

# **The Long Mile: Managing Chronic Pain**

## **Session 10**

### **GROUP HANDOUTS**

# Learning objectives

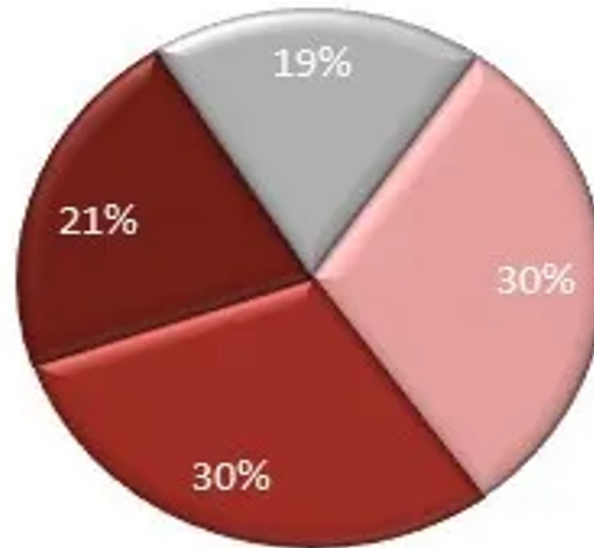
## Session 10: Spirit

- Understanding the influence of spirituality on chronic pain
- Promoting homeostasis of the autonomic nervous system
- The evidence for uplifting experiences on health and chronic pain
- How to improve our uplifting experiences

# Angus Reid poll 2017: Spectrum of Spirituality

## Four Canadian mindsets on religion:

- Non-Believers
- Spiritually Uncertain
- Privately Faithful
- Religiously Committed



# We may be spiritual with or without religion

Religious <b>Spiritual</b>	Religious Non-spiritual
Non-religious <b>Spiritual</b>	Non-religious Non-spiritual

# Does Spirituality influence chronic pain?

Yes, there is evidence spirituality is helpful for chronic pain

Ferreira-Valente A, Damião C, Pais-Ribeiro J, Jensen MP. ***The Role of Spirituality in Pain, Function, and Coping in Individuals with Chronic Pain***. Pain Med. 2020 Mar 1;21(3):448-457.

***“findings suggest the possibility that spirituality may be a useful resource for facilitating psychological adjustment, potentially promoting the use of some adaptive pain coping responses”***

# Is there a distinct brain circuit for spirituality?

- 88 patients scheduled to undergo neurosurgery to remove brain tumors filled out surveys about religiosity and spirituality before and after the surgeries
- patients whose spirituality changed in either direction had a portion of the brain removed that connected to the PAG

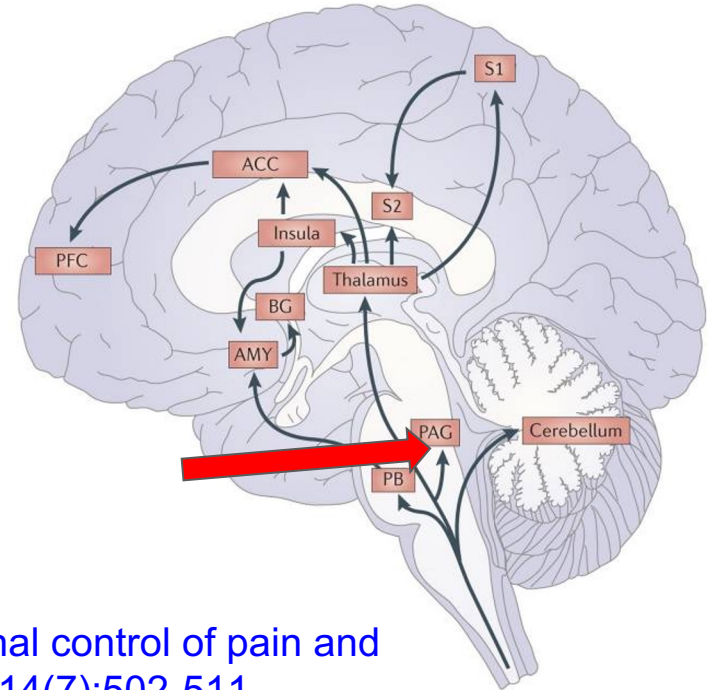
**“..brain lesions that connect to the periaqueductal gray (PAG), an area deep in the brain involved in processes such as pain modulation, fear conditioning, and altruism, seem to be associated with religiosity and spirituality.”**

