Grief Recovery:

Implications of Neuroscience and Contemplative Wisdom

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Plan for This Talk

- Setting the Context
- Mind and Brain Are One Unified System
- Your Brain - the FAQs
- Perspectives on Neurological Explanations
- The Natural, Wholesome State of Your Brain
- Your Brain When It’s Upset or Traumatized
- The Psychology and Neurology of Grieving
- Nurturing the Grieving Brain
- Discussion
Setting the Context

- Limitations of a “recovery” framework
- Limitations of neuropsychological approach
- Many contemplative perspectives
- Many kinds of loss
The Union of Mind and Brain

- Subjective experience correlates with brain activities.

- Change your experience - and you change your brain, temporarily and then permanently.

- Change your brain - and you change your experience.
“Ardent, Resolute, Diligent, and Mindful”
"We ask, 'What is a thought?’

We don't know,

yet we are thinking continually."

- Ven. Tenzin Palmo
Your Amazing Brain

Major Features

- **Size:**
  - 3 pounds of cottage cheese
  - 1,100,000,000,000 neurons, total
  - 100 billion "gray matter" neurons

- **Activity:**
  - Always on 24/7/365 - Instant access to information on demand
  - 25% of the body’s blood flow, oxygen, and glucose

- **Speed:**
  - Neurons firing 10 to 100 times a second
  - Signals crossing your brain in a tenth or hundredth of a second
One Simple Neuron . . .
Multiplied by Billions of Neurons

- 100,000,000,000 neurons (and that’s only gray matter)

- Each with 10,000 synapses:
  - One quadrillion - 1,000,000,000,000,000 - synapses total
  - Most synapses flickering 1 - 50 times a second
  - Neural nets rocked by bursts of 80/second waves

- Possible brain states: 1 followed by a million zeros

- Circular loops

- Overlapping, connected sub-networks
YOUR BRAIN IS THE MOST COMPLEX OBJECT KNOWN IN THE UNIVERSE.

MORE COMPLEX THAN THE CLIMATE, OR A SUPERNOVA
Limits of Neurological Explanations

- Just one level of analysis
- Pitfalls of reductionism, fascination with the physical
- Influenced by social factors (e.g., economics, culture, desire for quick fix)
Your Natural Condition

- Parasympathetic activation
- Pleasant hormones and neurotransmitters: Norepinephrine, oxytocin, dopamine, endorphins
- Brain waves: Increased coherence and resonance
- Example of EMDR

What are you like when you are not stressed or anxious?
Circuits of Emotional Responses

Neocortex
Higher-order thinking

Limbic brain
Emotions

Brain stem
Survival
Stressed, Upset, or Traumatized

- Incoming stimuli processed by **amygdala**
  - Central switchboard; evolutionarily ancient structure
  - Primed to go **negative**: anxious combativeness

- Snap judgments (influenced by ties to hippocampus [memory]):
  - Pleasant → Approach; Unpleasant → Avoid, fight, freeze, appease

- Reacts before frontal lobes can process perception signals
  - “Jump first, ask questions later!”

- But leads primitive reactions to hijack modern, reasoning mind
  - (Especially with history of trauma)
  - Triggering cascade of SNS and stress hormone reactions
  - Which shape thoughts, beliefs, perceptions, “memories”
  - And sensitize the amygdala and desensitize the hippocampus (disconnecting emotional reactivity and clear memory for events)
The Psychology of Grieving

- Feelings of loss; deep sorrow and distress
- Thoughts, images, memories of what was lost
- Pining, yearning for what was lost
- Related reactions (e.g., anger, guilt, unresolved communications, stress of dealing with the aftermath, demoralization, anhedonia, depression, suicidal inclinations)

-> Compelling, even intrusive quality to this material
-> Verbal, visual, sensory, and behavioral elements
-> Can be anticipatory
Since grief has many psychological elements, it draws on many resources in the brain.

These include those dealing with attention, memory, emotion, planning, language, and relationships.

So, the experience of grief tends to activate both specific brain areas linked to the aspect of grief that’s primary in the moment, and a more general network of structures and processes.
Grief with Imagery

- Women looking at a picture of a recently deceased loved one
- Activated cuneus, superior lingual gyrus, insula, dorsal anterior cingulate cortex, inferior temporal gyrus, and fusiform gyrus

Grief with Words

- Women looking at words related to the death of a loved one.
- Activated the precuneus, precentral gyrus, midbrain, and vermiform.

Nurturing the Grieving Brain

- Parasympathetic nervous system
- Frontal lobes
- Cingulate gyrus
- Insula
- Amygdala

-> Systematically apply familiar methods to neurological targets.

