

Stress, Hormones, and the Mind- Body Connection: Restoring Balance

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A suit or a suitcase?

*You ask what I'll miss about this life.
Everything but cruelty, I think.*

*But you want one specific thing,
so here—I'll miss my body. I'll miss*

*its companionship, how it's traveled
with me, never leaving me —&
by me,*

*I mean my mind. My soul? My self?
I don't know what to call it, and
besides,*

*my body hasn't traveled with me.
I've traveled inside it. Do I wear it*

*or does it carry me? Is the body a
suit
or a suitcase?*

A Suit or a Suitcase

You ask what I'll miss about this life.
Everything but cruelty, I think.

But you want one specific thing,
so here—I'll miss my body. I'll miss
its companionship, how it's traveled
with me, never leaving me—& by me,

I mean my mind. My soul? My self?
I don't know what to call it, & besides,
my body hasn't traveled with me.
I've traveled inside it. Do I wear it

or does it carry me? Is the body a suit
or a suitcase? Bear with me here.

I've always thought of who I am
as being concentrated in my head & chest,

as if there's a waterline at my rib cage
& contrary to their density, thoughts

& feelings stay afloat. You asked
what I'll miss about this life, & now

I'm way down a rabbit hole, wondering
if I could breathe deeply enough

to redistribute my mind more evenly
throughout my body—or soul rather

than *mind*? Or *self*? I don't even know
what to call the *me* of *me*. I imagine

filling my body completely, filling it,
every inch, to the skin. Shh. Listen.

Ideas are whispering in my wrists
& all along the slopes of my calves.

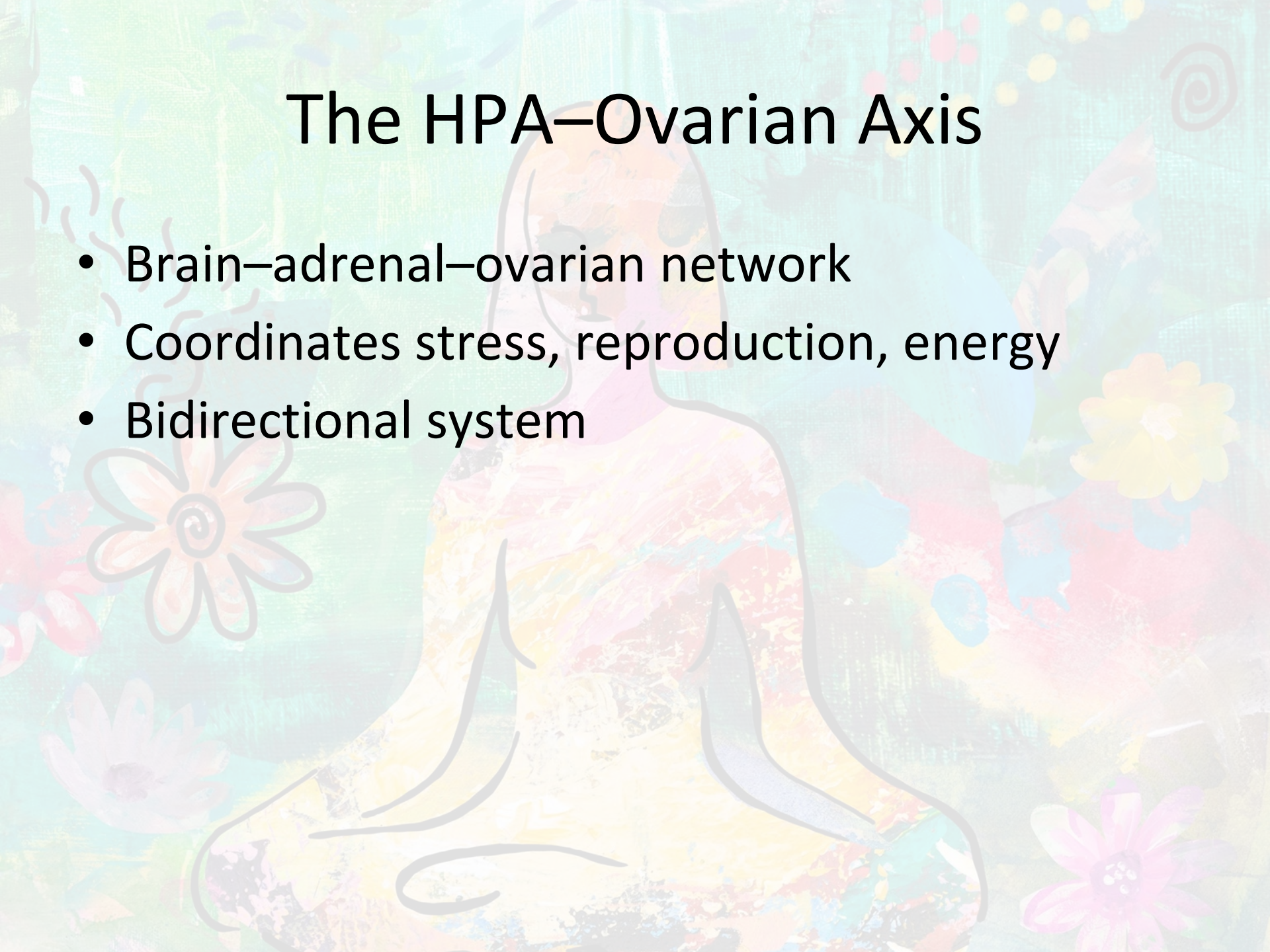
When you lay your head on my thigh,
when you kiss the backs of my knees, listen.