Ferguson, M. et al.,. **A neural circuit for spirituality and religiosity derived from patients with brain lesions.** *Biological Psychiatry*, 2021; DOI: 10.1016/j.biopsych.2021.06.016

# Reminder re: the **PAG**, one of the pain highways

There are multiple pathways involved in pain processing in the brain

The **PAG** is one of the brain areas activated in chronic pain

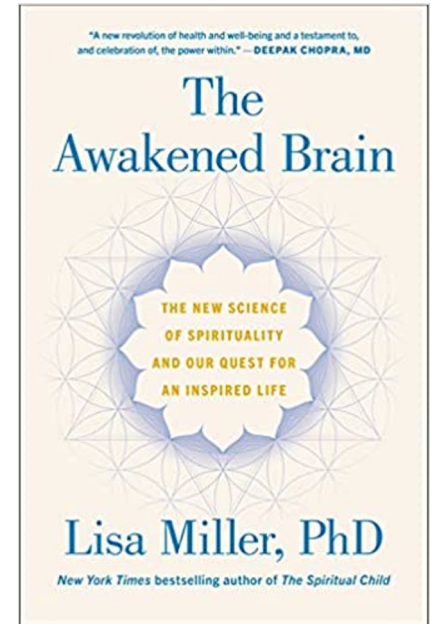


Picture from:

Bushnell MC, Ceko M, Low LA. Cognitive and emotional control of pain and its disruption in chronic pain. *Nat Rev Neurosci.* 2013;14(7):502-511

# Spirituality improves brain health

“Across cultures and throughout history, human beings have reported a variety of spiritual experiences and the concomitant perceived sense of union that transcends one’s ordinary sense of self...the study introduces a novel method for investigating brain correlates of personally meaningful spiritual experiences and suggests neural mechanisms associated with broadly defined and personally experienced spirituality.”



Miller L, Balodis IM, McClintock CH, Xu J, Lacadie CM, Sinha R, Potenza MN. Neural Correlates of Personalized Spiritual Experiences. *Cereb Cortex*. 2019 Jun 1;29(6):2331-2338. doi: 10.1093/cercor/bhy102. PMID: 29846531; PMCID: PMC6519691.

