchy vegetables, and a quarter for protein.

## Reflection Questions:

Score where you rank yourself on a scale of 1-5 for each question. With 1 being very poor, 2 being poor, 3 being okay, 4 being good, and 5 being very good. Your score per category will be out of 50. Multiple it by 2 to get a score out of 100. We will then use each score to fill in the snowflake analysis at the end of the project for each category.

| Question:                                                                                                                                                | Score: |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 1. I am sufficiently educated on the concept of nutrition and how it relates to health and well-being                                                    |        |
| 2. I regularly eat a balanced and nutritious diet consuming 10-35% of calories from protein, 45-65% from carbohydrates, and 20-35% from fats and lipids. |        |
| 3. I am regularly optimally hydrated                                                                                                                     |        |
| 4. I avoid consuming unhealthy food and beverages                                                                                                        |        |
| 5. I eat at least 400g of fruits and vegetables per day                                                                                                  |        |
| 6. I do not smoke or use tobacco                                                                                                                         |        |
| 7. I choose unprocessed foods over highly processed foods                                                                                                |        |
| 8. I drink less than 1 (W)/ 2 (M) alcoholic drinks per day                                                                                               |        |
| 9. I maintain an optimal body composition for my health through portion control                                                                          |        |
| 10. I consume very little added sugar (less than 50g per day) (Snetselaar et al, 2021)                                                                   |        |
| <b>Total:</b>                                                                                                                                            |        |

## Resources:

- See references in the reference list
- Food Rules (Michael Pollan)
- In Defence of Food (Michael Pollan)
- The Omnivores Dilemma (Michael Pollan)

## Recovery:

Recovery is a return to a normal state of health, mind, or strength following stress. The main function of recovery is to recover from daily physical and mental stressors and is essential to live, maintain, and promote health and well-being. Stress is the natural autonomic system reaction your body has when changes or challenges occur and can result in many different physical, emotional, and behavioral responses that can be positive or negative (Cleveland Clinic, 2024). Stress often follows the General Adaptation Syndrome (GAS) three-stage response to stress described by Hans Selye that follows the alarm (stressor initiating the ‘fight or flight’ sympathetic response releasing stress hormones like adrenaline and cortisol), resistance (body attempting to adapt to the stressor), and potentially exhaustion stage (resource depletion leading to burnout, overtraining, or health issues if continues exposure to the stressor). Acute and mild short-term stress that comes and goes is much less damaging to health and well-being than chronic or extreme stress that continues with little to no relief and causes wear and tear on your body that can result in physical, psychological, or behavioral symptoms. Stress can greatly impact health and can lead to issues of the immune, digestive, cardiovascular, and reproductive systems, mental health conditions, as well as impact well-being. While everyone experiences stress in varying amounts, the way we respond to stress, which can be a trainable skill, makes a big difference to our overall health and well-being. While different types of stressors may impact the body differently, there is an overlapping summative effect, especially on the central nervous system. Therefore, recovery should be thought of as holistic balancing all forms of stress and all forms of recovery.

Physicians and medical learners are extremely susceptible to severe and chronic stress and poor inadequate mental recovery. This is multifactorial but common to the field are long hours, high expectations, high physical and mental demands, and severity of consequences. Inadequate mental recovery can manifest as burnout which is defined as a cumulative process marked by emotional exhaustion and withdrawal associated with increased workload and institutional stress, NOT trauma-related (Ford, 2019). It is also associated with emotional exhaustion, reduced sense of personal accomplishment or meaning in work, mental exhaustion, isolation, depersonalization, and physical exhaustion among others. It can also present in a multitude of physical, psychological, and behavioral symptoms. Recovery counteracts the effects of our daily

interactions with stressors and allows for the psychological systems to return to their baseline level (Brotheridge & Lee, 2002). The main recovery activities reported for mental stress include sleeping, physical activity, and leisure (Cranley et al., 2015).

Less attention for physicians and medical learners is physical stress, often described as neuromuscular fatigue, it refers to a complex and multifactorial phenomenon that includes a decrease in physical performance (e.g., force, torque, power) associated with an increase in the real or perceived difficulty of a task or exercise (Davis & Bailey, 1997; MacIntosh et al., 2006), regardless whether the force can be sustained (Bigland-Ritchie & Woods, 1984), and is present and progressing from the onset of the task (Bigland-Ritchie et al., 1986). The goal of recovery from physical stress is to recover the body to baseline, but also in an exercise training setting to recover beyond the baseline and promote super-compensation which is an exercise physiology concept that refers to positively adapting to a training stimulus, not only returning to baseline levels but exceeding, resulting in improved performance, allowing the body to handle a greater intensity in the future. While the exercise-adaptation cycle mechanisms are not fully understood, their importance and outcomes are evident in situations such as overtraining (or undercovering), decreased performance, or injury, when recovery is inadequate. Physicians and medical learners spend long hours on their feet, walking, and manipulating their bodies. While it may be low intensity on the absolute scale, the duration and repetitive nature of medicine have a cumulative effect and recovery is still essential. The main recovery methods for physical stress are sleep, active recovery, and nutrition (Bishop et al., 2008).