I'm trying to tell you what I'll miss—
everything but cruelty, but mostly this.

Maggie Smith

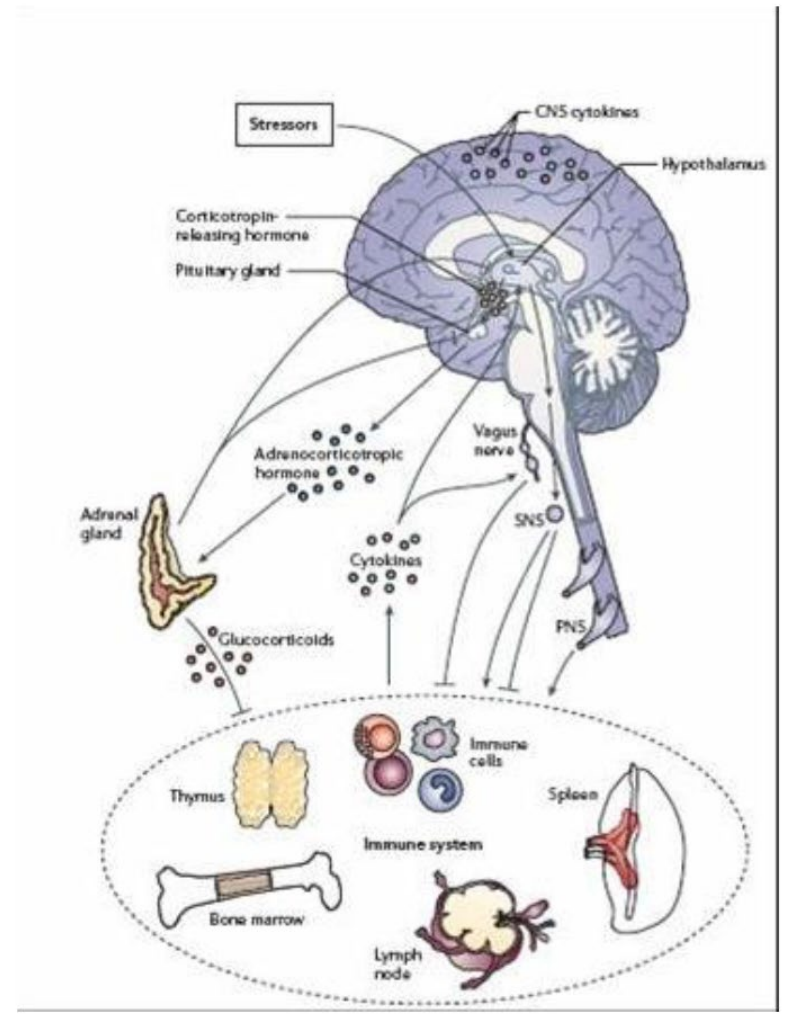
The HPA–Ovarian Axis

- Brain–adrenal–ovarian network
- Coordinates stress, reproduction, energy
- Bidirectional system