-> Simple activation strengthens circuits, making activation easier the next time.
Parasympathetic Nervous System

- This wing of the autonomic nervous system:
  - Handles maintenance functions: “rest and digest”
  - Balances the “sympathetic” wing: “fight or flight”
  - Is primary; unlike SNS, is necessary for life

- Activate and strengthen it by:
  - Breathing
  - Relaxation
  - Improving heart rate variability
  - Yawning
  - Positive emotion
  - Fiddling the lips
PNS and Contemplative Practice

- Lovingkindness for self and others
- Cultivation of intensely positive feelings (e.g., joy, contentment, tranquility, bliss, rapture)
- Resting in core consciousness; “fair witness”
- Abiding as “true nature,” Bodhicitta, the Divine
Geography of the Brain
Frontal Lobes

- Grieving-related functions:
  - Finding meaning
  - Planning responses to loss
  - Bringing verbal thought to emotional and somatic processes
  - Controlling problematic expressions of feelings and desires

- Activate and strengthen it by:
  - Have conscious reasons for self-care; be for oneself
  - Deliberately exercise the will
  - Make intentions conscious, multi-modal, and vivid; call to mind a strong sense of the desired state
  - Give instructions to oneself
  - Re-intend at short intervals
Frontal Lobes and Contemplative Practice

- Hold helpful perspectives on loss
  - Impermanence
  - Compounded and interdependent nature of everything; “not-self;” the departed loved one is part of everything
  - Personally meaningful religious/spiritual context

- “Channel” a teacher or mentor

- Give oneself over to wholesome practices and precepts
"I" Is a Fictional Character

- Self functions are widely distributed throughout the brain.
  - No homunculus inside your head
  - Nervous system activities co-arising due to causes and conditions

- Fostering selflessness:
  - Quiet parietal lobes to dissolve body-in-world and self-in-body
  - Open into spaciousness, emptiness, blurred boundaries of "me"
  - Abandon, release sense of self in this moment
  - Receive the breath as a space, not as an "agent" pursuing it
  - View experience as provisional, just the flickering brain, not “mine”
Cingulate Gyrus

Grieving-related functions:
- Retrieving autobiographical memories (i.e., with the person)
- Integrating emotion and memory, and thinking and feeling
- Controlling attention
- Interest in other people

Activate and strengthen it by:
- Activities which call for monitoring performance (e.g., careful crafts, precision sports)
- Deliberately linking emotion and memory (e.g., scrapbooks)
- Linking thinking and feeling (e.g., speaking one’s experience or reflecting about it in present time, therapy)
Cingulate Gyrus and Contemplative Practice

- Meditation or prayer:
  - Regular, longstanding practice leads to measurable thickening in the anterior cingulate
  - Effects are most noticeable with age; meditation may slow the cognitive declines of aging
  - Many kinds; consistent practice is best
  - Concentration practices (require close observation of performance)
  - Reflections or visualizations that intensely integrate thinking/imagery and feeling (e.g., chanting, repeating the Lord’s Prayer, Tibetan tonglen practice)
Insula

- Grieving-related functions:
  - Sensing internal bodily (especially visceral) states
  - Involved in the sense of weight, heaviness, even loss of some literal part of the self

- Activate and strengthen it by:
  - Internal sensing activities (e.g., sensory awareness, Feldenkrais, yoga)
  - Abiding in physical pleasure
Insula and Contemplative Practice

- Whole body awareness
- Links to activating right hemisphere in general
  - Visualization
  - Musical chanting, singing, drumming
  - Meditations on spaciousness (e.g., blue sky)
Amygdala

- **Grieving-related functions:**
  - Interprets stimuli (internal and external) as unpleasant, and sends instructions to avoid or resist them
  - Active in nightmares
  - Major role in any traumatic components to grieving

- **Incline the amygdala more positively:**
  - Shift memories in a positive direction:
    - Memories are not recalled, but reconstructed.
    - Infuse the reconstruction with positive qualities:
      - Context of spaciousness
      - Compassion and encouragement for yourself
      - That you coped and got through; your own good qualities
      - Forgiveness practices

- **Re-condition amygdala labeling:** In addition to cultivating positive emotion and activating PNS, increase sensitivity to neutral stimuli.
Amygdala and Contemplative Practice

- Close attention to the feeling tone: Frontal lobe oversight short-circuits the secondary cascade.

- Impartiality toward the ten thousand things:
  - Good, bad, beautiful, ugly, etc. are all “empty”
  - Relax judgmental labelling
  - Compassion and lovingkindness, no matter what

- Disenchantment and dispassion
The Great Way is easy

for one with no preferences.

- 3rd Zen Patriarch
May you know love, joy, wonder, and wisdom, in this life, just as it is.

Thank you!