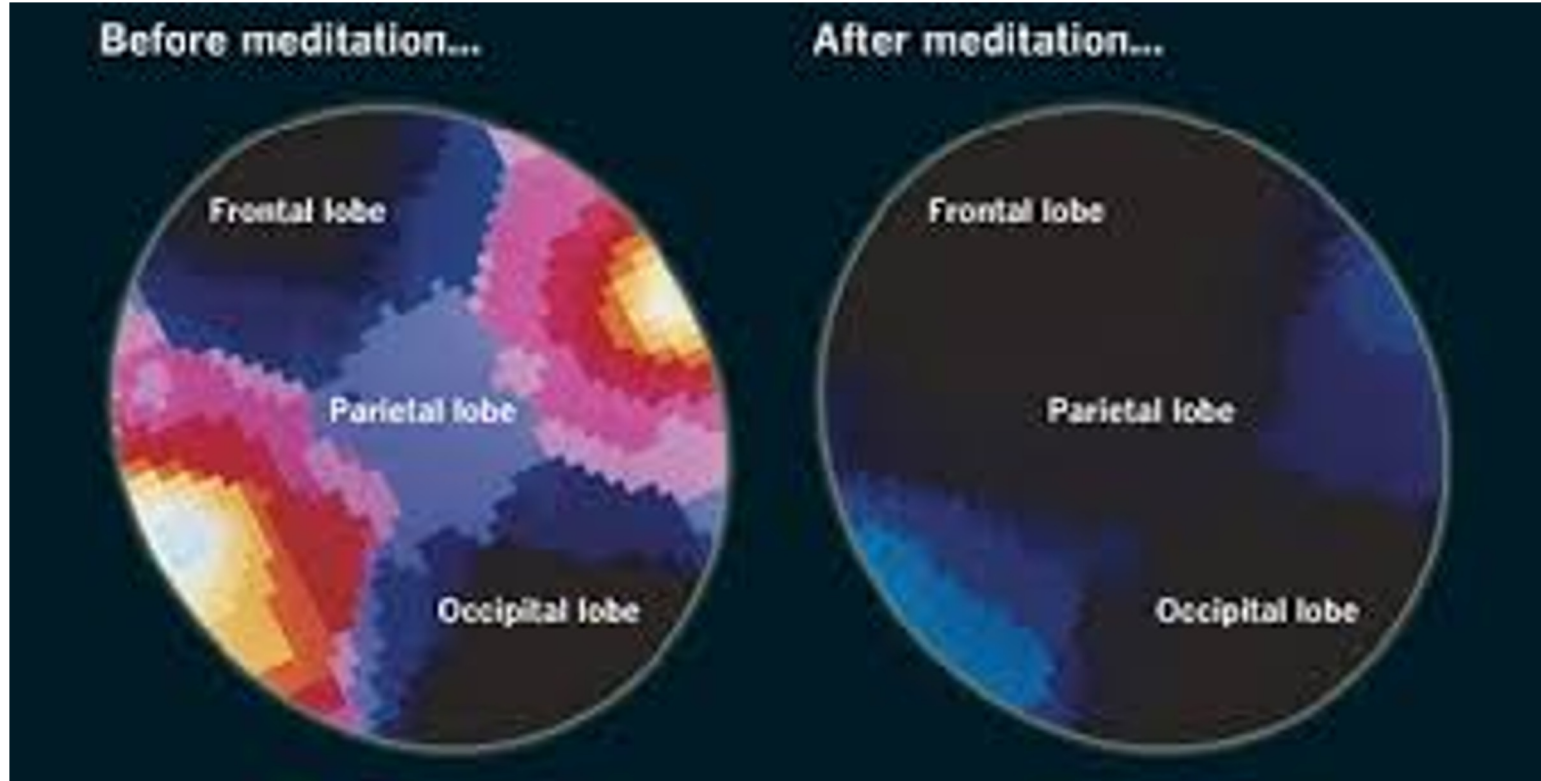


# Meditation changes brain connectivity

- Functional connectivity analysis via fMRI in 14 individuals prior to and shortly after participation in a one-week spiritual retreat.
- Significant changes in functional connectivity were observed after the retreat program, compared to baseline evaluation
- Significant changes in a variety of psychological and spiritual measures were identified as result of participation in the retreat
- **Conclusion: findings suggest that this intensive spiritual retreat resulted in significant changes in brain functional connectivity**

Wintering, N.A. et al. Effect of a One-Week Spiritual Retreat on Brain Functional Connectivity: A Preliminary Study. *Religions* **2021**, *12*, 23. <https://doi.org/10.3390/rel12010023>

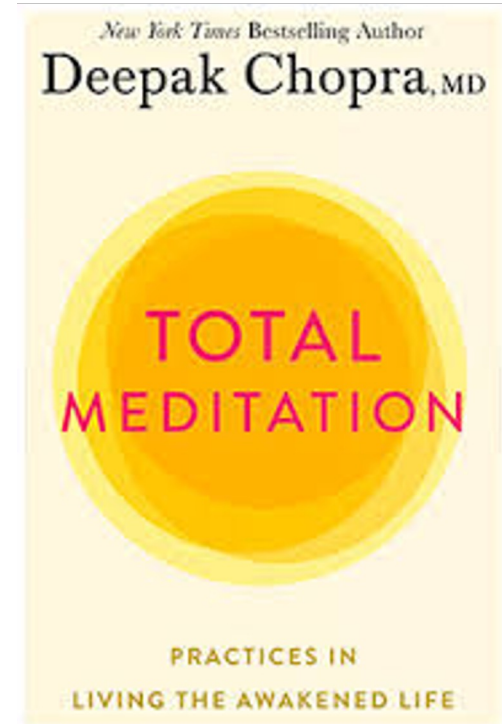
# Meditation changes the brain



# Meditation

Some of the reported benefits:

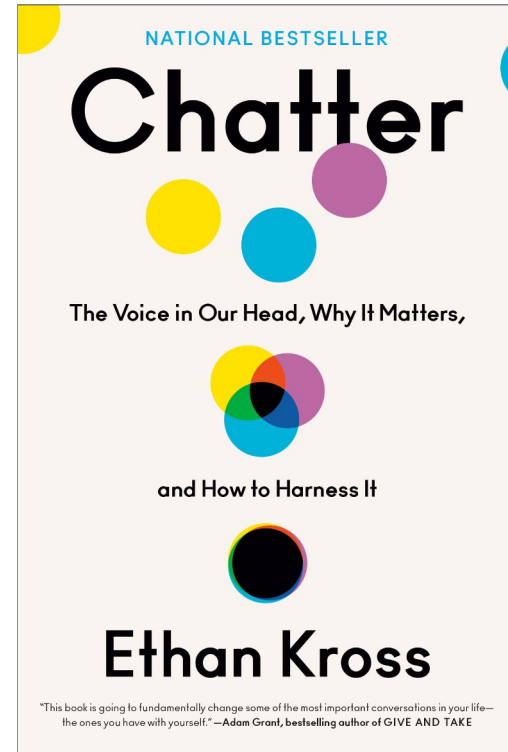
- Reduction in blood pressure
- Reduction in heart rate
- Cardiorespiratory synchronization
- Alter levels of melatonin and serotonin
- Boost immune response
- Decrease level of ROS (Reactive Oxygen Species)
- Reduce stress and promote positive mood states
- Reduce anxiety and pain
- Enhance self-esteem



# What if we can't meditate?

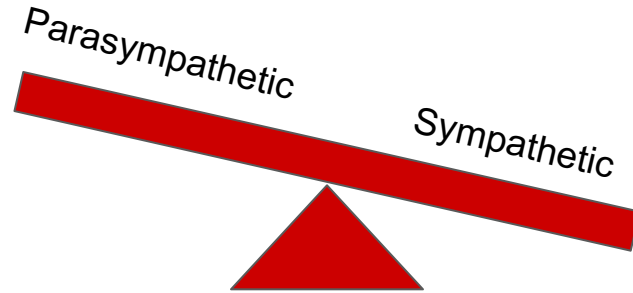
Research based tools to help quiet our inner chatter.

Includes engaging in rituals passed down to us from our families or culture as well as rituals we create for ourselves.



# Influencing the autonomic nervous system

Can spirituality help tip the scales in your favour?



Flight or fight  
Distress  
Drains resources  
Energy depleting

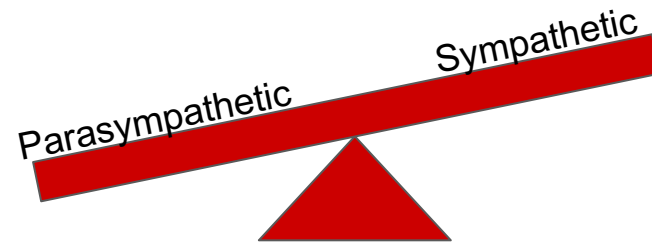
Lack of **homeostasis**  
resulting in  
development of  
chronic illnesses

# Spirituality may influence homeostasis

Homeostasis = ability of the body to respond to a threat and then return to a normal resting state

Relaxed  
Happy  
Emotionally balanced  
Resilient

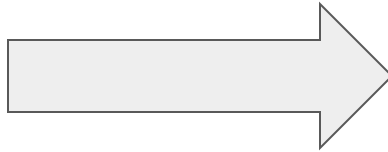
Vagus nerve promotes:  
homeostasis, growth,  
restoration, healing and  
rebuilding our resources



# Can spirituality transform emotions of illness?



Fear, worry, anxiety  
Hate, jealousy  
Anger, revenge  
Resentment, bitterness  
Betrayal, disappointment  
Guilt, blame  
Low self-esteem



Trust, love  
Kindness  
Compassion  
Forgiveness  
Acceptance  
Non-judgment  
Empowerment  
Gratitude

# Questions to ask ourselves: Do I.....?

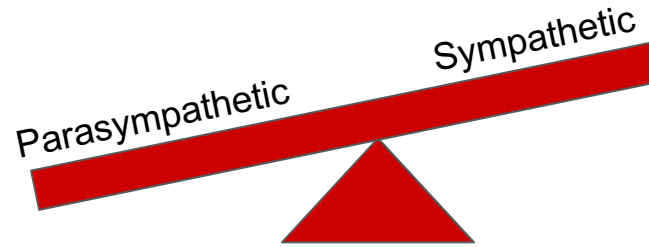
- I have a sense of meaning and purpose in my life
- I have a sense of trust
- I am free from worries and anxieties
- I have strong values and ethics to guide my life
- I have sufficient time to engage in activities that inspire my spirit
- I pray or meditate daily
- I have a deep sense of connection with others, with nature and with divine spirit
- I have a strong faith in God or a universal divine spirit guiding my life.



