

# Spirituality, Mindfulness and the Treatment of Mental Disorders

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# Talk Outline

- ▣ Definitions
- ▣ Mindfulness and Psychotherapy Research
  - ▣ Meta-Analytic Reviews
  - ▣ Depression Studies
- ▣ Applying Mindfulness to Psychotherapy
  - Key strategies and methods
  - Applications
    - ▣ Dialectical Behavioral Therapy (DBT)
    - ▣ Mindfulness Based Cognitive Therapy for Depression
- ▣ Toward a Neurobiology of Mindfulness in the Treatment of Mental Disorders

# Definitions / Basic Concepts

# Definitions of Mindfulness

- ▣ “Facing the bare facts of experience, seeing each event as though occurring for the first time”

Goleman, 1988

- ▣ “Keeping one’s consciousness alive to the present reality”

Hanh, 1991

- ▣ “Paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally”

Kabat-Zinn, 1994

- ▣ “Awareness of present experience with acceptance”

Germer, 2005

# Relevance of Mindfulness to Mental Health Treatment

- ▣ Fundamental to the clinician-patient relationship
- ▣ Expands “mind-brain” paradigm in clinical care
- ▣ Applicable to clinical encounters
  - Integrates into many different theoretical approaches
  - Amplifies therapeutic engagement
  - Practical, portable and “user-friendly”
- ▣ Focuses on “meta-cognitive awareness”
- ▣ Relates back to basic and translational research (especially regarding new models of illness)
- ▣ Caveat: “Not applicable to everyone, everywhere”

# Techniques for Experiencing Mindfulness

## ▣ Formal practices

- Sitting meditations (attending to breathing, body sensations, sounds, thoughts, etc.)
- Movement meditations (walking meditation, mindful yoga stretches)
- Group exchange (led exercises, guided discussion of experience)

## ▣ Informal practices

- Mindful activity (eating, cleaning, driving, etc.)
- Structured exercises (self-monitoring, problem-solving, etc.)
- Mindful reading (esp. poetry)
- Mini meditations (e.g. “3 minute breathing space”)

# Review of the Literature

# Mindfulness and Psychotherapy Research

“The Effect of Mindfulness-Based Therapy on Anxiety and Depression: A Meta-Analytic Review”  
(Hofmann, et al, 2010)

- ▣ Screened 727 papers, selected 39 studies involving 1,140 participants treated for a range of conditions (anxiety, depression, cancer, pain, eating disorders)
- ▣ Overall, moderate effect size:  $g = 0.63$  for anxiety symptoms and  $0.59$  for depressive symptoms
- ▣ Effect sizes for patients with depression ( $g=0.97$ ) & with anxiety disorders ( $g=0.95$ )



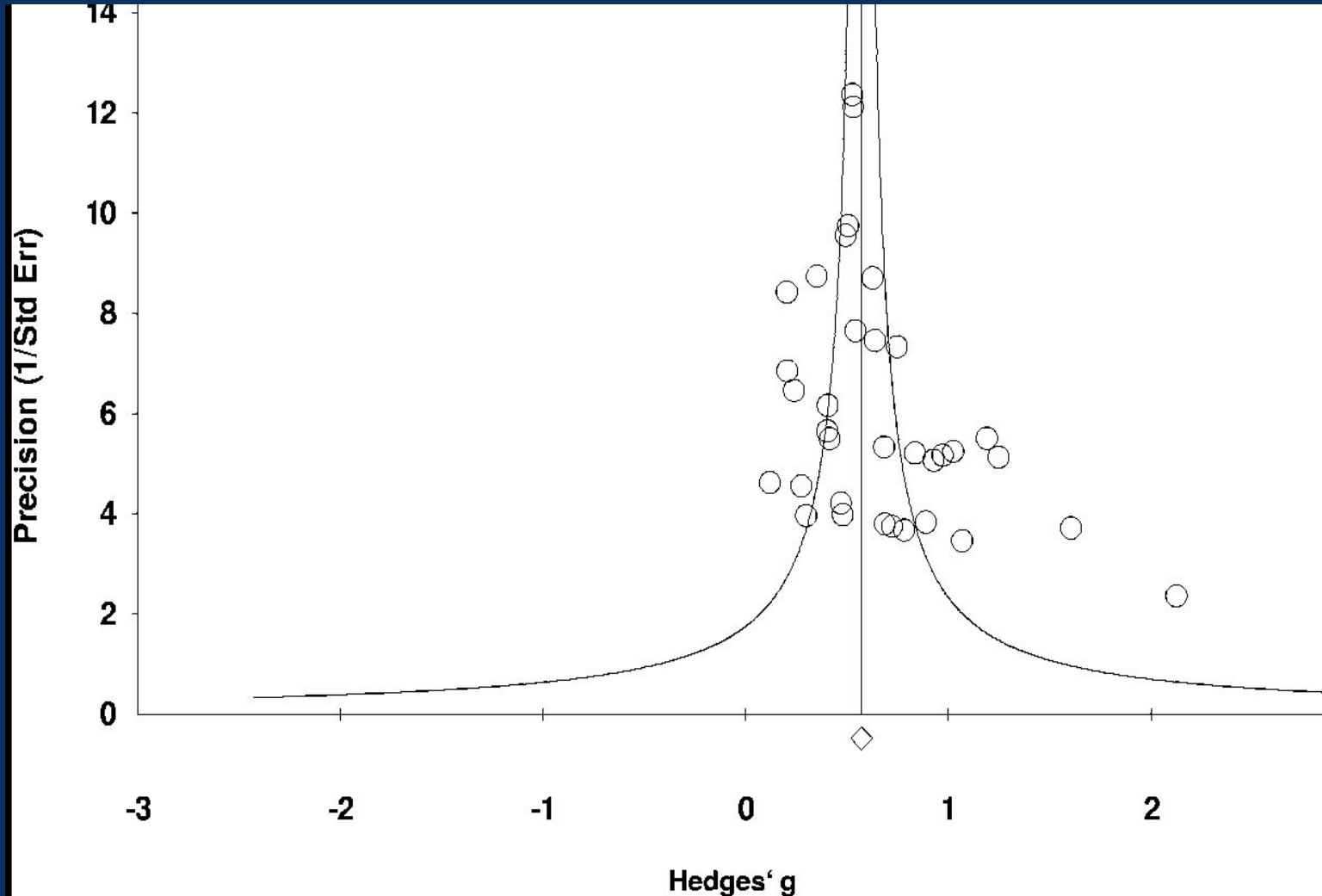
# Mindfulness and Psychotherapy Research

## Effect sizes of MB therapy on anxiety symptoms

Disorder	# studies	Range g	Average g
Anxiety	7	0.48 - 2.13	0.97
Pain	5	0.21 - 0.64	0.44
Cancer	8	0.36 - 1.25	0.63
Medical	10	0.30 - 1.07	0.61