### **Sleep (quality and quantity):**

When it comes to physical and mental recovery, sleep is our body's major contributor and is essential to life and a well-recognized predictor and influencer of good physical and mental health, wellness, and overall vitality (Ohayon et al., 2017). Sleep is often discussed in terms of quality and quantity. Physicians and medical learners generally do not get enough (quantity), or good (quality) sleep which can lead to sleep deficiency (defined as a deficit in the quantity or quality of sleep obtained vs the amount needed for optimal health, performance, and well-being (Czeisler, 2015)), and impacts decisions and patient outcomes (Costa et al., 2013). Sleep deprivation can play a role in the development or exacerbation of health or well-being issues as well as significant impairments in cognitive and motor performance (Ohayon et al., 2016). Even short-term sleep

deprivation can cause adverse effects. Sleep disturbances may be both the cause and the consequence of reduced health and well-being and may set up a vicious cycle. In contrast, evidence demonstrates restoring sleep quality and quantity improves health benefits (Ramar et al., 2021). While individual needs may vary, it is recommended that adults get 7-9 hours of sleep per night regularly to promote optimal health (Watson et al., 2015). This may increase when excessive mental or physical stressors are experienced. While we know sleep quality is important, beneficial, important, and something we should strive to optimize, unlike sleep quantity, it lacks definitional consensus and consistent guidance but involves being uninterrupted and restful. In addition, later sleep timing and greater sleep variability are generally associated with adverse health outcomes (Chaput et al., 2020). Thus, while aiming to optimize sleep quantity and quality for health and well-being, the best practice might be to try different strategies to determine what works well for the individual.

**Active recovery:** Physical activity has shown positive effects on mood states such as anxiety, stress, and depression through mechanisms such as endorphins, and decreased inflammation through several different processes such as vagal tone (Mikkelsen et al., 2017). While resting allows the body to reinstate homeostasis on its own, a low-intensity activity that promotes blood flow which helps the removal of metabolic wastes reduces soreness, increases the delivery of nutrients, and leads to faster and improved physical stress recovery times when not at an intensity to cause increased stress (Bishop et al., 2008).

**Diet:** Poor diets may cause deficiencies and cause early fatigue and hinder recovery (Bishop et al., 2008). Eating, especially comfort foods which may not be the healthiest, tends to make us feel good in the moment and temporarily decrease stress although the mechanisms are unclear (Pool et al., 2014). Whereas a healthy diet has been shown to promote a healthier mental state (Granero, 2022). For performance, and when attempting to recover from strenuous physical activity, rehydration of water and electrolytes (namely sodium and potassium), and adequate dietary carbohydrates and protein are essential (Bishop et al., 2008).

**Leisure:** Leisure activities have shown positive effects on recovery from stress and being more resilient to stress to maintain a higher level of overall health and well-being (Iwasaki, et al., 2001).

## Tips:

- **Track Your Recovery:** Self-awareness is paramount to health and well-being. It is much more effective and beneficial to be proactive and preventing health issues and protecting well-being than being reactive once the problem exists. For example, McClean and Cloutts (2010) developed a subjective recovery scale (below) that can be utilized daily to help track recovery across multiple domains. Simply multiplying your score by four can help describe a fatigue and recovery score out of 100. Consistently checking in with yourself on your current recovery across multiple domains can help bring awareness to your current level of recovery and promote action to improve it.

|                                | 5                  | 4                     | 3                                                    | 2                                              | 1                             | Record Score |
|--------------------------------|--------------------|-----------------------|------------------------------------------------------|------------------------------------------------|-------------------------------|--------------|
| <b>FATIGUE</b>                 | Very fresh         | Fresh                 | Normal                                               | More tired than normal                         | Always tired                  |              |
| <b>SLEEP QUALITY</b>           | Very restful       | Good                  | Difficulty falling asleep                            | Restless sleep                                 | Insomnia                      |              |
| <b>GENERAL MUSCLE SORENESS</b> | Feeling great      | Feeling good          | Normal                                               | Increase in soreness/tightness                 | Very sore                     |              |
| <b>STRESS LEVELS</b>           | Very relaxed       | Relaxed               | Normal                                               | Feeling stressed                               | Highly stressed               |              |
| <b>MOOD</b>                    | Very positive mood | A generally good mood | Less interested in others &/or activities than usual | Snappiness at teammates, family and co-workers | Highly annoyed/irritable/down |              |

Figure 3: Subjective Recovery Scale from McClean and Cloutts (2010)

- **Optimize your sleep:** Get 7-9 hours (56-63 hours per week, at least 30 minutes before to allow for falling asleep) of uninterrupted sleep in a cool (18-degree, relative humidity of 40-60%), pitch-dark room per night (cover, block or turn off all sources of light), quiet (or quiet continuous noise < 30dB), with good air quality (ambient O2 and CO2) with consistency of timing (Caddick et al., 2018).
  - Adding in **naps** where able to make it up (but avoid napping close to bedtime)
  - **Melatonin supplementation:** Melatonin has been shown to assist in falling asleep aiding sleep quantity. This can be especially effective when sleep is necessary when not experiencing sleepiness.
  - **Refrain from consuming caffeine after noon**
  - **Turn off the blue light, or ideally screen time 90 minutes before bed**
  - **Turn the phone off or airplane mode while you sleep**
  - **Avoid alcohol or large meals before bed**

- **Exercise:** Maintaining a regular physical activity lifestyle can help de-stress and boost your mood. It often helps to have a healthy, quick source of physical activity to deal with acute stress (Cleveland Clinic, 2024).
- **Active Recovery:** Movement utilizing lower FITT levels. 3-4x per week, low intensity, 15-30 minutes per session, of a low-impact activity that promotes blood flow without additional stress to the body is an example prescription for improving recovery (Thompson, 2010). An example would be walking outside during your lunch break.
- **Leisure:** Taking part in leisure activities can be beneficial to your recovery. Participating in an activity you enjoy helps de-stress and improve mood. Depending on the type of leisure there may be additional benefits as well such as physical activity, socialization, learning, environmental exposure, etc.
- **Relaxation Techniques:** Incorporating relaxation techniques such as deep breathing exercises, meditation
- **Hydrate and Eat a Healthy Diet:**
- **Consider talking to a healthcare provider. Especially if you feel overwhelmed, your physical health is affected, symptoms of stress aren't going away with stress relief techniques, you're using recreational drugs or alcohol to cope, etc. seek emergency help if you're thinking about hurting yourself or in immediate distress.**