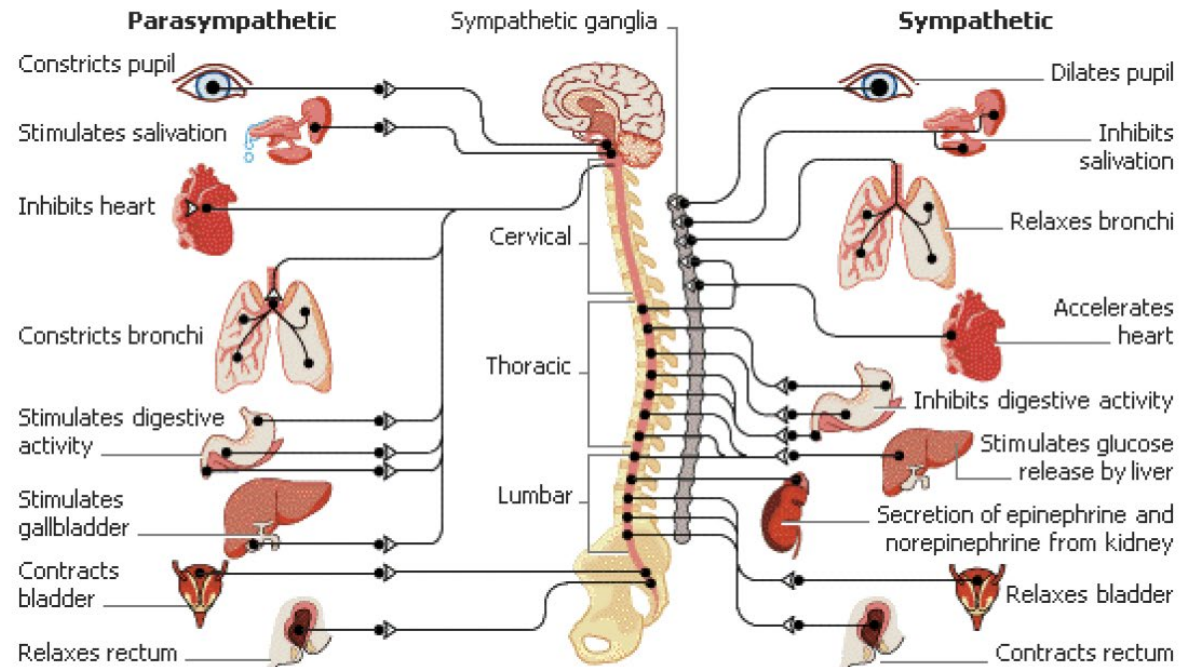
HPA Axis

- CRH → ACTH → Cortisol
- Acute vs chronic stress



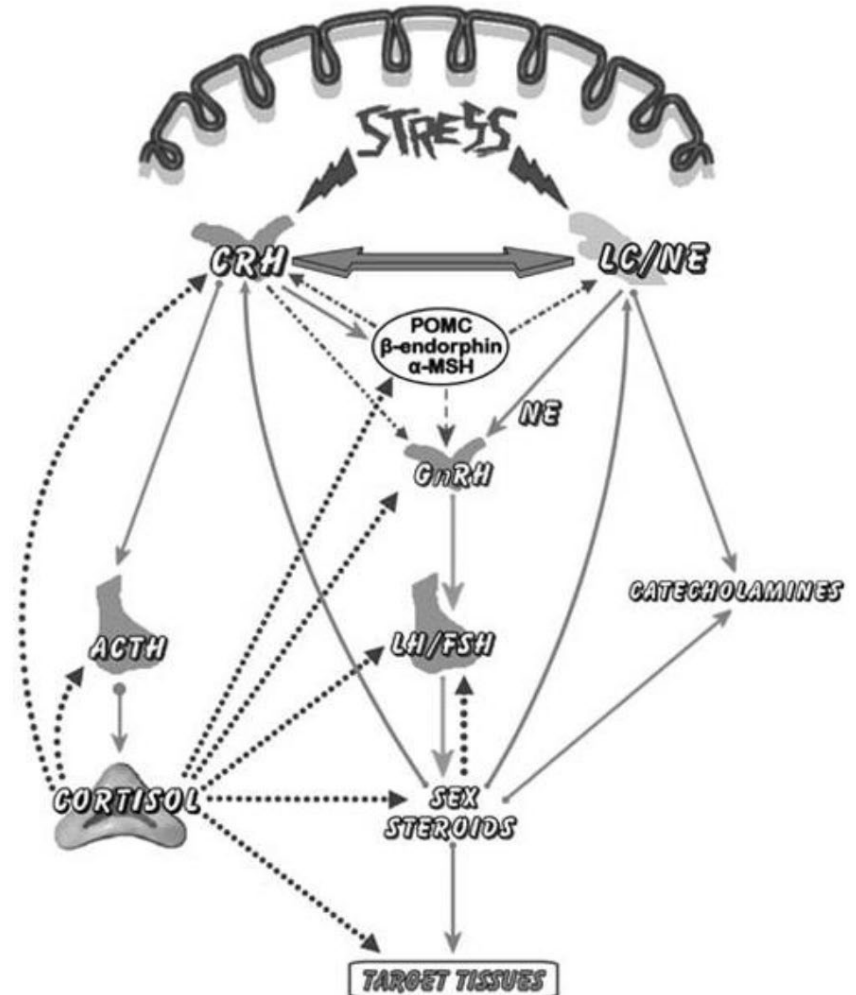
Neurobiology

- ↑ Amygdala (fight/flight/freeze)
- ↓ Prefrontal regulation
- Prolonged sympathetic nervous system activation



HPO Axis

- GnRH →
LH/FSH →
Estrogen,
Progesterone
- Also regulates
mood, sleep
- Hormonal
resilience to
cortisol
(stress
hormone)



