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# The Neurobiology of Burnout: A Christ-Centered Perspective on Managing Stress, Fear and Depression for Optimal Teaching and Functioning

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# *The neurobiology of burnout*

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A Christ-centered perspective on managing stress,  
fear, and depression for optimal teaching and  
functioning.

# Learning Outcomes

1. Describe the neurobiology of burn out
2. Explore responses to stressful situations found in the Scriptures
3. Practice using tools introduced in the presentation to help regulate stress, fear, and depression
4. Apply content and skills taught in the presentation to develop a personal bio-psycho-social-spiritual toolbox for effectively managing stress, fear, and depression



# *The Neurobiology of Burnout*

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# Eustress

Positive stress, or eustress (Lazarus, 1974), pertains to the optimal variety of stress that facilitates productivity and achievement. Positive stress compels us to keep our commitment to excellence in our scholarly endeavors.

# Distress

- *Distress*, on the other hand, and its consequences, are counterproductive and can be dangerous (Kofoworola & Alayode, 2012).
- Distress can have negative consequences on bio-psycho-social functioning and a possible trajectory to various medical, psychological, and interpersonal problems (Clay, 2013).

# The Stress Response

- The stress response begins with increased breathing and a release of fat and glucose into the bloodstream. The senses become hyper-vigilant as the body becomes prepared for action against impending danger. Heart rate rapidly increases causing rises in blood pressure, and the blood races to the brain and away from other parts of the body. As the body prepares to move into action, muscles tense and become prepared to fight, flight, or freeze (Shrand, 2012).
- The hypothalamus is stimulated.
- The pituitary gland is activated.
- The pituitary gland secretes adrenocorticotrophic hormone (ACTH). ACTH stimulates the adrenal glands to produce the hormone corticosteroid (cortisol) (McClead, 2010).
- The stress response is extremely helpful when emergency situations arise. For example, if a fire alarm sounds, immediate action is needed to effectually deal with the danger. Once the danger is mitigated, normal physiological processes are automatically resumed. When the threat does not recede, the stress response is chronically activated, inducing the body to show marked signs of deeper distress due to the constant strain of sustained arousal (Shrand, 2012).
- The human brain and body cannot function properly under constant distress.

# Stress Test

- The following picture is a stress test developed by leading European psychologists. Using a simple photo of two dolphins, they have combined ancient Chinese feng shui techniques and modern scientific research on harmonic resonance.

You can tell simply by looking at the picture whether you're over the acceptable level of stress.

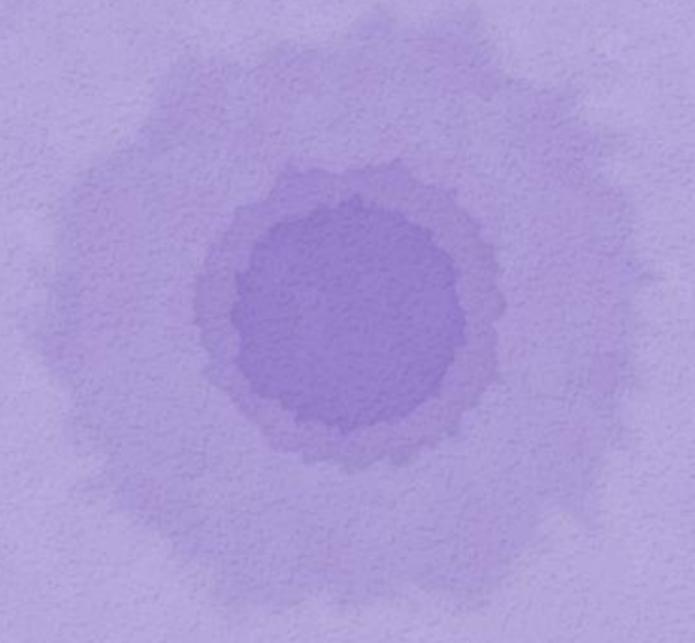
If you see 2 dolphins, everything is ok.  
If you see ANYTHING else, you are in bad shape!