# Mindfulness and Psychotherapy Research

Funnel plot of precision by Hedges's  $g$  for anxiety measures



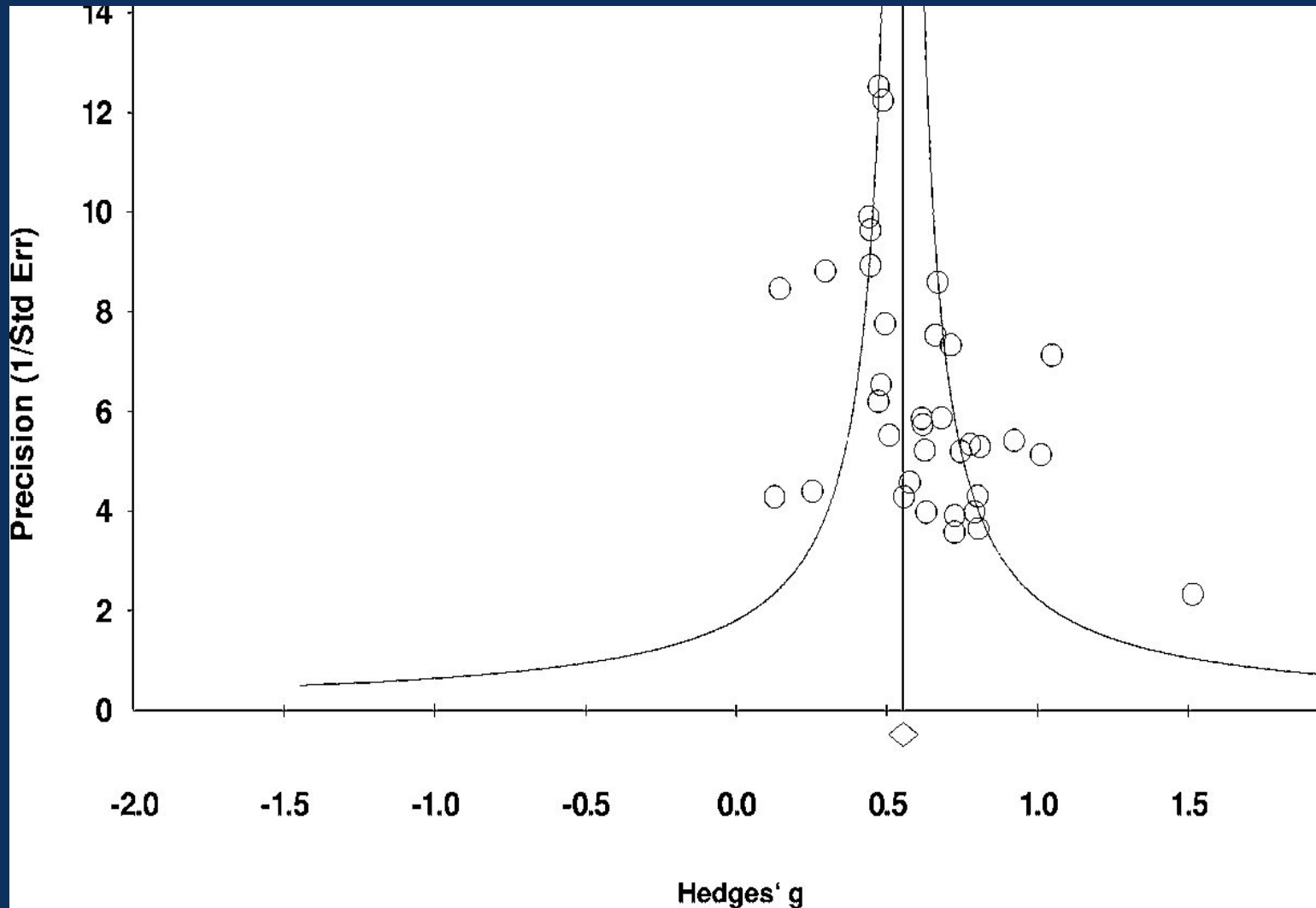
# Mindfulness and Psychotherapy Research

## Effect sizes of MB therapy on depressive symptoms

Disorder	# studies	Range g	Average g
Anxiety	6	0.56 - 0.92	0.75
Depression	4	0.63 - 1.52	0.95
Pain	6	0.47 - 0.71	0.51
Cancer	7	0.15 - 0.67	0.45
Medical	9	0.25 - 1.01	0.58

# Mindfulness and Psychotherapy Research

Funnel plot of precision by Hedges's  $g$  for depression measures



# Mindfulness and Psychotherapy Research

“Mindfulness-Based Cognitive Therapy for Psychiatric Disorders: A Systematic Review” (Chiesa & Serretti 2010)

- ▣ Screened 286 papers, examined 41 studies and excluded 25 for various reasons (e.g. lack of control group).
- ▣ Analyzed a total of 16 studies involving 462 participants (235 in experimental groups and 227 in control groups) treated for anxiety disorders and depressive disorders using a variety of outcome measures (e.g. differences in 1 year relapse and recurrence rates, changes in baseline measures of depression and anxiety)

# Mindfulness and Psychotherapy Research

## ▣ Major findings

- MBCT in adjunct to usual care was significantly better than usual care alone for reducing major depression relapses in patients with 3 or more episodes (4 papers)
- MBCT plus gradual discontinuation of maintenance of antidepressant medication was associated with similar relapse rates at 1 year as compared with continuation of maintenance antidepressants (1 paper)

# Mindfulness and Psychotherapy Research

- ▣ “Prevention of Recurrence in Major Depression”  
(Teasdale, et al, 2000)
  - 145 recovered recurrently depressed patients
  - Randomized to TAU or MBCT
  - Relapse/recurrence assessed over 60 weeks
  - Patients with 3 or more previous episodes of depression had significantly reduced risk
    - ▣ 37% relapse in MBCT vs. 66% in TAU ( $p < 0.005$ )
  - No differences between groups in patients with 2 episodes of depression

# Mindfulness and Psychotherapy Research

- ▣ “MBCT in Major Depression Replication Study” (Ma, et al, 2004)
  - 75 recovered recurrently depressed patients
  - Randomized to TAU or MBCT
  - Relapse/recurrence assessed over 60 weeks
  - Patients with 3 or more previous episodes of depression had significantly reduced risk
    - ▣ 36% relapse (10/28) in MBCT vs. 78% (21/27) in TAU ( $p = 0.002$ )
  - No differences between groups in patients with 2 episodes of depression



# Mindfulness and Psychotherapy Research

- ▣ “MBCT to Prevent Relapse in Recurrent Depression” (Kuyken, et al, 2008)
  - 123 recovered recurrently depressed patients
  - Randomized to antidepressant maintenance (N = 62) or MBCT (N = 61) with slow taper of antidepressant
  - Relapse/recurrence assessed over 78 weeks
  - No differences in relapse rates between groups at 1 year (29/61 vs. 37/62)
  - MBCT group reported significantly lower HAMD and BDI scores and higher improvement in functional measures at endpoint ( $p \leq 0.05$ )

# Mindfulness and Psychotherapy Research

“Antidepressant Monotherapy vs. Sequential Pharmacotherapy and MBCT, or Placebo for Relapse Prophylaxis in Recurrent Depression” (Segal, et al, 2010)

- ▣ 160 patients with 2 or more episodes of depression
- ▣ Entered algorithm-informed antidepressant treatment
- ▣ N=84 (52.5%) achieved remission and were assigned 1 of 3 study conditions: antidepressant medication, MBCT or placebo
- ▣ Relapse/recurrence assessed over 18 months
- ▣ Patients with “unstable remission” patients in both medication and MBCT group had 73% decrease in hazard for relapse ( $p=0.03$ )
- ▣ No differences among the groups in patients with “stable remission”

# Applying Mindfulness to Psychotherapy Practice

# Mindfulness Oriented Psychotherapy

(Germer, Siegel, Fulton, 2005)

- ▣ Therapist Mindfulness
- ▣ Mindfulness Informed Psychotherapy
- ▣ Mindfulness Based Psychotherapy

# Therapist Mindfulness: Attitudes that can facilitate the experience of the “Being Mode” (Kabat-Zinn)

- ▣ Non-judging
- ▣ Non-striving
- ▣ Non-attachment to outcome
- ▣ Acceptance
- ▣ Patience
- ▣ Trust
- ▣ Openness (Beginner’s mind)
- ▣ Curiosity
- ▣ Letting Go
- ▣ Gentleness
- ▣ Non-reactivity
- ▣ Friendliness

# Mindfulness and the Therapist

- ▣ *Increases attention* – trains the mind to sustain attention and to switch attentional focus
- ▣ *Increases empathy* - is more predictive of patient outcome than technique or theoretical orientation
- ▣ *Increases self-compassion* – therapists who are less compassionate toward themselves are less compassionate toward their patients
- ▣ *Increases affect tolerance* – therapists experience emotions as transitory, received without fear – modeling for patients how to “be with emotion”

# Mindfulness Informed Psychotherapy

(Shapiro & Carlson, 2009)

- ▣ Therapy informed by insights from meditation, mindfulness practice and Buddhist psychology
- ▣ Formal meditation and mindfulness practices are not taught to patients – therapist is vehicle
- ▣ Books to help guide:
  - Epstein's *Thoughts Without a Thinker*, 2004
  - Kornfield's *The Wise Heart*, 2008
  - Shapiro & Carlson, *The Art and Science*, 2009

# Mindfulness Informed Psychotherapy

(Shapiro & Carlson, 2009)

- ▣ Basic task: “Accepting what is”
- ▣ Basic insight: Suffering arises when we resist what is
- ▣  $S = P \times R$  Suffering = Pain x Resistance
- ▣ Mindfulness offers a way of openly relating to all of experience. We face and embrace everything that arises instead of resisting or running away from it



# Mindfulness Informed Psychotherapy

(Shapiro & Carlson, 2009)