Stress Sensitization

- ↑ Cortisol (stress) reactivity
- ↓ GABA (relaxation hormone)
- Slower recovery

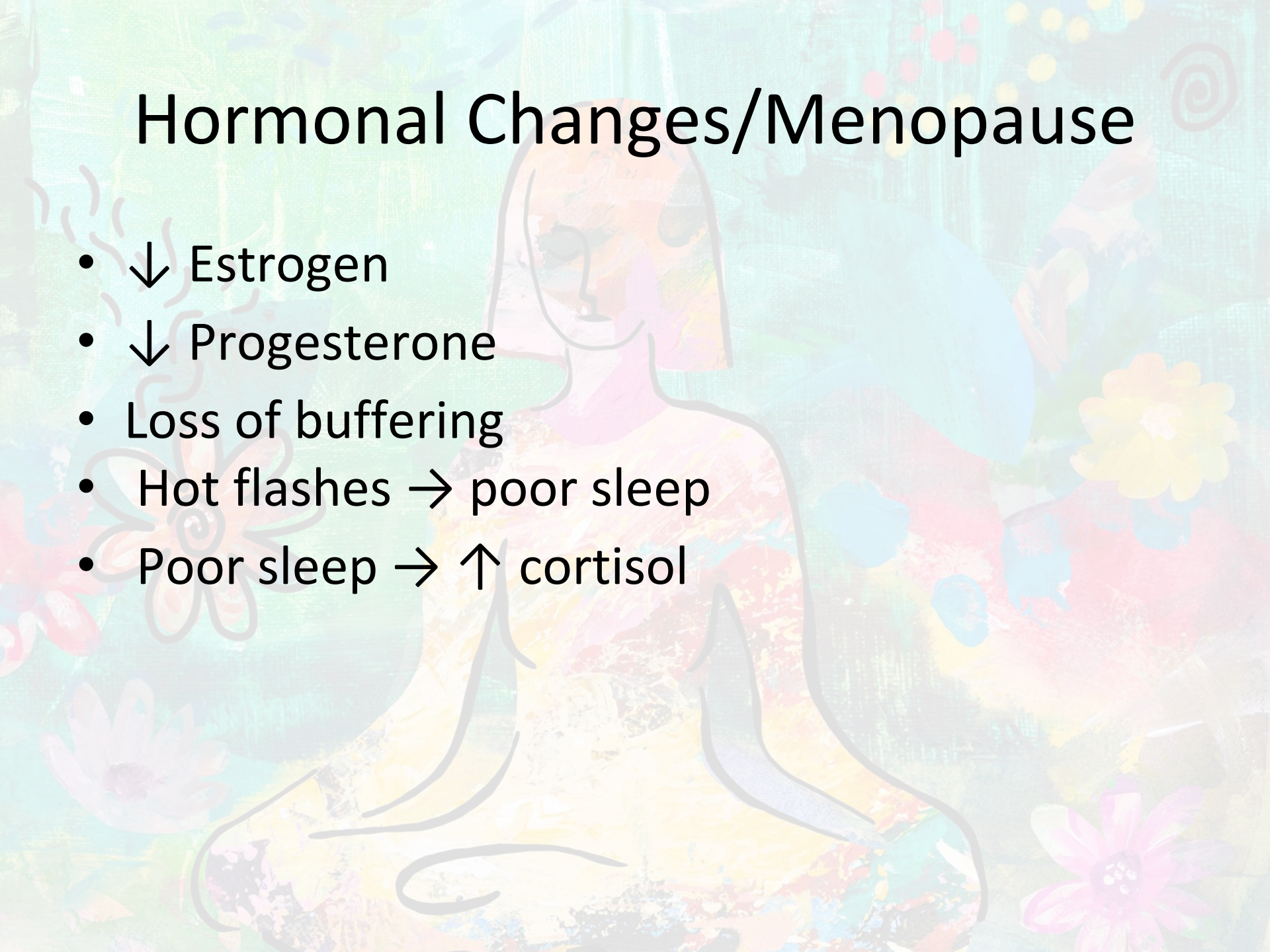


Sleep

- Sleep as a Regulator of the HPA Axis
 - Maintains normal cortisol rhythm
 - Peak in early morning, lowest at night
 - Supports HPA axis reset overnight
 - Prevents prolonged stress activation
- Sleep disruption → elevated evening cortisol
 - “tired and wired”
- Sleep deprivation
 - ↑ Stress sensitivity
 - Slower recovery after stress
- Hormonal overlap