# Do your answers tip the scales?

Relaxed  
Happy  
Emotionally balanced  
Resilient

Vagus nerve promotes:  
homeostasis, growth,  
restoration, healing and  
rebuilding our resources



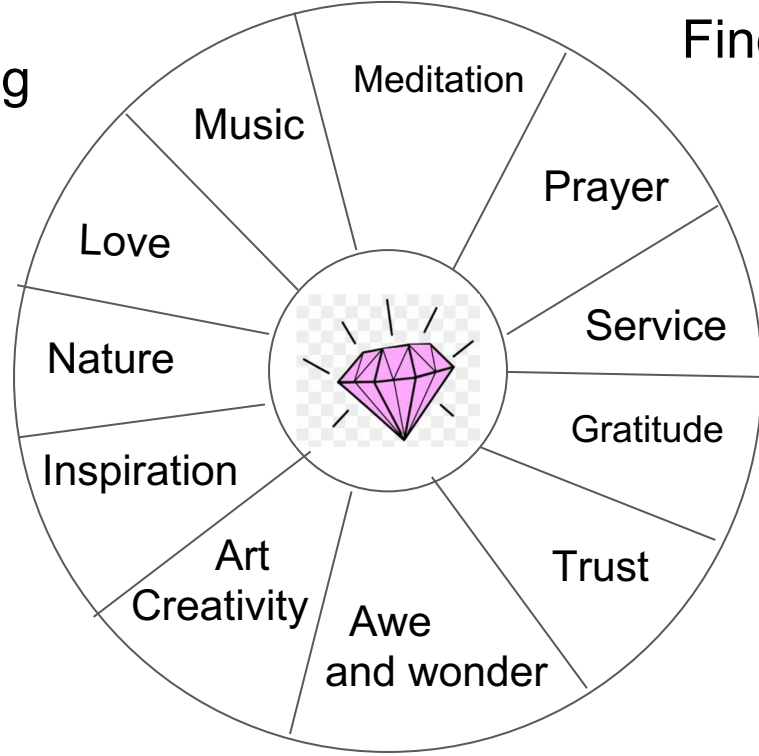
Flight or fight  
Distress  
Drains resources  
Energy depleting

Lack of homeostasis  
resulting in  
development of  
chronic illnesses

# How can we strengthen our experiences of spirit?

There are multiple categories of uplifting experiences

Find what works for you



# Awe Wonder Beauty

Jennifer Stellar, PhD. professor at U.of Toronto

Research on awe found that awe:

- Increases vagal activation
- Reduces inflammation
- Improves immune function
- Improves cardiac health
- Changes neural patterns focusing the mind outward

Awe & The Impact on the Body with Dr Jennifer Stellar

<https://www.youtube.com/watch?v=8YnO9zN8JtA>

Awe with Dr Jennifer Stellar: The Immune System, Body, & Mind

<https://www.youtube.com/watch?v=-D4NvH8BB1A>



# Service

Study on health outcomes of volunteering found improvement in:

- Physical health
- Functional ability
- Mental health
- Life satisfaction
- Self-esteem
- Happiness
- Mortality



Study found health benefits are cumulative with participation in several voluntary services

Yeung, J.W.K., Zhang, Z. & Kim, T.Y. Volunteering and health benefits in general adults: cumulative effects and forms. **BMC Public Health** 18, 8 (2018). <https://doi.org/10.1186/s12889-017-4561-8>

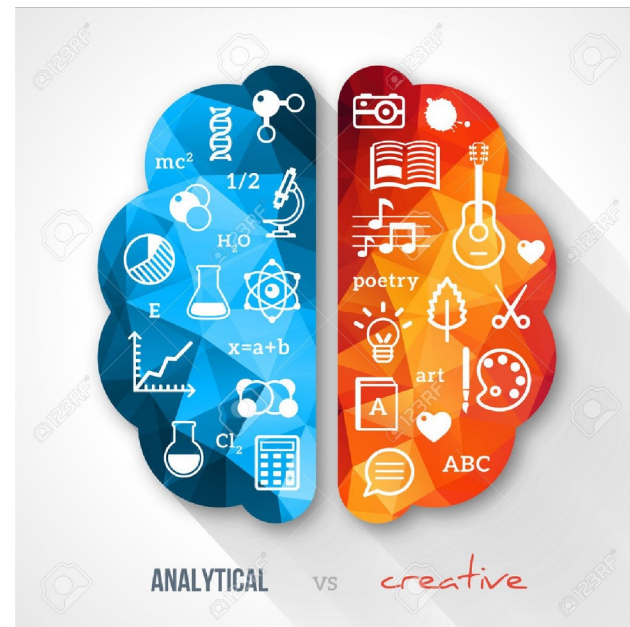
# Inspiration Art Creativity

Review of research on art and healing:  
4 primary categories found to promote health and healing