## R.A.I.N

R = recognize what is here

A = allow and accept it

I = investigate it with intimate attention

N = non-identified awareness => re-perceiving

# Mindfulness-Based Therapies

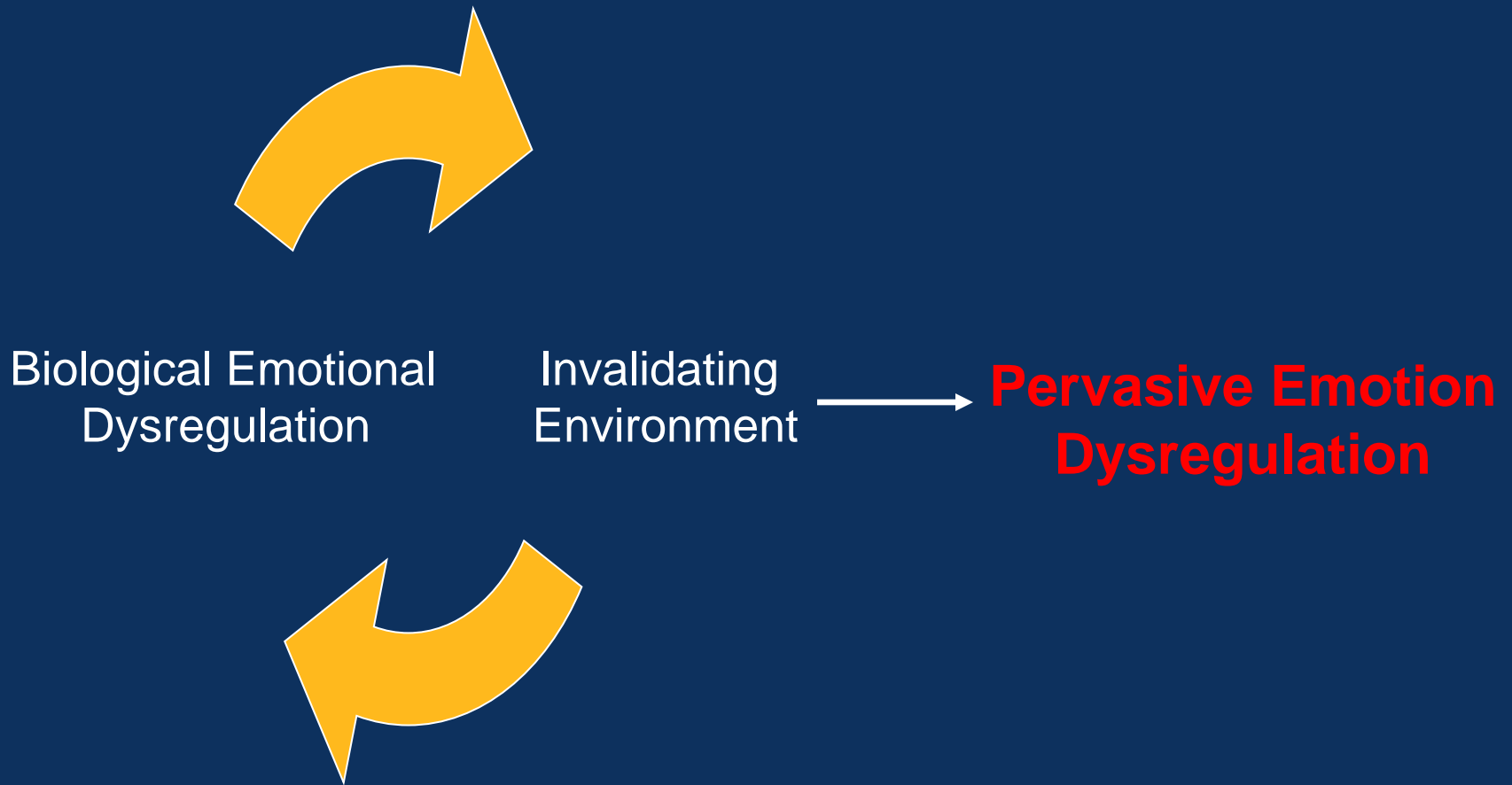
- Mindfulness-Based Stress Reduction (Kabat-Zinn, 1990)
- Dialectical Behavioral Therapy (Linehan, 1993)
- Mindfulness-Based Cognitive Therapy (Segal, Williams & Teasdale, 2002)
- Mindfulness-Based Treatment for Insomnia (Ong, Shapiro, Manber, 2007).
- Mindfulness-Based Relationship Enhancement (Carson et al, 2004)
- Mindfulness-EAT for Binge Eating (Kristeller Hallett, 1999)
- Individual therapy, without manualized intervention

# Dialectical Behavioral Therapy (Linehan, 1993)

# Dialectical Behavioral Therapy

- ▣ First developed by Marsha Linehan to treat patients with Borderline Personality Disorder (BPD), especially those with prominent suicidality and self-injurious behavior
- ▣ Applicable to many severe, chronic, multi-diagnostic, DIFFICULT TO TREAT patients
- ▣ Extended to treat both axis I and axis II disorders
- ▣ Dialectical multi-dimensional treatment
  - CBT + eastern philosophy + dynamic theory