## Reflection Questions:

Score where you rank yourself on a scale of 1-5 for each question. With 1 being very poor, 2 being poor, 3 being okay, 4 being good, and 5 being very good. Your score per category will be out of 50. Multiple it by 2 to get a score out of 100. We will then use each score to fill in the snowflake analysis at the end of the project for each category.

| Question:                                                                                               | Score: |
|---------------------------------------------------------------------------------------------------------|--------|
| 1. I feel sufficiently educated on the concept of recovery and how it relates to health and well-being  |        |
| 2. I avoid using alcohol, tobacco, or other drugs to handle stressful situations or problems in my life |        |

|                                                                                                         |  |
|---------------------------------------------------------------------------------------------------------|--|
| 3. I never feel stressed out, anxious, ill, burned out, depressed, or agitated/irritable from stress.   |  |
| 4. I rarely feel fatigued (mind or body) or have less energy needed to finish out the day.              |  |
| 5. I wake up feeling mentally and physically refreshed and rested after sleeping.                       |  |
| 6. I rarely feel sore or injured (except for normal soreness from physical activity).                   |  |
| 7. I generally feel calm and relaxed (as opposed to highly stressed).                                   |  |
| 8. I handle stress in a positive way (exercise, leisure, social connection, etc.).                      |  |
| 9. Stress motivated me.                                                                                 |  |
| 10. I have a healthy amount of total stress (good and bad stress) to optimize my health and well-being. |  |
| <b>Total:</b>                                                                                           |  |

## Resources:

- See references for reference list
- Why We Sleep (Matthew Walker)
- National Sleep Foundation ‘Sleep Health’ journal.
- Becoming a Supple Leopard (Kelly Starrett)

## Connection:

Connection is defined as a relationship in which a person, thing, or idea is linked or associated with something else. This can be a person, group, community, animal, idea, career, or essentially anything else. People are social creatures by nature. Social connection is the size, quality, and diversity of one’s social network and roles, the functions these relationships serve, and their positive or negative qualities (CDC, 2024). Social connection is important to our health, well-being, and longevity, can help protect against serious illnesses and diseases, and create a feeling of belonging, being cared for, and valued (CDC, 2024). While strong social connections can have positive benefits, having positive, stable, supportive, healthy relationships can have greater impacts such as a better ability to cope with stress, less stress, better sleep, and making healthy choices. Conversely, social isolation (when a person does not have relationships or contact with others and has little to no social support) and loneliness (feeling alone or disconnected from others, reflecting the difference between a person's actual and desired level of connection) have serious, and still under-recognized, impacts on our health and lifespan and is just as dangerous to health as other risk factors (Holt-Lunstad et al., 2017). As physicians and medical learners, it is easy to get

caught up in a daily routine that doesn't easily and automatically provide time for strong meaningful connection building or strengthening, and can foster isolation and loneliness, paving the way for negative health and well-being outcomes and highlighting the importance of prioritizing positive connection initiatives. While it is important to acknowledge that quality of connections is more important than quantity, and everyone has a differing amount of necessary and desired connections to acknowledge that it is an important factor of health and well-being and one that we must be conscious of and act to influence.

## Tips:

- **Track your Connection:** What gets measured gets improved. Take down a note every time you make an extra effort to build a new connection or strengthen an existing one.
- **Check-In:** The small act of simply checking in with someone can have a positive impact on them, as well as yourself. Make the effort to get together, or a quick text or call.
- **Express Gratitude:** Letting someone know they are important to you, giving someone a deserving or genuine compliment, or simply thanking someone can help build stronger, more meaningful relationships.
- **Give and Take:** Reach out for help even when it is hard to ask, and offer to help when you can.
- **Schedule it:** The idea of scheduling social time can seem obscure and unorthodox, however, there is nothing tabu about prioritizing something important to you and your health. Make a plan to schedule a social get-together once a week and check in with someone daily.
- **Disconnect and limit screen time (especially when present with others):**
- **Join a Group:** It can be a hobby, sport, volunteer opportunity, etc, but getting involved with people of similar interests can be a strong positive connection waiting to be developed.

**Build the Emotional Bank Account:** A metaphor by Stephen Covey in *7 Habits of Highly Effective People* that relates the strength of a relationship to a bank account. Essentially, building



the relationship adds deposits (being kind, empathetic, promises, loyal, supportive, open, genuine, vulnerable, present, empathetic, eye contact, sharing positive experiences, etc.) while withdrawals are negative (breaking promises, being disrespectful unkind, ignoring/dismissing, disloyalty, gossiping, etc.). Keeping this concept in mind we can intentionally build our relationships with others by keeping deposits greater than withdraws.