- Music engagement
- Visual arts therapy
- Expressive writing
- Movement-based creative expression (dance, tai chi)

Conclusion: “Through creativity and imagination, we find our identity and our reservoir of healing”

Stuckey, Heather L, and Jeremy Nobel. “The connection between art, healing, and public health: a review of current literature.” *American journal of public health* vol. 100,2 (2010): 254-63.  
doi:10.2105/AJPH.2008.156497



# Music

- Reduce anxiety
- restore emotional balance
- Improves pain
- Calms neural activity in amygdala
- Reduces heart rate
- Reduces respiratory rate
- Reduces cortisol - stress hormone
- Improves relaxation, wellbeing



Stuckey, Heather L, and Jeremy Nobel. "The connection between art, healing, and public health: a review of current literature." *American journal of public health* vol. 100,2 (2010): 254-63. doi:10.2105/AJPH.2008.156497

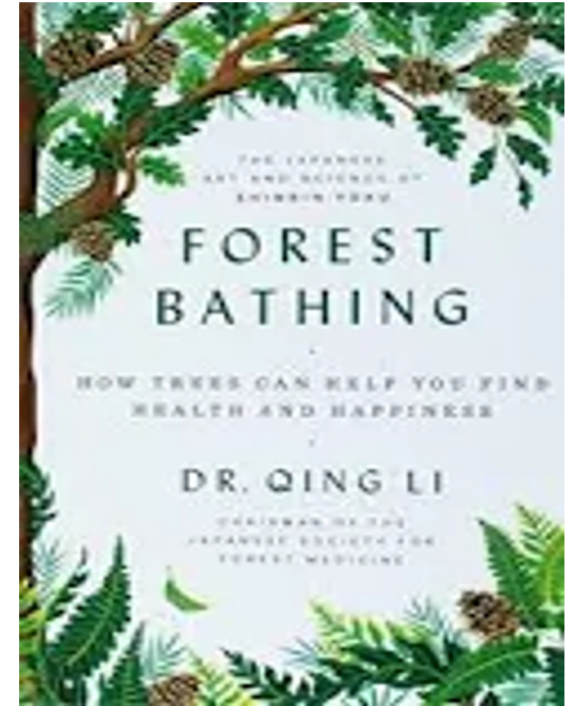
Guided imagery reduces post surgical pain and length of hospitalization

Tusek DO, Cwynar R, Cosgrove DM. Effect of guided imagery on length of stay, pain and anxiety in cardiac surgery patients. *J Cardiovasc Manag* 1999;10(2):22–28

# Nature

Nature therapy/forest bathing benefits:

- Reduces stress hormones: cortisol, adrenaline
- Reduces blood pressure and heart rate
- Decreases anxiety, depression
- Increases energy
- Strengthens immune system
- Possible for all, even those with some limitations in functional level



M. Hansen, R. Jones, K. Tocchini, “Shinrin-Yoku (Forest Bathing) and Nature Therapy: A State-of-the-Art Review”, Int J Environ Res Public Health.2017 Aug; 14(8): 851

# Spiritual moments in nature

*“Then my heart with pleasure fills  
And dances with the daffodils.”*

William Wordsworth 1770-1850



Grffiti in a pedestrian tunnel in the Lake District, England, where Wordsworth lived



# Love

## Social relationships:

- Influence health behaviours
- Improve immune function
- Reduce inflammation
- Improve autonomic regulation
- Reduce stress
- Reduce blood pressure and mortality from heart disease

(Flip side: marital strain erodes physical health and the negative effect of marital strain on health becomes greater with advancing age)



Umberson D, Montez JK. Social relationships and health: a flashpoint for health policy. *J Health Soc Behav.* 2010;51 Suppl(Suppl):S54-S66. doi:10.1177/0022146510383501

# Gratitude

Recent study on Gratitude Enhanced Mindfulness (GEM)

A 4 week online mindfulness and gratitude program enrolled 151 people with arthritis resulted in improved:

- Pain intensity
- Pain anxiety
- Pain interference
- Fear of movement
- Self-efficacy



Swain, N., et al. "Gratitude Enhanced Mindfulness (GEM): A pilot study of an internet-delivered programme for self-management of pain and disability in people with arthritis." *The Journal of Positive Psychology* 15.3 (2020): 420-426.