# Biosocial Theory of BPD



# Core Strategies in DBT

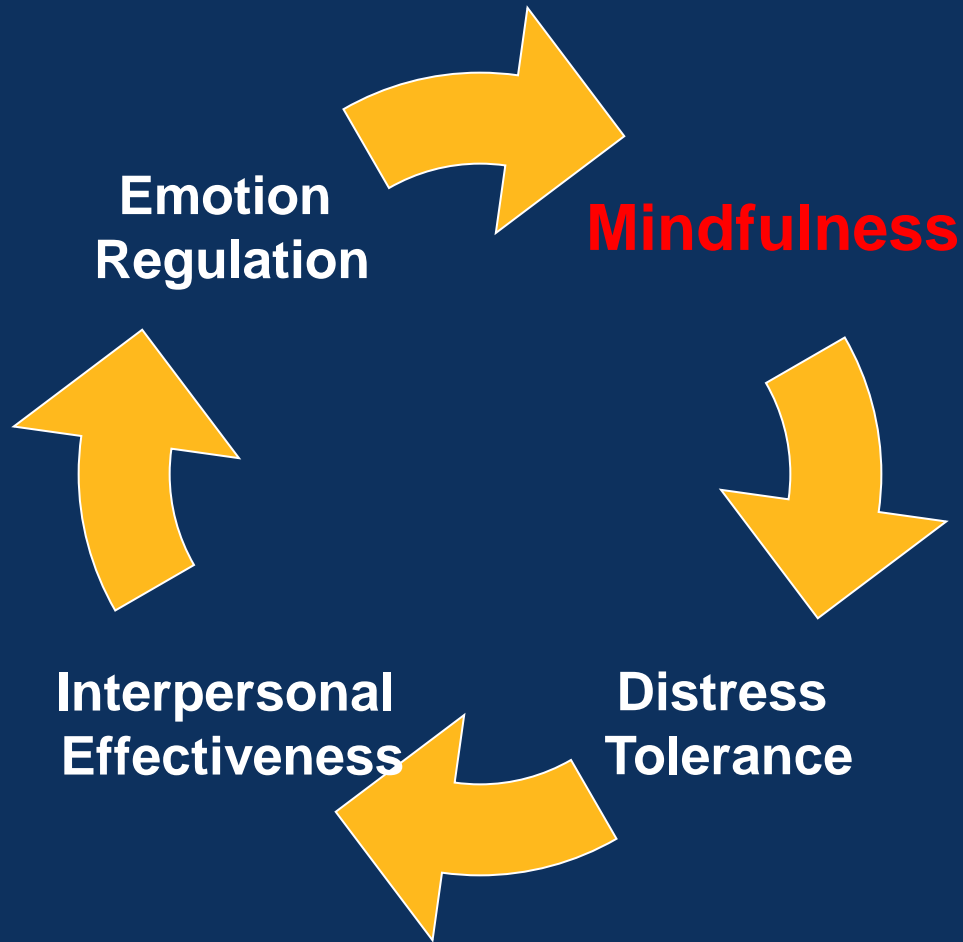
**Problem  
Solving**

**Validation**

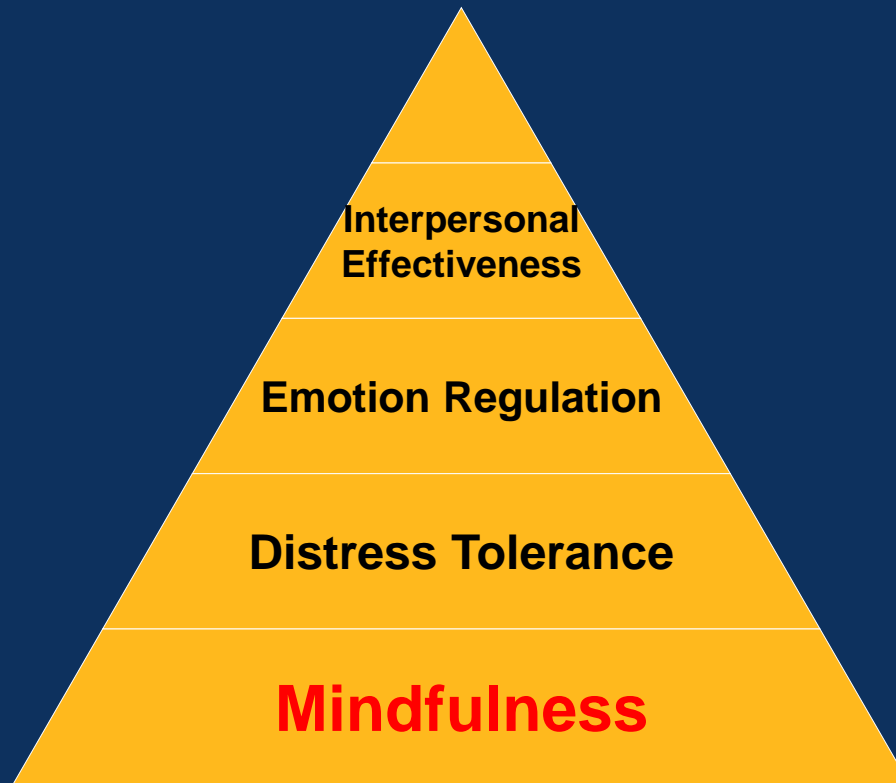


**Dialectics**

# Balance the Skills



# Another balance of skills





# How do the skills work?

ACCEPTANCE



CHANGE

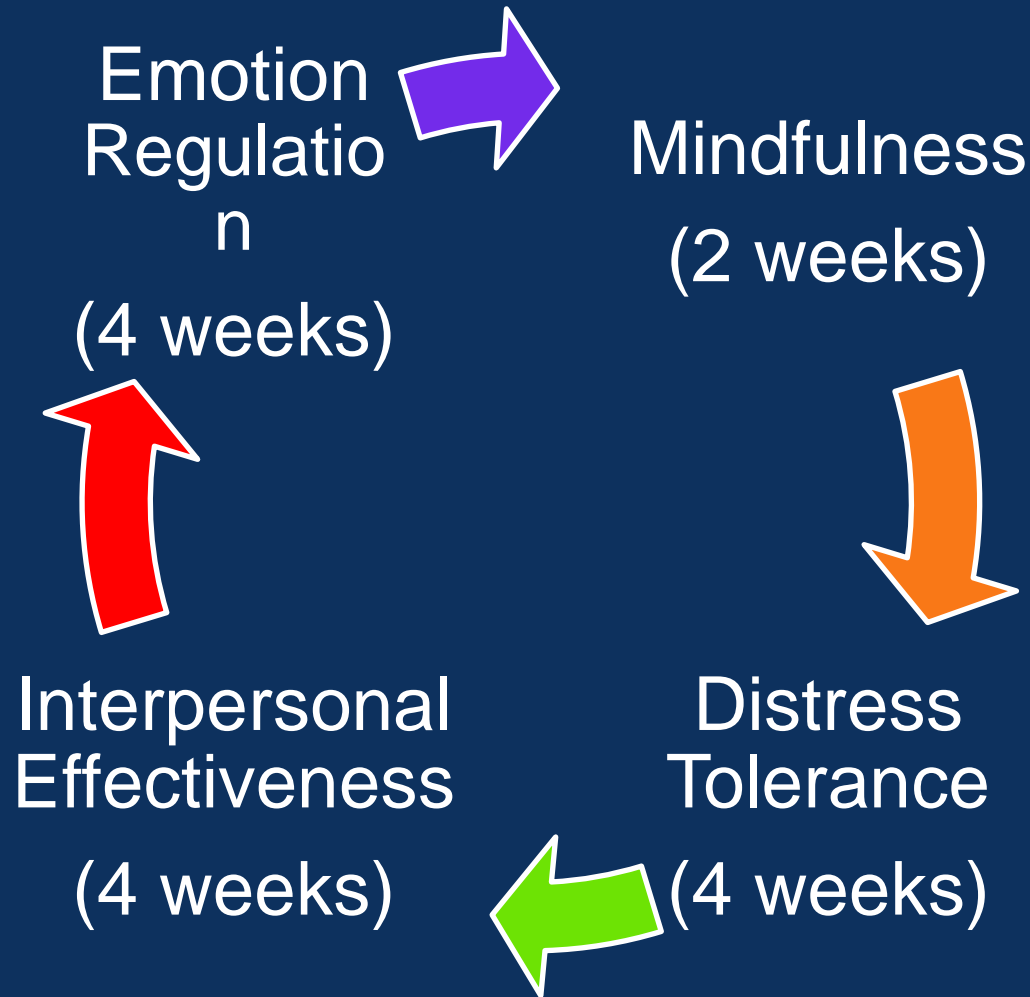
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**Self-Regulation**

# DBT Format

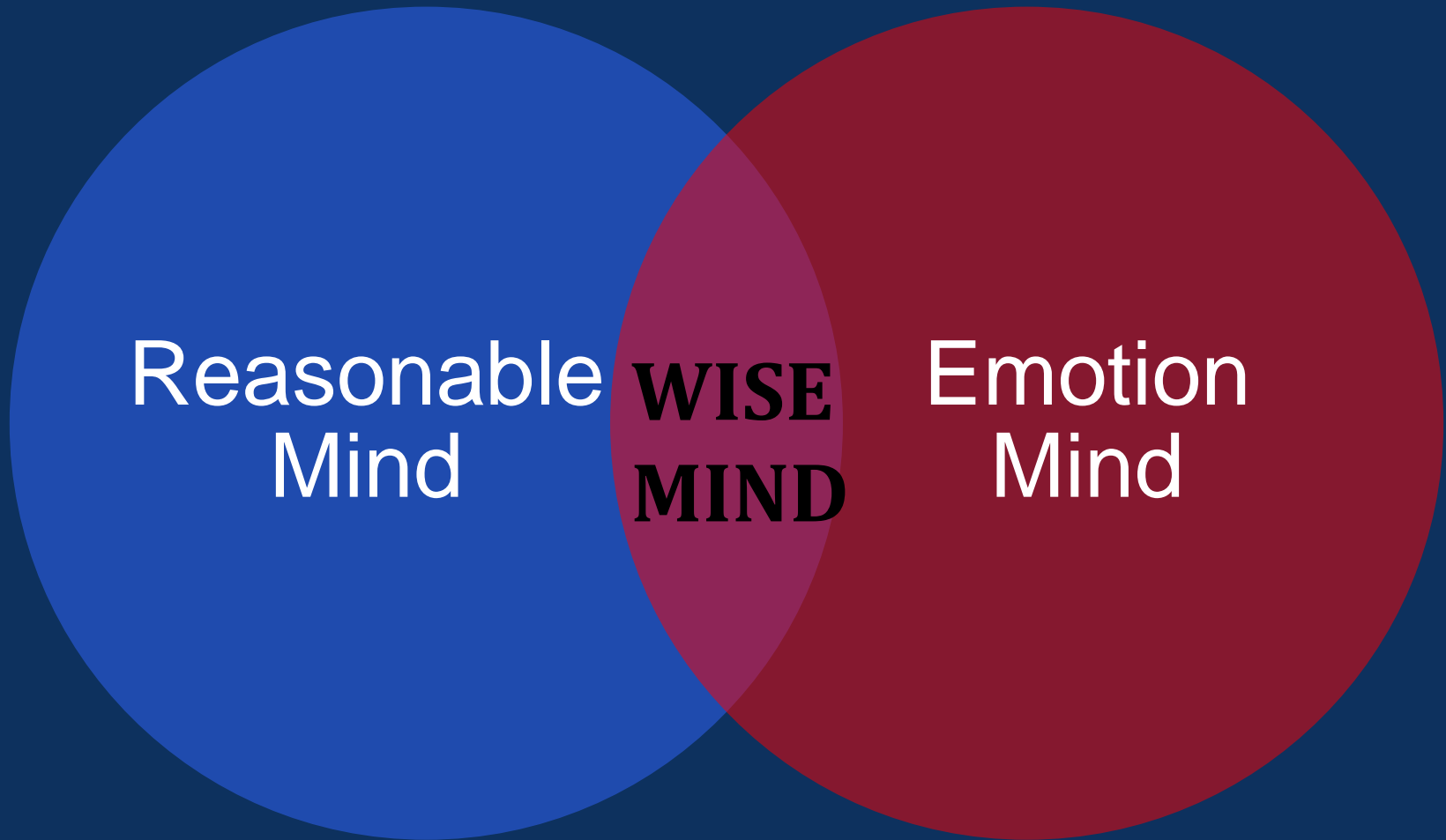
- ▣ 5 month cycle
- ▣ Each 4 week module followed by 2 weeks of mindfulness module
- ▣ 4 miss rule!
- ▣ 1<sup>st</sup> session contract/commitment focus
- ▣ Trainers: DBT text, Skills Manual, Snacks/coffee, handouts
- ▣ Patients: Folder, Pens/Paper, Diary Cards, HW sheets