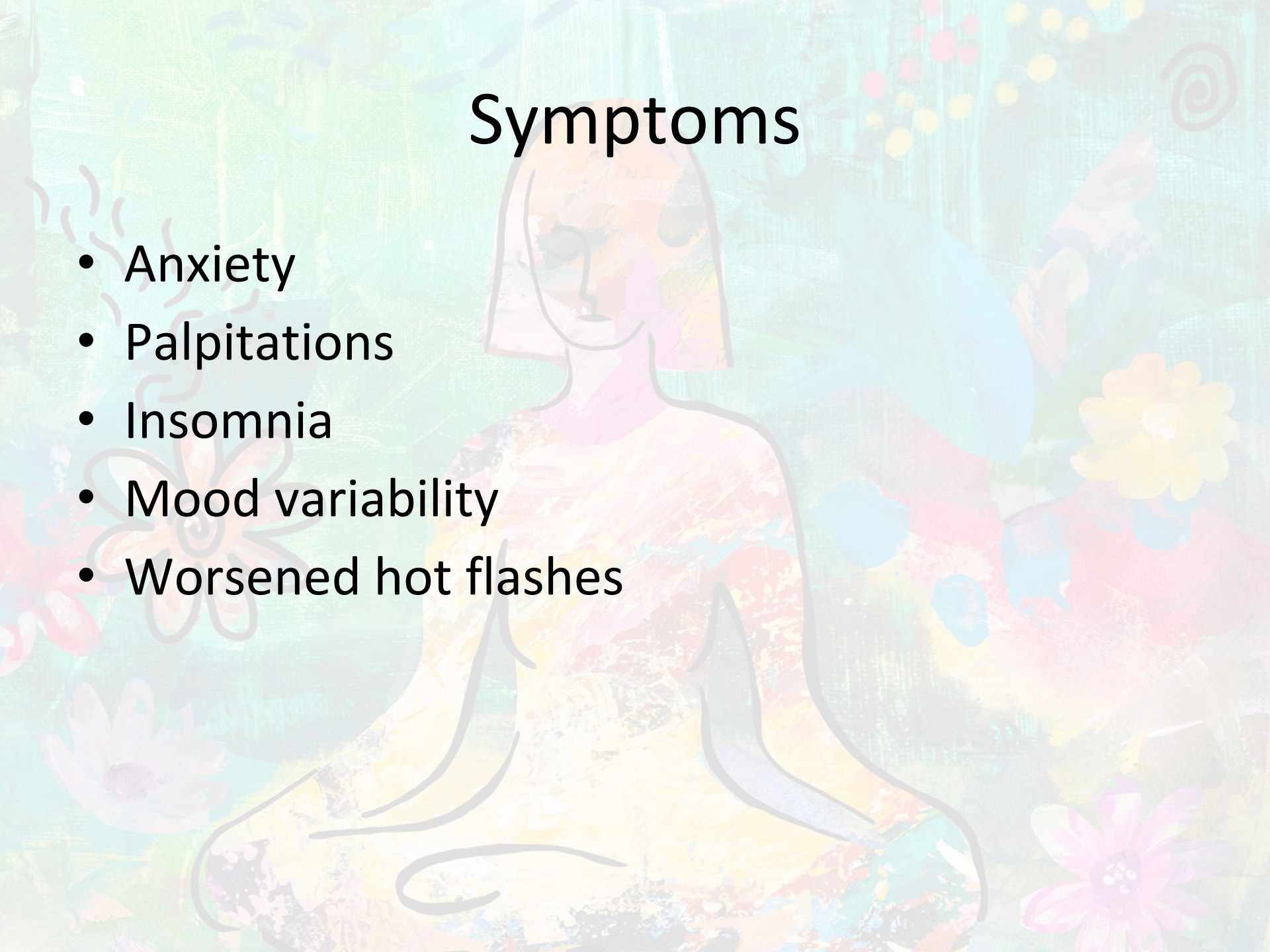
Hormonal Changes/Menopause

- ↓ Estrogen
- ↓ Progesterone
- Loss of buffering
- Hot flashes → poor sleep
- Poor sleep → ↑ cortisol