# Trust

Generalised trust has positive implications for subjective well-being

Higher trust was linked to higher flourishing and lower psychological distress.

Daniel Duploy et al. Social Capital and the well-being of migrants to Australia: Exploring the role of generalised trust and social network resources. *International Journal of Intercultural Relations* Vol.79, Nov. 2020, pages 1-12



Do you trust this will come back to you?

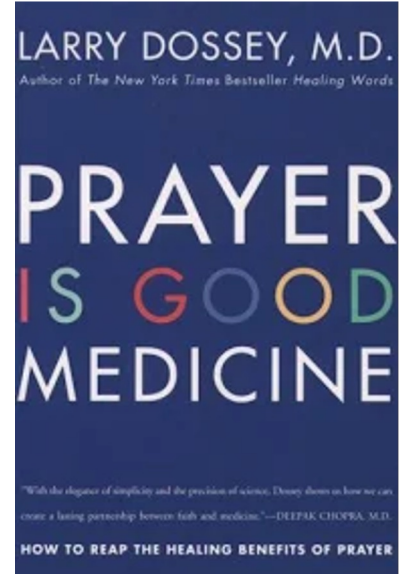
Dropped wallet studies-

John F. Helliwell and Shun Wang, Trust and Well-Being, *International Journal of Wellbeing*, Vol. 1, No. 1, April 2010, pp. 42-78

# Prayer

*“More things are wrought by prayer  
than this world dreams of.”*

Alfred, Lord Tennyson (1817-1904)



Astin JA, Harkness E, Ernst E. The efficacy of “distant healing”: A systematic review of randomized trials. *Ann Intern Med.* 2000;132:903–10

Andrade C, Radhakrishnan R. Prayer and healing: A medical and scientific perspective on randomized controlled trials. *Indian J Psychiatry.* 2009;51(4):247-253.  
doi:10.4103/0019-5545.58288

# What blocks us from getting connected with our spirit?

Sometimes we have to dig deep.

A good question to ask:

Does this

- societal value
- cultural practice
- job/role
- behaviour habit
- personality trait

**nourish my spirit or crush it?**



---

Society/Culture

---

Job/ Role

---

Behaviour

---

Personality



# Some examples of helpful affirmations

- I am a creative person
- I am grateful for my many blessings
- I appreciate music
- I give and accept love
- I love nature
- I enjoy quiet moments
- I trust in God to care for me
- I cherish my loved ones
- I seek out beauty
- I am hopeful

HOPE



J  
O  
Y

LOVE

TRUST

RESPECT

# Final tips

- Patience. Progress always includes ups and downs,
- Nature heals and we can do the work to support nature
- Thoughts affect our health. We can change our thoughts.
- Emotions affect our health. We can cultivate positive emotions.
- We can find therapies in the things we like to do.
- For things we can't do as before, we can find new ways.
- We can find meaning and purpose in life.
- We can nourish our spirit.
- We can seek experiences that bring us joy.



# Words of wisdom

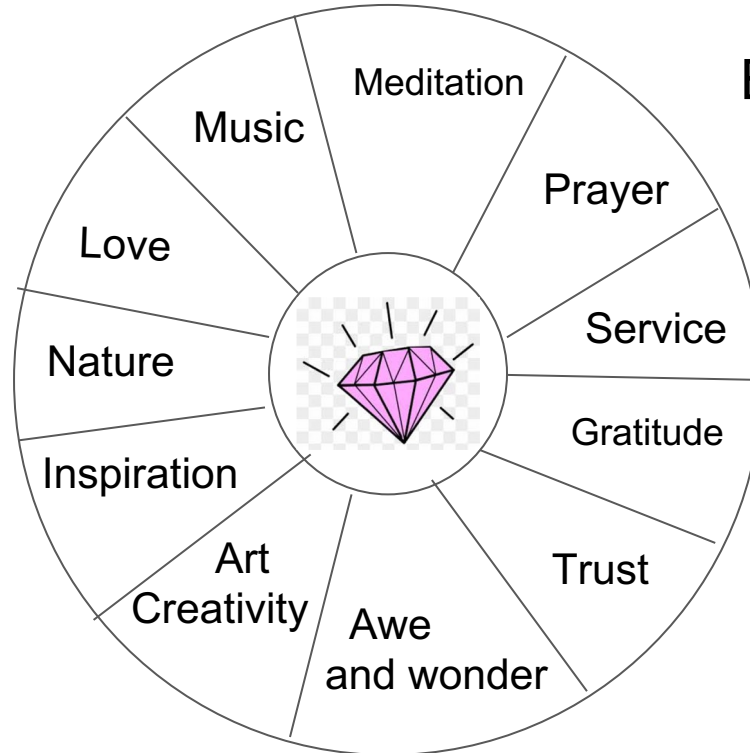
Do anything, but let it produce joy.