# The DBT Skills Modules



# CORE MINDFULNESS SKILLS

## Mindfulness States of Mind



Reasonable  
Mind

**WISE  
MIND**

Emotion  
Mind

# MINDFULNESS

## The “WHAT” Skills

- ▣ Observe
- ▣ Describe
- ▣ Participate

# MINDFULNESS

## The “HOW” Skills

- ▣ Non-judgmentally
- ▣ One-mindfully
- ▣ Effectively

# MINDFULNESS

- ▣ Skills taught in lecture format
- ▣ In-session reinforcement of skills using exercises: “Art project”, Dancing, Guided imagery, Observing the breath
- ▣ Skills reinforced in individual therapy sessions

# DISTRESS TOLERANCE SKILLS

## Distracting Skills:

“Wise Mind ACCEPTS”

Activities

Contributing

Comparisons

Emotions

Pushing Away

Thoughts

Sensations



# DISTRESS TOLERANCE SKILLS

## Self-Soothing Skills: Using the Five Senses

Vision

Hearing

Smell

Taste

Touch

# DISTRESS TOLERANCE SKILLS

“IMPROVE the Moment”

Imagery

Meaning

Prayer

Relaxation

One thing at a time

Vacation

Encouragement

# DISTRESS TOLERANCE SKILLS

## PROS and CONS

- ▣ Of tolerating distress
- ▣ Of NOT tolerating distress

# DISTRESS TOLERANCE SKILLS

## Guidelines for Accepting Reality

- ▣ Observing your Breath
- ▣ Half-smiling
- ▣ Awareness
- ▣ Radical Acceptance: Turning the mind, Willingness — difficult concept to grasp

**MB-CT for Depression**  
**(Segal, Williams & Teasdale, 2002)**

# MB-CT for Depression

- ▣ Integrates the mindfulness training of MBSR with cognitive therapy techniques to prevent consolidation of ruminative, negative thinking patterns that contribute to depressive relapse
- ▣ Cognitive therapy techniques include
  - Psycho-education about depression symptoms and automatic dysfunctional thoughts
  - Exercises designed to demonstrate the cognitive model
  - Identifying activities that provide feelings of mastery and/or pleasure
  - Creating a specific relapse prevention plan

# MB-CT for Depression

MBCT Session Themes	Mindfulness Skill	Assoc. Practices
“Automatic pilot” (acting without conscious awareness)	<ul style="list-style-type: none"><li>☐ Awareness of automatic pilot</li><li>☐ Awareness of body</li></ul>	<ul style="list-style-type: none"><li>☐ Mindful eating</li><li>☐ Body scan</li></ul>
Dealing with barriers	<ul style="list-style-type: none"><li>☐ Awareness of how chatter of the mind influences feelings and behaviors</li></ul>	<ul style="list-style-type: none"><li>☐ Body scan</li><li>☐ Short breathing meditation</li></ul>
Mindfulness of the breath	<ul style="list-style-type: none"><li>☐ Awareness of breath and body</li></ul>	<ul style="list-style-type: none"><li>☐ Breathing meditation</li><li>☐ 3-minute breathing space</li><li>☐ Mindful yoga</li></ul>

# MB-CT for Depression

MBCT Session Themes	Mindfulness Skill	Assoc. Practices
Staying present	<ul style="list-style-type: none"><li>▣ Awareness of attachment and aversion</li></ul>	<ul style="list-style-type: none"><li>▣ Breathing meditation</li><li>▣ Working with intense physical sensations</li></ul>
Acceptance	<ul style="list-style-type: none"><li>▣ Acceptance of thoughts and feelings as fleeting events</li></ul>	<ul style="list-style-type: none"><li>▣ Explicit instructions to practice acceptance are in the breathing meditation/exercises</li></ul>
Thoughts are not facts	<ul style="list-style-type: none"><li>▣ Decentering or re-perceiving</li></ul>	<ul style="list-style-type: none"><li>▣ Sitting meditation (awareness of thoughts)</li></ul>



# MB-CT for Depression

MBCT Session Themes	Mindfulness Skill	Assoc. Practices
How can I best take care of myself	<ul style="list-style-type: none"><li>▣ Awareness of signs of relapse; develop more flexible, deliberate responses at time of potential relapse</li></ul>	<ul style="list-style-type: none"><li>▣ 3-minute coping breathing space</li></ul>
Dealing with future depression	<ul style="list-style-type: none"><li>▣ Awareness of intention</li></ul>	<ul style="list-style-type: none"><li>▣ Identifying coping strategies to address barriers to maintaining practice</li></ul>

# Sample Instructions for Mindful Breathing

Settle into a comfortable, balanced sitting position on a chair or floor in a quiet room.

Keep your spine erect. Allow your eyes to close.

Bring your awareness to the sensations of contact wherever your body is being supported. Gently explore how this really feels.

Become aware of your body's movements during breathing, at the chest, at the abdomen.

As the breath passes in and out of the body, bring your awareness to the changing sensations at the abdominal wall.

Maintain this awareness throughout each breath and from one breath to the next.

Allow the breath simply to breathe, without trying to change or control it. Just noticing the sensations that go with every movement.

As soon as you notice your mind wandering, bring your awareness gently back to the movement of the abdomen. Do this over and over again. Every time, it is fine. It helps the awareness to grow.

Be patient with yourself.

After 15 minutes or so, bring the Awareness gently back to your whole body, sitting in the room.

Open your eyes. Be ready for whatever's next.

# Exercise to Help Cognitive Defusion

This exercise is to help you see the difference between looking at your thoughts and looking from your thoughts. Imagine you are on the bank of a steadily flowing stream, looking down at the water. Upstream some trees are dropping leaves, which are floating past you on the surface of the water. Just watch them passing by, without interrupting the flow. Whenever you are aware of a thought, let the words be written on one of the leaves as it floats by. Allow the leaf to carry the thought away. If a thought is more of a picture thought, let a leaf take on the image as it moves along. If you get thoughts about the exercise, see these too on a leaf. Let them be carried away like any other thought, as you carry on watching.