## Reflection Questions:

Score where you rank yourself on a scale of 1-5 for each question. With 1 being very poor, 2 being poor, 3 being okay, 4 being good, and 5 being very good. Your score per category will be out of 50. Multiple it by 2 to get a score out of 100. We will then use each score to fill in the snowflake analysis at the end of the project for each category.

| Question:                                                                                                 | Score: |
|-----------------------------------------------------------------------------------------------------------|--------|
| 1. I feel sufficiently educated on the concept of connection and how it relates to health and well-being. |        |
| 2. I have a strong meaningful positive connection to my work/studies.                                     |        |
| 3. I have a strong positive meaningful, supportive connection in my personal life.                        |        |
| 4. I have someone(s) I can go to for nonjudgemental, supportive assistance.                               |        |
| 5. My real social life equals my social desire.                                                           |        |
| 6. I participate in healthy leisure activities with others.                                               |        |
| 7. I believe my social circle has a positive influence on my health and well-being.                       |        |
| 8. I feel comfortable being my true self in public settings with others.                                  |        |
| 9. I rarely feel lonely or isolated, and my alone time is to my own choice, benefit, and enjoyment.       |        |
| 10. I spend sufficient time with others weekly.                                                           |        |
| <b>Total:</b>                                                                                             |        |

## Resources:

- See references in the reference list.
- Emotional Intelligence (Daniel Goleman)
- How to Win Friends and Influence People (Dale Carnegie)
- 7 Habits of Highly Effective People (Stephen Covey)

## Planetary Health:

Our local and global environment greatly impacts our health and well-being. Planetary health is a concept that emphasizes the interdependence of human health and the health of the

Earth's natural systems (Rockefeller Foundation–Lancet Commission, 2015). It highlights our necessity to take accountability and stewardship over the natural systems and to promote a flourishing natural world where we can operate within sustainable limits. While we do not always think of planetary health as a direct influence on our health and well-being, we do not have to look deeply. We mostly think of negative influences like natural disasters, and perhaps the slower, chronic influences such as climate change, but often completely ignore the positive benefits of a deep connection to nature such as nature-based interventions which evidence has shown improved mental, physical/physiological and cognitive health outcomes (Nejade et al., 2022). Furthermore, in Newfoundland and Labrador, we are shielded from many of the more obvious and acutely serious climate issues but blessed with nature's presence. However, nonetheless, as climate change becomes increasingly evident globally, it is becoming increasingly clear that planetary health affects us all. It is up to us to act individually, locally at the community level, and globally to help improve advocate, and act for planetary health.

The WHO estimates that 23% of global deaths are linked to environmental factors and are predicted to rise due to human activity-induced climate change. Climate change is a climate change that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and is an addition to natural climate variability observed over comparable periods (UNFCCC, 1992). The cause of climate change is the increased emission of carbon dioxide and other greenhouse gases which trap the energy in our atmosphere causing a “greenhouse effect” that warms the earth causing extreme weather patterns, compromised food security, and increased vector-related and climate-related diseases, and deaths (WHO, 2016). This “greenhouse effect” is largely caused directly or indirectly by many human activities such as burning fossil fuels, deforestation, and industrial and agricultural processes to name a few and it has been named the defining issue for the 21<sup>st</sup> century affecting the air we breathe, the food we eat, water we drink, and infections we obtain (WHO, 2016). Climate-related hazards such as extreme weather events, heat/cold, sea level rise, air pollution, vector distribution and ecology, water scarcity, and decreased food production to name a few can have or exacerbate wide and variable direct and indirect health and well-being outcomes such as injuries, and illnesses due to heat, cold, water pollution, zoonoses, vectors, malnutrition, as well as noncommunicable diseases, mental and psychosocial health issues (WHO, 2023). While it is obvious that climate change affects human

health and well-being it remains challenging to accurately estimate the scale and impact. What is clear is we have to individually and collectively act to help repair and promote planetary health.

As physicians and medical professionals, considering planetary health is and will be increasingly essential to look after ourselves, our families, communities, and globally, and to lead by example to best serve our patients, community, and planet. We are in a unique situation where our personal and professional lives contribute significantly to the problem, and we are in leadership roles of privilege to do something about it. When it comes to influencing planetary health at the individual level, there are 5 R's (Refuse, Reduce, Reuse, Repair, and Recycle) of Zero Waste management to help simplify our efforts by guiding us to decrease the number of things we use, and simultaneously decrease the amount we throw away, moving from a linear economy of consume to track, to a circular economy where trash no longer exists. "waste" refers to any product or substance which is no longer suited for its intended use, and has various types differently classified (Balwan et al., 2022). It is important to note we are chasing improvement, not perfection. We can thrive and co-exist with the planet if we act accordingly. While many larger, more profound acts are necessary and often require political or organizational assistance, many strategies involve a step-down approach or utilizing numerous small acts to compound larger impacts. With a little research and effort, we can slowly find better alternatives for most of our actions that can be more sustainable and promote planetary health. A good practice is to examine each aspect, product, service, or act in your life and ask yourself, 'How can this be done to better support planetary health?'. As you go along this journey and start making positive changes, the next step is to continue improving as an advocate and share your journey to inspire others! The 5 R's follow a specific hierarchy...

**Refuse:** The first step in the 5 R process simply means refusing anything we do not need, such as single-use or wasteful, non-recyclable items. It is the most powerful R. By refusing unnecessary and excessive waste and unsustainable and unethical practices; we help reduce environmental damage. Furthermore, our individual choices to refuse to accept environmentally damaging practices help force companies and governments to shift towards more earth-friendly practices.

**Reduce:** The world generates 2.01 billion tons of Municipal Solid Waste annually, with at least 33 percent not managed in an environmentally safe manner and less than 20% recycled (Balwan et al., 2022). The second step in the 5 R process refers to the reduction of harmful, wasteful, and non-

recyclable materials, avoiding the unnecessary use of resources such as materials, energy, and water, which means less waste to manage and helps save money as it benefits the environment (Balwan et al., 2022). Humans produce waste, but our actions can significantly improve or reduce that damage to a level the earth can recover, buffer, or suffer from. Reducing is about utilizing a ‘step-down’ approach wherever and as much as possible.