Walt Whitman, Leaves of Grass



How can we strengthen our experiences of spirit?  
How do we sing our song?



Explore the full circle

# Discussion guide

- Discuss connections to spirit. Let's share our favourite choices.
- Discuss any examples of overcoming life situations that crushed our spirit.
- Let's discuss the inspirational, creative or beloved object we chose to share with the group.

Basic rules of sharing:

- Confidentiality - anything shared stays within the group
- Non-judgment - anything said is accepted unconditionally
- Attention to person speaking
- Respect of person speaking

Time to kick back

Relaxation exercise:

Metta meditation



# Metta meditation

May I be free from ill will.

May I be free from troubles of the body and mind.

May I be safe from inner and outer harm.

May I be peaceful and happy

May I be healthy and strong.

May I live with ease and joy.



To be repeated and directed to:

- “We” - the group
- “They” - all our loved ones
- “They” - all the difficult people in our lives and people who have done wrong to us. Forgive them all.

Time to kick back

Relaxation exercise

16. Remembered wellness



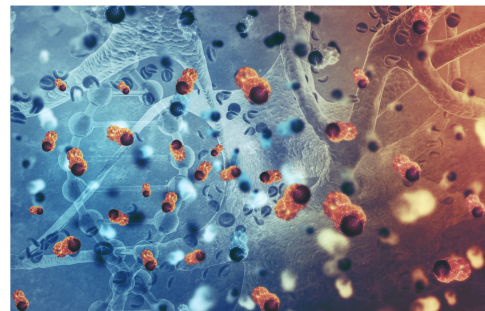
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## The Long Mile: Managing Chronic Pain

Dr. Teresa Clarke

This 10-week series will help you on your chronic pain journey. You will learn how to promote healing through integrative approaches and optimize your physical and mental well-being.



## Immune Health & How to Optimize Your Immunity

Dr. Teresa Clarke

In this session, you will learn integrative health approaches to promoting immune health. These approaches can be added to public health recommendations to reduce your risk of serious viral illness.



## Acupressure for Chronic Illnesses

Dr. Teresa Clarke

In this series of three workshops, you will learn how Acupressure can be utilized in a self-treatment approach to improve wellbeing and symptom management in patients with chronic illnesses.



## Osteopathy & Chronic Conditions

Fabio Bocchetti

In this series of four workshops, you will learn how Osteopathy can explain and treat several types of headaches, low back pain, knees or hip pain as well as digestive issues.

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## 101: Cannabis Counselling & Treatment Plans

**By participating you will learn about:**

- The endocannabinoid system
- The differences between cannabinoids (THC & CBD)
- Routes of administration (oral oil & vaporization)
- Symptom management using cannabis
- Customized treatment plans
- How to dose your cannabis safely
- How to monitor for symptom improvements
- Acute adverse effects
- Drug interactions
- Supply options through a Health Canada licensed seller
- Cost of medication & discount programs available
- Extended health benefits & claiming as a medical expense
- Patient safety

## 201: Inhaled Cannabis; Dried Flower, Concentrates & Extracts

**By participating you will learn about:**

- The difference between smoking & vaporization
- Is vaporization safe?
- When to consider using vaporized cannabis for symptom management
- Finding the right temperature for optimal benefit
- Types & cost of vaporizers
- Choosing the best strain to vaporize (sativa, indica & hybrids)
- How to determine your optimal dose & monitoring effects
- Where am I allowed to vaporize my cannabis?
- Safe storage of vaporizer & cannabis
- Driving & travelling
- Inhaled extracts

## 301: Cannabis Edibles, Oral Preparations & Topicals

**By participating you will learn about:**

- The difference between medical & recreational cannabis
- Potential drug interactions
- Differences between cannabinoids: CBD, THC, CBN & CBG
- Edibles: oral products, beverages, chocolates, baked goods, chews & candies
- Topicals
- Onset of action
- Acute adverse effects
- Choosing a product that is right for you
- Dosing considerations
- Patient safety
- Determine your optimal dose & monitoring effects

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