Symptoms

- Anxiety
- Palpitations
- Insomnia
- Mood variability
- Worsened hot flashes



Mind Body Medicine Practices

Mindfulness
& Meditation

Guided
Imagery

Autogenic
Training-
Biofeedback

Prayer

Yoga

Tai Chi & Qi
Gong

Clinical
Hypnosis

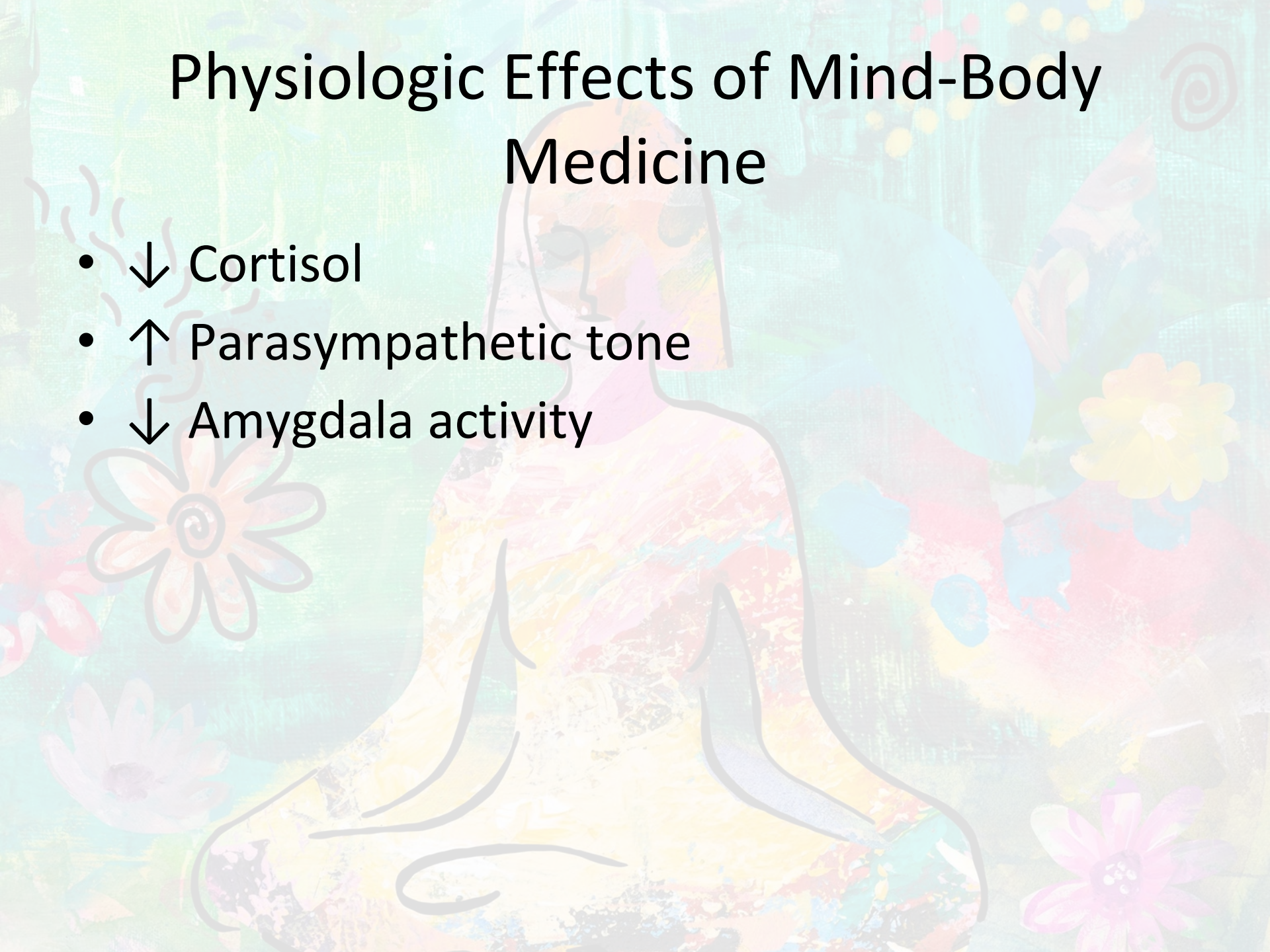
Repetitive
Physical
Exercise

Targets HPA, autonomic, limbic systems

Activating relaxation response; stress reduction (tone nervous system); enhancing awareness; resilience of the system

Physiologic Effects of Mind-Body Medicine

- ↓ Cortisol
- ↑ Parasympathetic tone
- ↓ Amygdala activity



Treatment Model

- Shift from stress reduction → retraining system, restore regulation
- Start mind-body tools
 - Normalize physiology
 - Build capacity
 - Improve sleep



Abdominal Breathing

- 4-7-8 Breathing
- Place one hand on chest and one on abdomen
- Imagine balloon in abdomen– breath in and fill balloon. Not in the chest
- James Gordon- soft belly breathing

Yoga

- Movement + breath
- ↓ cortisol (stress hormone)
- ↑ GABA (relaxation hormone)
- Practice: Chair yoga

Mindfulness

Mindfulness includes:

- Meditation
- Mindful eating
- Writing, creativity
- Movement
- Mindfulness of everyday life