# Exercise to Help Cognitive Defusion

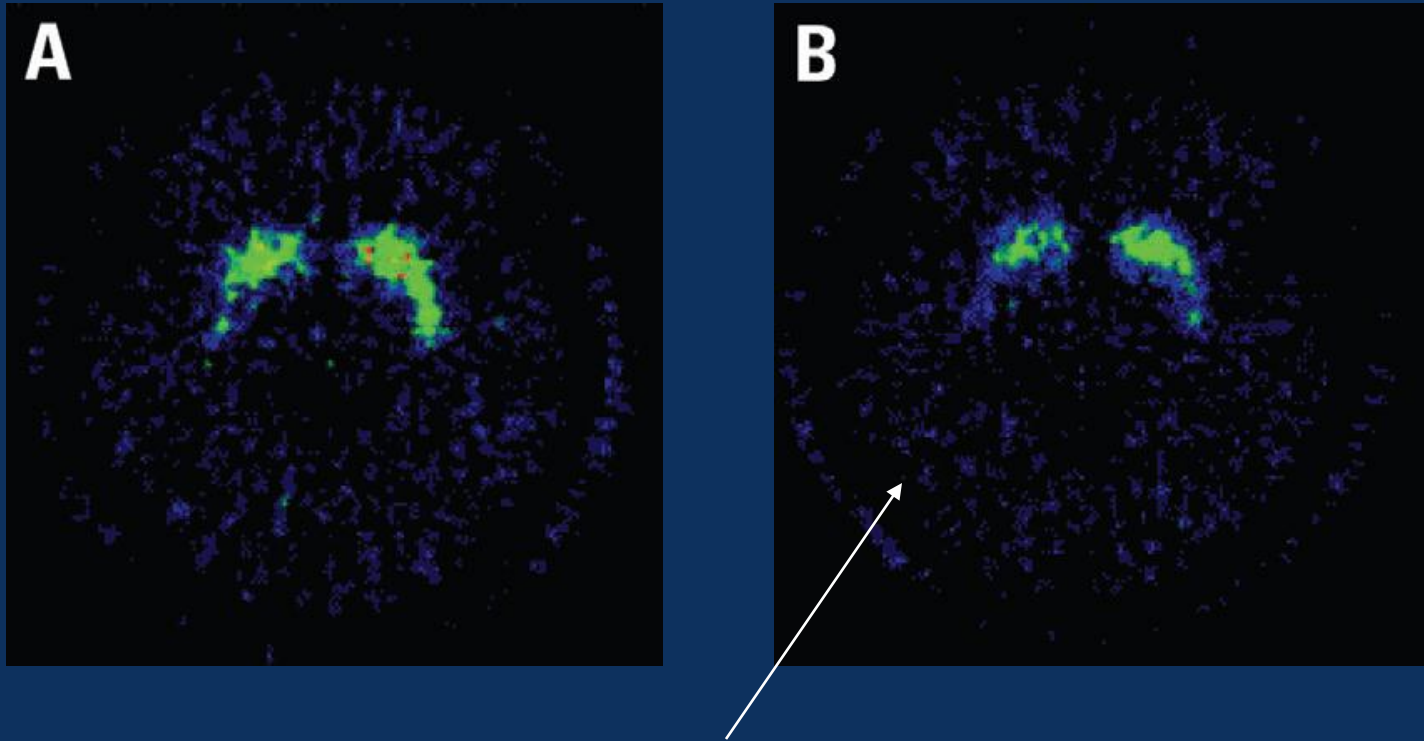
At some point, the flow will seem to stop. You are no longer on the bank seeing the thoughts on the leaves. As soon as you notice this, see if you can catch what was happening just before the flow stopped. There will be a thought that you have 'bought'. See how it took over. Notice the difference between thoughts passing by and thoughts thinking for you. Do this whenever you notice the flow has stopped. Then return to the bank, letting every thought find its leaf as it floats steadily past.

# Toward a Neurobiology of Mindfulness and Its Role in Treating Mental Disorders

# Gray Matter Increases from Mindfulness Meditation

- ▣ **R** anterior insula (area involved with interoceptive awareness) **L** temporal gyrus and **R** hippocampus (Hozel, 2008)
- ▣ **R** orbito-frontal cortex, **R** thalamus, **R** hippocampus and **L** inferior temporal gyrus - all implicated in emotional regulation and response control (Luders, 2009)
- ▣ **L** hippocampus, posterior cingulate cortex, temporo-parietal junction and cerebellum (Hozel, 2011)

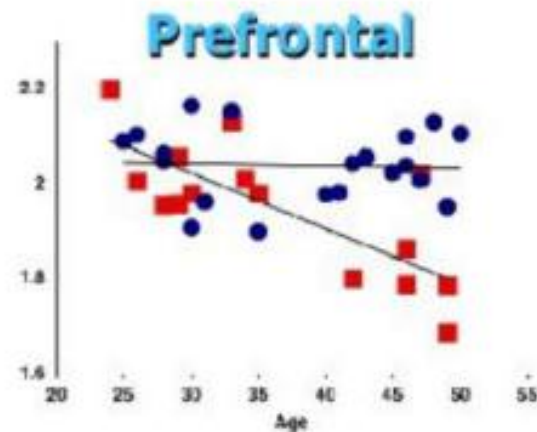
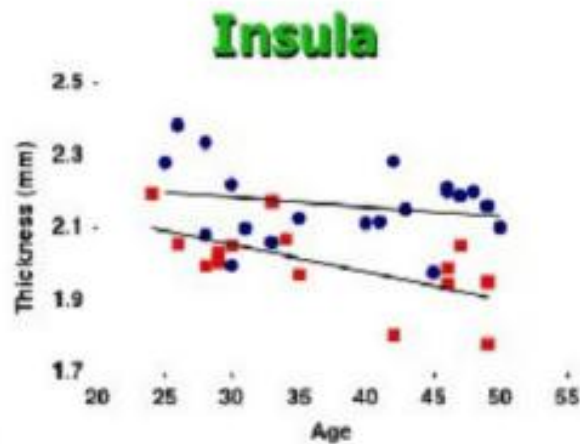
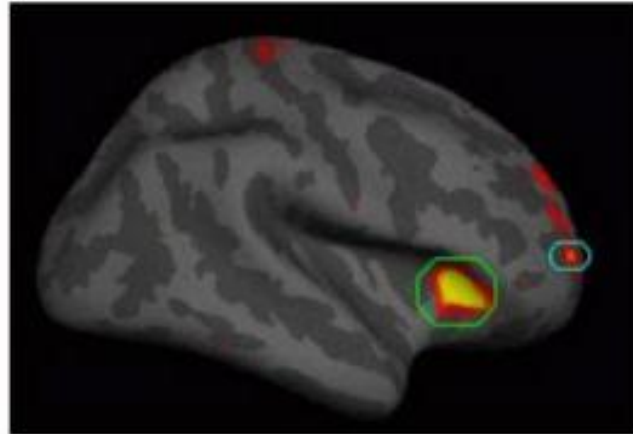
# [11]C-raclopride binding potential images in a participant during (A) attention and (B) meditation



Reduced [11]C-raclopride binding potential in ventral striatum is evidence of increased endogenous dopamine release during meditation.

Kjaer TW, Bertelsen C, Piccini P, Brooks D, Alving J, Lou HC. Increased dopamine tone during meditation-induced change of consciousness. *Brain Res Cogn Brain Res*. 2002;13:255-259.