**Reuse:** Involves finding new ways to use items instead of discarding them, extending their lifecycle, and saving money, energy, and resources that would have been used to make the new product.

**Repurpose:** Repurposing involves taking items meant for one purpose and using them for other purposes (this is called Upcycling).

**Recycle/Rot:** The final step once all of the other R’s are exhausted is to recycle/rot, which involves appropriately processing used materials to make them suitable for reuse. Recycling has many benefits, including reduced energy usage, consumption of new materials, air pollution, water pollution, etc. The main products that can be recycled are paper, cardboard, glass, aluminum, tin, and plastic containers. Recycle everything you can! Up to 70% of our waste is organic, and compostable waste disposed in a landfill causes an increase in greenhouse gas emissions. While not all are suitable for commercial or backyard composters, a lot are, and they reduce landfill content and produce valuable fertilizer (check local organizations for compatibility). Bonus points for putting pressure on them to widen it!

## Tips:

- **Refuse:**
  - **Use refillable bottles/coffee mugs** and save thousands of plastic/paper/aluminum containers. Many coffee shops will allow you to use your mug!
  - **Use cloth bags** at stores.
  - **Say No** to single-use paper, plastics, and damaging items and practices. Our decisions as consumers are powerful. By saying no and altering our consumer practices on an individual and large scale, we pressure companies to shift their current models to be more zero-waste.

- **Refuse to buy products made with harmful chemicals or unethically sourced:** We can often find sustainable and ethical products and service alternatives with a little effort.
- **Refuse to support companies that don't prioritize sustainability** (promote, support, invest) and take the effort to help those that are
- **Refuse custom clothing:** Clothing specific to an event or person is often single-use, rarely used, and mostly always unnecessary. Leave it unless you plan to wear it until it wears out.
- **Reduce:**
  - **Buy in bulk** to reduce packaging.
  - **Reduce food waste by planning meals and using leftovers**
  - **Reduce your home's energy consumption: Note your average monthly electricity bill... set a reduction goal (for example, 10% per year)** and take steps to achieve it. This can be big things such as using supplementary energy for your home (solar, wind, etc.) (check your area for government incentives!), insulation, air sealing, appliances and lights, etc.
  - **Reduce travel's environmental footprint: Transportation has a huge negative impact on planetary health.** Reduce your impact by walking, carpooling, taking the bus, arranging a work-from-home agreement, or choosing an electric, hybrid, or smaller vehicle.
  - **Swap single-use batteries for rechargeable ones.**
  - **Choose products** with less/better packaging (non > paper > single-use plastic)
  - **Stick a 'No junk mail' sign** on your mailbox
  - **Bring your lunch in a reusable container!**
  - **Copy/print documents double-sided, or keep them on an electronic device!**
  - Eating in season and local
  - Use reusable coffee pods instead of disposable ones
  - Opt for compostable or recyclable products such as coffee filters, paper towels, etc.
  - Utilize a drying rack or clothesline instead of a dryer

- **Reuse:**
  - **Buy reusable/refillable items**
  - Donate/give away unwanted items such as toys, books, clothes
  - Use containers as storage
  - Reuse holiday gift boxes
  - Shop second-hand first
  - Repair broken items instead of replacing
- **Repurpose:**
  - Repurpose old clothes into rags
  - Use glass or plastic containers as planters, vases, or for organizing
  - Make DIY projects around the house, such as pallets into garden planters
- **Recycle/Rot:**
  - Recycle papers, eligible plastics, glasses, metals, etc. Check your local municipality to see what is available curbside. Other materials, such as batteries and electronics, can be recycled at local locations.

Compost your organic waste and yard material in a residential or community composter. Even if you do not use the compost, you can give it away! If there isn't a community compost program, start one! Some local municipalities have composting programs where you can purchase a home composter.

## Reflection Questions:

Score where you rank yourself on a scale of 1-5 for each question. With 1 being very poor, 2 being poor, 3 being okay, 4 being good, and 5 being very good. Your score per category will be out of 50. Multiple it by 2 to get a score out of 100. We will then use each score to fill in the snowflake analysis at the end of the project for each category.

| Question:                                                                                                          | Score: |
|--------------------------------------------------------------------------------------------------------------------|--------|
| 1. I feel sufficiently educated on the concept of planetary health and how it relates to my health and well-being. |        |
| 2. I advocate and act for planetary health policy and organizational practices.                                    |        |
| 3. I look for and follow through on ways to refuse environmentally damaging or unsafe products, services, or acts. |        |
| 4. I look for and follow through on ways to reduce my environmental impact.                                        |        |
| 5. I look for and follow through on ways to reuse.                                                                 |        |
| 6. I look for ways and follow through on ways to recycle.                                                          |        |

|                                                                                                                   |  |
|-------------------------------------------------------------------------------------------------------------------|--|
| 7. I look for and follow through on ways to rot/compost as much as I can.                                         |  |
| 8. I spend leisure time in nature weekly doing sustainable activities.                                            |  |
| 9. I live in a healthy environment (access to safe clean air, water, food, sanitization, healthcare, and shelter) |  |
| 10. I am not suffering, or still suffering from a natural disaster                                                |  |
| <b>Total:</b>                                                                                                     |  |

## Resources:

- Waking the Sleeping Giant: Unlocking the Hidden Power of Business to Save the Planet (Jake Kheel)
- What the Eaarth (Bill McKibben)
- The End of Nature (Bill McKibben)
- Last Child in the Woods (Richard Louv)
- A Life On Our Planet (David Attenborough)
- Deep economy (Bill McKibben).
- Your Brain on Nature ()