- ↓ amygdala
- ↑ regulation
- Improves reactivity



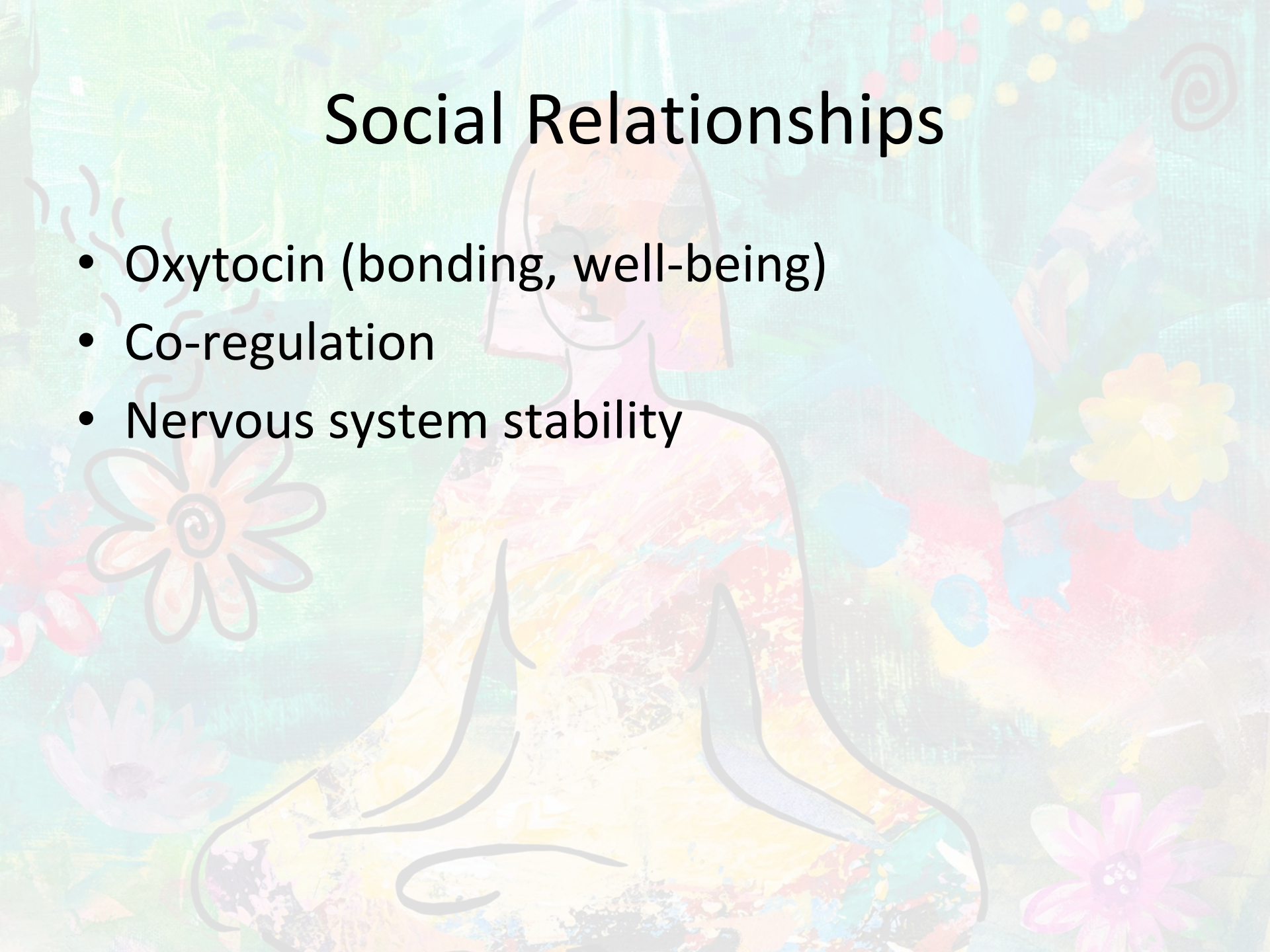
Somatic Therapies

- Body awareness
- Re-pattern stress response
- Good for trauma
- Practice: Self-guided relaxation



Social Relationships

- Oxytocin (bonding, well-being)
- Co-regulation
- Nervous system stability



Physical Activity

- Exercise as a Regulator of the HPA Axis
 - Supports healthy cortisol rhythm
 - Reinforces diurnal pattern (↑ morning, ↓ evening)
 - Improves HPA axis flexibility and recovery
 - Faster return to baseline after stress
 - Reduces chronic cortisol elevation and allostatic load
- Sleep & Circadian Benefits
 - Enhances sleep onset and depth
 - Improves circadian alignment
 - Indirectly lowers next-day stress reactivity
- Nervous System Effects
 - Increases parasympathetic tone over time
 - Decreases baseline sympathetic activation

Adaptogens

- Botanicals that enhance the body's resistance to stress and help restore physiologic balance
 - i.e. help with recalibration in times of stress
- Normalize (not stimulate or suppress) physiologic function
- More longterm (upstream) regulation over time
- Act across multiple systems:
 - HPA axis
 - Autonomic nervous system
 - Immune and metabolic pathways
- Improve stress resilience and recovery
 - Cortisol modulation/signaling
 - Influence neurotransmitters (GABA etc)