# Cortical areas thicker in meditators



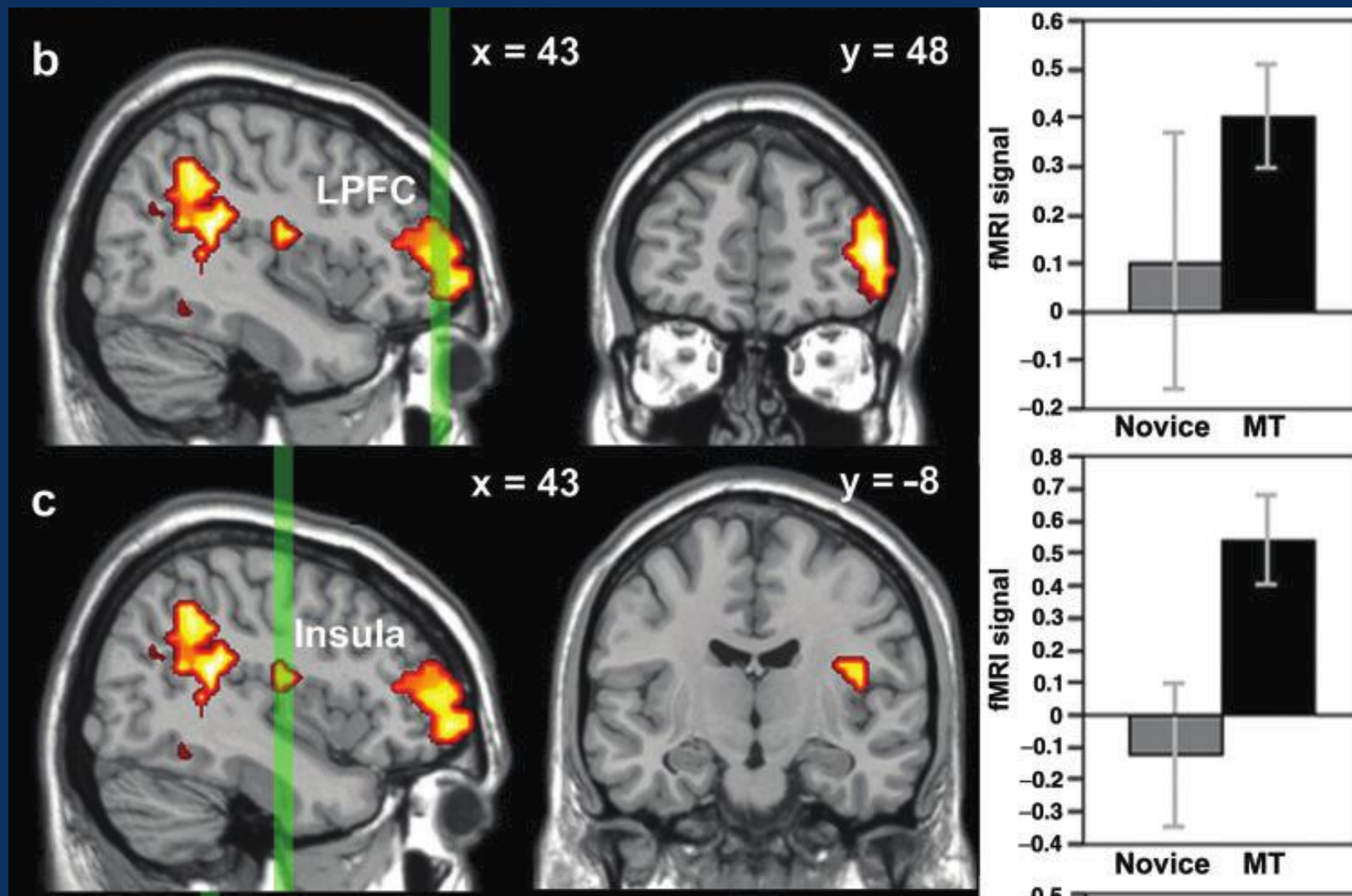
● Meditators  
■ Controls

Lazar et al. 2005

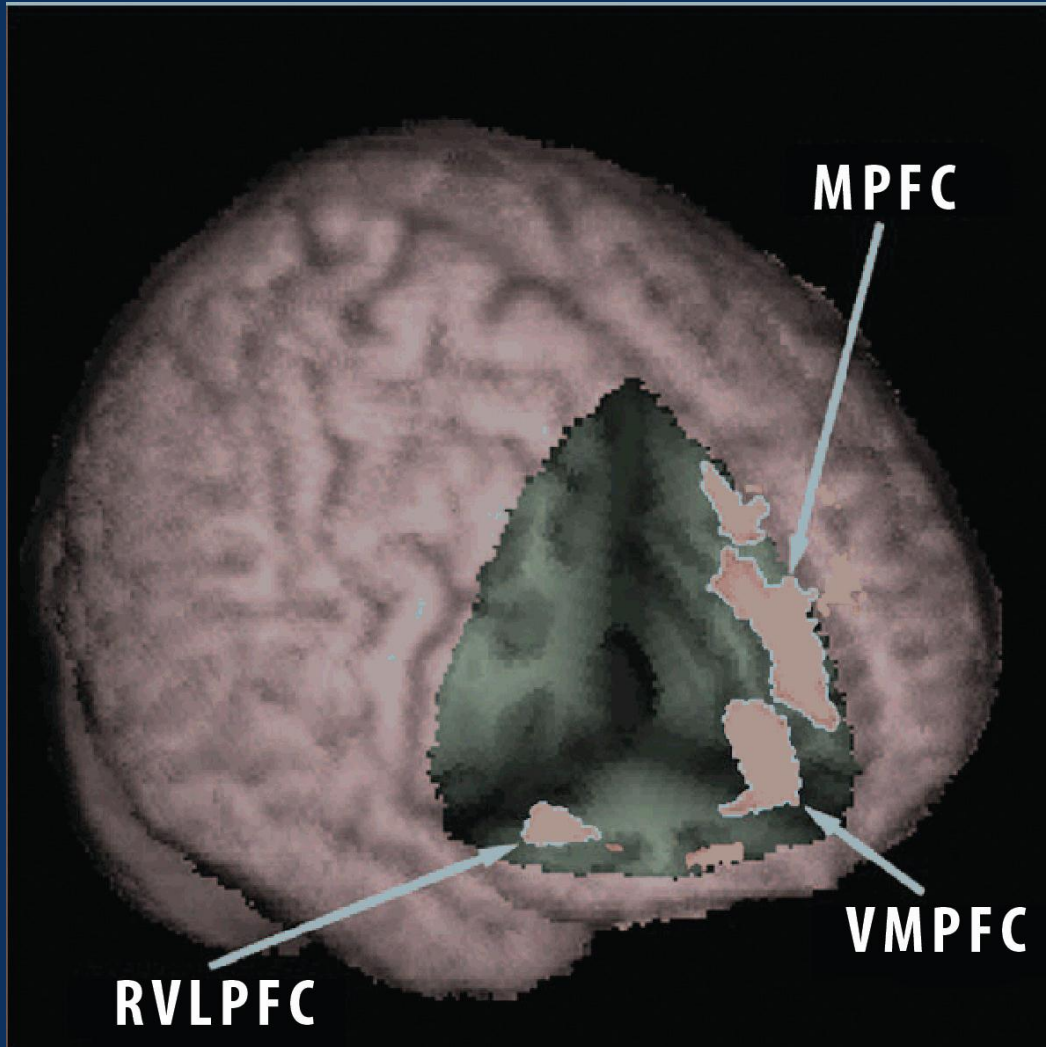


# 8 Weeks of Mindfulness Training Results in Greater Activity in LPFC and Insula

(Farb et al., 2007)



# On fMRI, activation of prefrontal cortex is associated with mindfulness



**MPFC** = medial prefrontal cortex; **VMPFC** = ventromedial prefrontal cortex; **RVL PFC** = right ventrolateral prefrontal cortex.

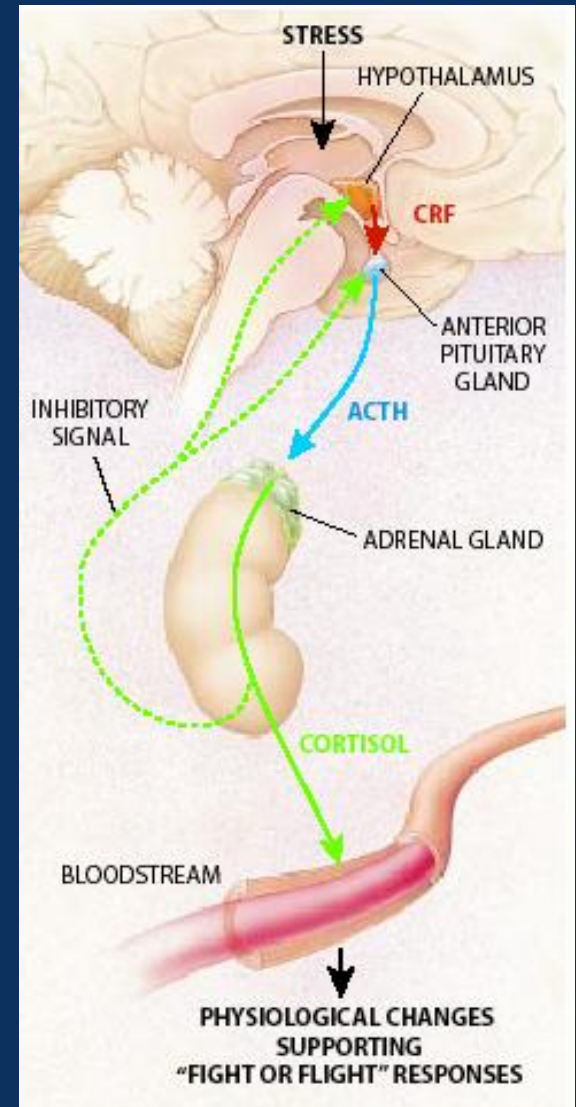
Creswell JD, Way BM, Eisenberger NI, Lieberman MD. Neural correlates of dispositional mindfulness during affect labeling. *Psychosom Med.* 2007;69:560-565.

