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 5 to 50 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 about 1000 synapses, 100 trillion total
- Possible brain states: 1 followed by a million zeros
- Circular loops
- Overlapping, connected sub-networks

... A Profoundly Complex System

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

- 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)

Stressed, Upset, or Traumatized
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

The Neurology of Grieving

- 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 vermis

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 yourself 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!