## Summary:

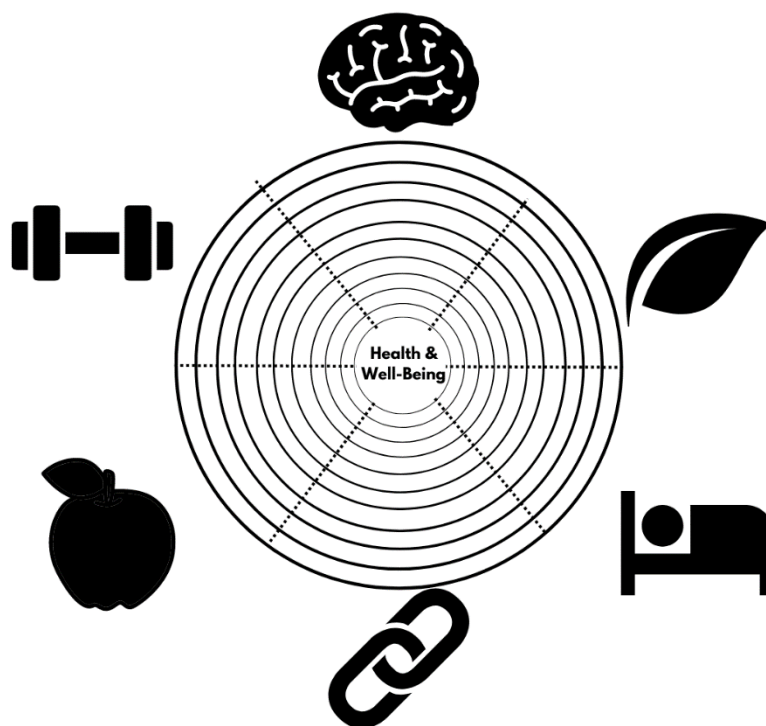
Maintaining health and well-being as a medical student or physician requires a holistic approach that addresses personal and environmental factors. By prioritizing a positive mindset, regular exercise, balanced nutrition, adequate recovery, strong social connections, and planetary health, we can enhance our well-being and, consequently, provide better care for our patients. Remember, caring for oneself is the first step in caring for others.

To integrate these practices into a busy medical schedule, start small, learn, be consistent, make an effort, and set realistic goals. Making small changes now will lead to more changes over time (Blair et al., 2001). Gradually build on these habits to create a sustainable routine. Set realistic goals, such as a short daily mindfulness session, a brisk walk during breaks, or preparing balanced meals ahead of time. Utilize resources such as wellness programs offered by medical institutions, mindfulness and exercise apps, and professional mental health support. See below for an example of a modifiable Health and Well-Being guide that can help you take the initiative and positive action towards improving your health and well-being today. Start by picking one new item for each category you want to turn into a habit or complete. Complete the

task and track your tallies for the month. As the acts become part of your routine, they will become more accessible and automatic. Start adding in new tasks every month/semester, etc, and watch your health and well-being improve!

## Six Factor Analysis:

Using your score from each factor, input it into the diagram below, with each ring representing 10. Doing so adds a visualization component to your self-awareness of your health and well-being influences, including your strengths, and areas for improvement. Does it reflect the answers you provided under ‘general well-being’? Now that you have some awareness, some basic education, and some tips, resources, and tools to move forward it is time for action! As you move along your health and well-being journey, retake the quiz and revisit this diagram. Keep in mind the goal is not perfection, but improving and trending upwards over time for increased health and well-being to live a long, healthy, happy, productive, and meaningful life.



## Example Guide:

| Factor:  | Daily Action:                            | # of days completed this month (tally) |
|----------|------------------------------------------|----------------------------------------|
| Mindset: | Read 15 minutes on 6 Factors: How to Win |                                        |



|                   |                                                                                                                               |  |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------|--|
|                   | Friends & Influence People (Dale Carnegie) via audiobook on my way to the hospital in the morning. Optional for the way home. |  |
| Exercise:         | Attend my 60-minute group fitness class 12x per month                                                                         |  |
| Nutrition:        | Finish my 3L water jug each day                                                                                               |  |
| Recovery:         | Track and get 56 hours of sleep per week                                                                                      |  |
| Connection:       | Get together with friends one evening per week                                                                                |  |
| Planetary Health: | Set up and utilize my backyard composter                                                                                      |  |

## Reflection Questions:

| Question:                                                                            | Score: |
|--------------------------------------------------------------------------------------|--------|
| 1. I feel more aware of my health and well-being.                                    |        |
| 2. I feel more educated on my health and well-being.                                 |        |
| 3. I agree with my six factors score and how it relates to my health and well-being. |        |
| 4. I am going to implement action towards improving my health and well-being.        |        |
| 5. I am glad I participated in this project.                                         |        |

## References:

Ames, B. N. (2004). A role for supplements in optimizing health: the metabolic tune-up. *Archives of biochemistry and biophysics*, 423(1), 227-234.

Balwan, W. K., & Kour, S. (2022). *5R's of zero waste management to save our green planet: A narrative review*. ResearchGate.

[https://www.researchgate.net/publication/358221324\\_5R's\\_of\\_Zero\\_Waste\\_Management\\_to\\_save\\_our\\_green\\_planet\\_A\\_Narrative\\_review](https://www.researchgate.net/publication/358221324_5R's_of_Zero_Waste_Management_to_save_our_green_planet_A_Narrative_review)

Belloc NB, Breslow L. Relationship of physical health status and family practices. *Prev Med*. 1972;1:409-421.