# Chronic Stress and Depression

HPA axis theory of depression – stress plays a key role

Role of neuromodulation in health and disease (e.g. depression as a dysregulation of control mechanisms)

Cognitive distortion theory of depression – critical role in maintaining depressive episode and in predicting relapse



# Neurotrophic Hypothesis of Depression

Clinical depression is associated with morphological changes in the brain

(R. Sapolsky and B. McEwen)

Chronic stress reduces neurotrophic support for sustaining morphological integrity

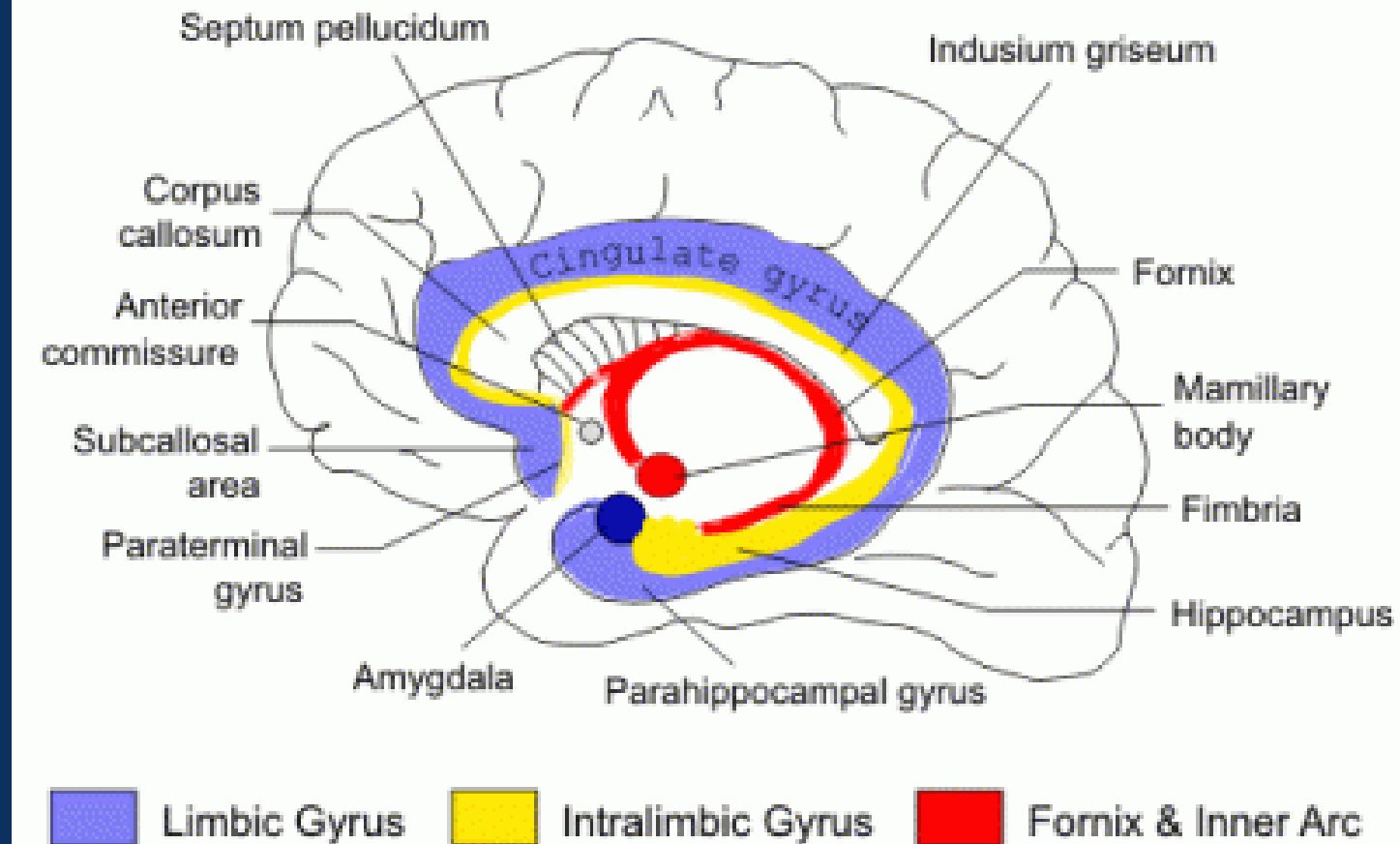
(Y. Sheline)

Chronic antidepressant treatments increase the mobilization of neurotrophins (BDNF) and neurogenesis that helps to regenerate normal morphology and function

# Dysregulated Circuits in Depression

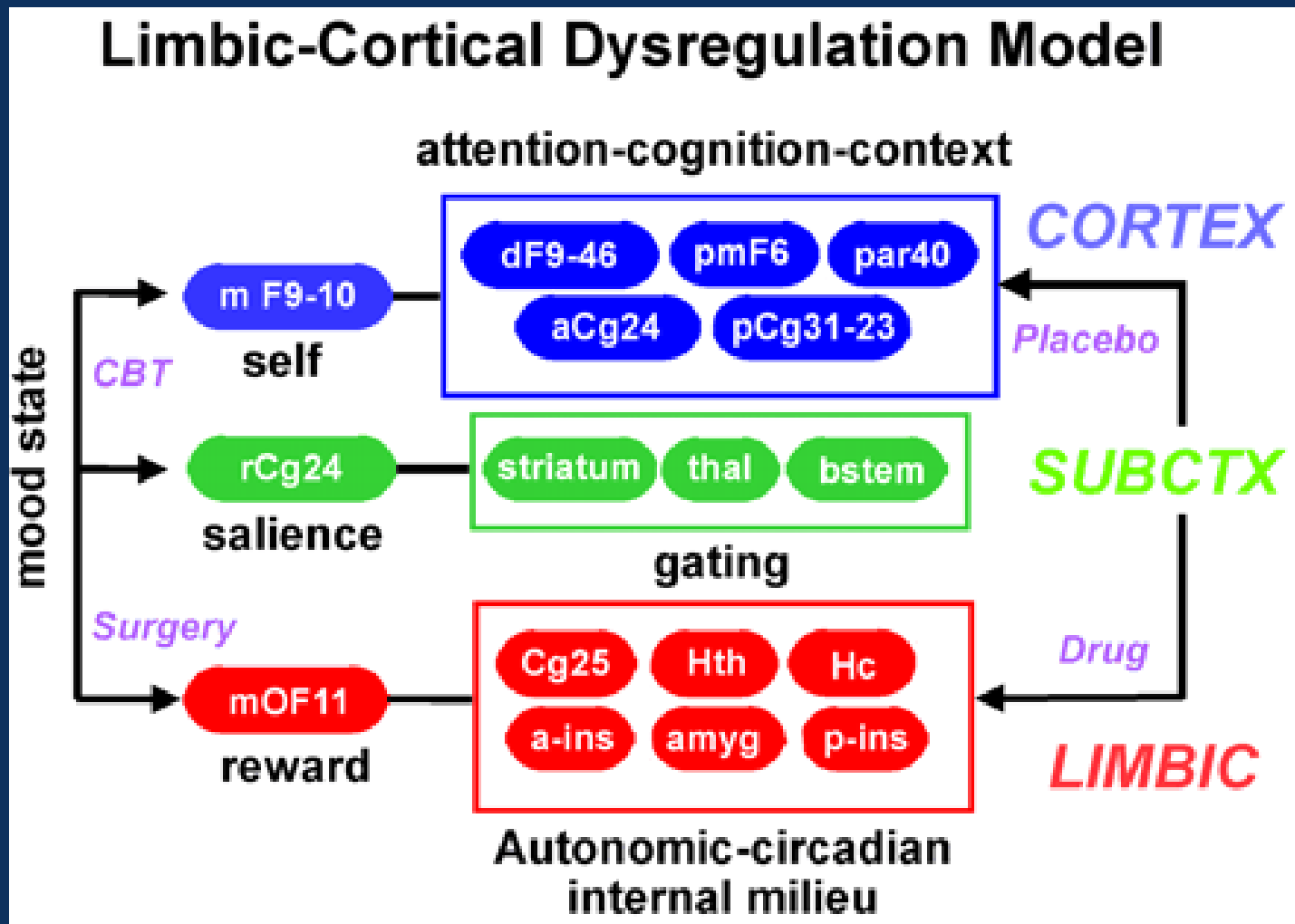
(Mayberg, 2003)

## The Limbic System



# Dysregulated Circuits in Depression

(Mayberg, 2003)



# Video Clip

Dr. Jill Bolte Taylor

A Stroke of Insight

TED website



# References: Articles

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  - Overview of Mindfulness and MBSR
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  - Dialectical Behavioral Therapy
- ▣ Chris Mace, Ph.D.
  - Mindfulness-Based CBT