Ashwagandha, schisandra, tulsi, eleuthero, rhodiola, ginseng, maca

Ashwagandha (*Withania somnifera*)



*not safe in pregnancy; caution heavy metal exposure

- Ayurvedic herb (root); standardized to withanolides as extract (KSM)
- Considerations for:
 - Sleep (over time)
 - Normalized cortisol rhythm
 - Anxiety
 - Cognitive impairment
 - Improved immediate and general memory, information processing speed and attention
 - Subclinical hypothyroidism (TSH 4.5-10 mIU/L)
 - Improved TSH; modest weight loss

Dose: Extract: 300-600 mg 1-2 times per day standardized extracts containing 2.5% withanolides; 1-3 g/crude herb

Nervines

- Botanicals that regulate the nervous system, particularly mood, stress response, and sleep
- More acute regulation; relaxation
- Modulate GABA and other calming neurotransmitters
- Reduce sympathetic activation; promote parasympathetic tone

Lemon balm, chamomile, passionflower, lemon verbena, kava, skullcap, linden

Passion Flower (*Passiflora incarnata*)



- Extract -liquid/tincture or encapsulated or Tea
- Standardized extract - fragmented or cut and dried aerial parts, >1.5% of total flavonoids expressed as vitexin
- Long history of use as a sedative
- May improve symptoms of anxiety and sleep and help with preprocedural anxiety
- Drops 5-30 up to 4 times per day. Dosing in capsules is variable but usually 1-2 times per day

Thank you!