Bishop, P. A., Jones, E., & Woods, A. K. (2008). Recovery from training: a brief review: a brief review. *The Journal of Strength & Conditioning Research*, 22(3), 1015-1024.

Brotheridge, C. M., & Lee, R. T. (2002). Testing a conservation of resources model of the dynamics of emotional labor. *Journal of Occupational Health Psychology*, 7, 57–67.  
doi:10.1037/1076-8998.7.1.57

Burnette, J. L., Knouse, L. E., Vavra, D. T., O'Boyle, E., & Brooks, M. A. (2020). Growth mindsets and psychological distress: A meta-analysis. *Clinical Psychology Review*, 77, 101816.  
<https://doi.org/10.1016/j.cpr.2020.101816>

Caddick, Z. A., Gregory, K., Arsintescu, L., & Flynn-Evans, E. E. (2018). A review of the environmental parameters necessary for an optimal sleep environment. *Building and Environment*, 132, 11-20. <https://doi.org/10.1016/j.buildenv.2018.01.020>

Canadian Medical Association. (2017). *Physician health*. Canadian Medical Association. Retrieved from <https://policybase.cma.ca/link/policy13739>

Canadian Medical Association. (2022). *CMA 2021 National Physician Health Survey*. Canadian Medical Association. <https://www.cma.ca/sites/default/files/2018-11/nph-survey-e.pdf>

Centers for Disease Control and Prevention. (n.d.). *About social connectedness*. CDC. Retrieved August 12, 2024, from <https://www.cdc.gov/social-connectedness/about/index.html>

Cleveland Clinic. (2024). *Stress: Signs, symptoms, management & prevention*. Cleveland Clinic. Retrieved August 12, 2024, from <https://my.clevelandclinic.org/health/diseases/11874-stress>

CMAJ 2019 April 8;191:E403-4. doi: 10.1503/cmaj.109-5722

Cohen S, Doyle WJ, Turner RB, Alper CM, Skoner DP. Emotional style and susceptibility to the common cold. *Psychosom Med*. 2003;65:652-657

Committee on Sleep Medicine Research Board on Health Sciences Policy. Sleep disorders and sleep deprivation. *An Unmet Public Health Problem*. Washington, D.C.: Institute of Medicine of the National Academies; The National Academies Press; 2006

Crum A, Phillips DJ: Self-Fulfilling Prophecies, Placebo Effects, and the Social-Psychological Creation of Reality. *Emerging Trends in the Social and Behavioral Sciences*. Scott R, Kosslyn S (ed): John Wiley & Sons, Hoboken, NJ; 2015. 10.1002/9781118900772.etrds0296

Danner DD, Snowdon DA, Friesen VW. Positive emotions in early life and longevity: findings from the nun study. *J Pers Soc Psychol*. 2000;80:804-813

Dweck, C. S. (2006). *Mindset: The new psychology of success*. Random House.

Einöther SJ, Martens VE. Acute effects of tea consumption on attention and mood. *Am J Clin Nutr* 2013;98(6 Suppl):1700S–8S.

Ford EW. Stress, burnout, and moral injury: the state of the healthcare workforce. *J Healthc Manag*. 2019;64(3):125–127.

Franke AG, Bagusat C, McFarlane C, et al. The use of caffeinated substances by surgeons for cognitive enhancement. *Ann Surg* 2015;261:1091–5

Granero, R. (2022). Role of nutrition and diet on healthy mental state. *Nutrients*, 14(4), 750. <https://doi.org/10.3390/nu14040750>

Hamidi, M. S., Boggild, M. K., & Cheung, A. M. (2016). Running on empty: A review of nutrition and physicians' well-being. *Postgraduate Medical Journal*, 92(1089), 478-481. <https://doi.org/10.1136/postgradmedj-2016-134131>

Health Canada. (n.d.). *Healthy eating recommendations*. Canada's Food Guide. <https://food-guide.canada.ca/en/healthy-eating-recommendations/>

Health promotion glossary of terms 2021. Geneva: World Health Organization; 2021. License: CC BY-NC-SA 3.0 IGO

Hooper SL, Mackinnon LT. Monitoring overtraining in athletes: recommendations. *Sports Med*. 1995;20(5):321–327.

Iwasaki, Y., Zuzanek, J., & Mannell, R. C. (2001). The effects of physically active leisure on stress-health relationships. *Canadian Journal of Public Health*, 92(3), 214-218.

Jéquier, E., & Constant, F. (2010). Water as an essential nutrient: The physiological basis of hydration. *European Journal of Clinical Nutrition*, *64*(2), 115-123.

<https://doi.org/10.1038/ejcn.2009.111>

Kumar, V., Shukla, A. K., Sharma, P., Choudhury, B., Singh, P., & Kumar, S. (2017). Role of macronutrients in health. *World Journal of Pharmaceutical Research*, *6*(3), 373-381.

McLean BD, Coutts AJ, Kelly V, McGuigan MR, Cormack SJ. Neuromuscular, endocrine, and perceptual fatigue responses during different length between-match microcycles in professional rugby league players. *Int J Sports Physiol Perform*. 2010 Sep;*5*(3):367-83. doi: 10.1123/ijsp.5.3.367. PMID: 20861526.

Mikkelsen, K., Stojanovska, L., Polenakovic, M., Bosevski, M., & Apostolopoulos, V. (2017). Exercise and mental health. *Maturitas*, *106*, 48–56.

<https://doi.org/10.1016/j.maturitas.2017.09.003>

Nejade, R. M., Grace, D., & Bowman, L. R. (2022). What is the impact of nature on human health? A scoping review of the literature. *Journal of Global Health*, *12*(04099).

<https://doi.org/10.7189/jogh.12.04099>

Park, N., Peterson, C., Szvarca, D., Vander Molen, R. J., Kim, E. S., & Collon, K. (2016). Positive psychology and physical health: Research and applications. *American journal of lifestyle medicine*, *10*(3), 200-206.

Parsamanesh, P., & Vysochyn, M. (2024). A psychological exploration of the power of our mindset and its influence on physiological health. *Cureus*, *16*(1), Article e52505.

<https://doi.org/10.7759/cureus.52505>

Peterson C. A Primer in Positive Psychology. New York, NY: Oxford University Press; 2006.

Physical Activity Guidelines Advisory Committee. 2018 Physical Activity Guidelines Advisory Committee Scientific Report. Washington, DC: US Department of Health and Human Services; 2018

Positive psychology. (2023). Accessed: September 5, 2023:

<https://www.health.harvard.edu/topics/positive-psychology>

Ramar K, Malhotra RK, Carden KA, et al. Sleep is essential to health: an American Academy of Sleep Medicine position statement. *J Clin Sleep Med*. 2021;17(10):2115–2119.

Rockefeller Foundation–Lancet Commission. (2015). Planetary health: A new science for exceptional action. *The Lancet*, 386(10007), 1973–2028. [https://doi.org/10.1016/S0140-6736\(15\)60901-1](https://doi.org/10.1016/S0140-6736(15)60901-1)

Ruxton CHS. The impact of caffeine on mood, cognitive function, performance, and hydration: a review of benefits and risks. *Nutr Bull* 2008;33:15–25

Sone T, Nakaya N, Ohmori K, et al. Sense of life worth living (ikigai) and mortality in Japan: Ohsaki study. *Psychosom Med*. 2008;70:709–715.

Fahey, T. D., Thomas D., Insel, P. M., Roth, W. T., & Wong, I. E., Ilsa E. (2016). *Fit & well : core concepts and labs in physical fitness and wellness* (Fourth Canadian edition.). McGraw-Hill Ryerson Limited.

Frank, E., & Segura, C. (2009). Health practices of physicians and physicians' advice about preventive health care. *JAMA Internal Medicine*, 169(10), 903–904.

Magnavita, N., & Garbarino, S. (2017). Sleep, health and wellness at work: A scoping review. *International Journal of Environmental Research and Public Health*, 14(1347). <https://doi.org/10.3390/ijerph14111347>

Ohayon, M., Wickwire, E. M., Hirshkowitz, M., Albert, S. M., Avidan, A., Daly, F. J., Dauvilliers, Y., Ferri, R., Fung, C., Gozal, D., Hazen, N., Krystal, A., Lichstein, K., Mallampalli, M., Plazzi, G., Rawding, R., Scheer, F. A., Somers, V., & Vitiello, M. V. (2017). National Sleep Foundation's sleep quality recommendations: First report. *Sleep Health*, 3(1), 6–19. <https://doi.org/10.1016/j.sleh.2016.11.006>

Stamatakis E, Lee IM, Bennie J, Freeston J, Hamer M, O'Donovan G, et al. Does strength-promoting exercise confer unique health benefits? A pooled data analysis on 11 population cohorts with all-cause, cancer, and cardiovascular mortality endpoints. *Am J Epidemiol*. 2018;187(5):1102–12

Thompson, W. R. (2010). *ACSM's guidelines for exercise testing and prescription* (8th ed.). Lippincott Williams & Wilkins.

U.S. Department of Agriculture, & U.S. Department of Health and Human Services. (2020). *Dietary guidelines for Americans, 2020-2025* (9th ed.). U.S. Government Publishing Office. <https://www.dietaryguidelines.gov/>

United Nations Framework Convention on Climate Change. (1992). *United Nations Framework Convention on Climate Change*. <https://unfccc.int/resource/docs/convkp/conveng.pdf>

Wallace JE, Lemaire JB, Ghali WA. Physician wellness: a missing quality indicator. *Lancet* 2009;374:1714–21

Watson NF, Badr MS, Belenky G, et al. The recommended amount of sleep for a healthy adult: a joint consensus statement of the American Academy of Sleep Medicine and Sleep Research Society. *J Clin Sleep Med*. 2015;11(6):591–592

World Health Organization. (1946). Constitution of the World Health Organization. Retrieved from <https://www.who.int/about/governance/constitution> World Health Organization. (2024). *Physical activity*. World Health Organization. <https://www.who.int/news-room/fact-sheets/detail/physical-activity>

World Health Organization. (2020). *WHO guidelines on physical activity and sedentary behavior*. World Health Organization. <https://iris.who.int/bitstream/handle/10665/336656/9789240015128-eng.pdf?sequence=1>

World Health Organization. (2024). *Nutrition*. World Health Organization. [https://www.who.int/health-topics/nutrition#tab=tab\\_1](https://www.who.int/health-topics/nutrition#tab=tab_1)

World Health Organization. (2016). *Climate change and health: Fact sheet*. World Health Organization. Retrieved August 12, 2024, from [https://www.who.int/docs/default-source/wpro---documents/hae---regional-forum-\(2016\)/climatechange-factsheet-rfhe.pdf?sfvrsn=75d570fd\\_2](https://www.who.int/docs/default-source/wpro---documents/hae---regional-forum-(2016)/climatechange-factsheet-rfhe.pdf?sfvrsn=75d570fd_2)

World Health Organization. (2021). *Climate change and health*. World Health Organization. Retrieved August 12, 2024, from <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>