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# From Distress to Burn-Out

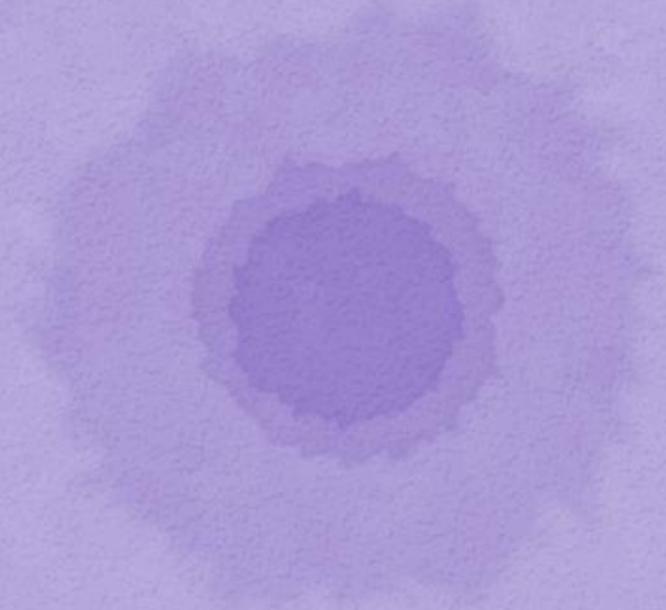
- Distress unattended or accumulated over time has the potential to result in burnout (Fogg, 2009).
- Freudenberger (1974) coined the term *burnout* and described it as a state of fatigue or frustration resulting from dedication to a cause, way of life, or relationship that failed to produce the desired outcome.

(Sosin & Thomas, 2013)



What is often lurking behind  
burn-out?

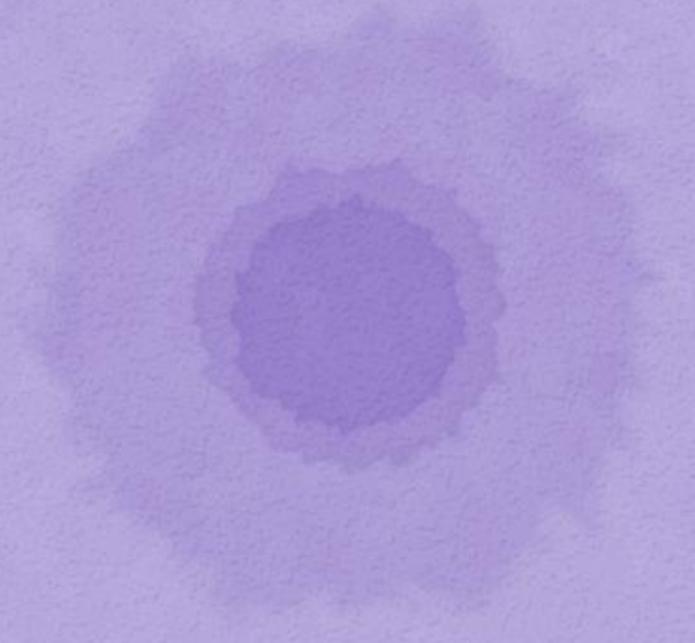
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# FEAR

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The fallen planet is a scary place! Sometimes it doesn't feel safe to "let your yes be yes and your no be no"...



# The Brain

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# The Brain is a Relational Organ

We could spend weeks just studying this fantastic gift, the only organ in the body that is a relational organ; in other words, it's functioning and development depend on Love, in the form of the right balance of grace and truth.

(Siegel, 2012)

- Did you know that there are so many neurobiological networks, or galaxies, in your brain that we could compare it to the bundles of stars and galaxies in the heavens?
- Proper brain functioning is dependent on the health of the neurotransmitter system.
- Neurotransmitters are the information processing, communication chemicals of the brain and body. They allow neurons to communicate.

(Allen, 2001)

Acetylcholine is a very widely distributed excitatory neurotransmitter that triggers muscle contraction and stimulates the excretion of certain hormones. In the central nervous system, it is involved **in wakefulness, attentiveness, anger, aggression, sexuality,** and thirst, among other things. Alzheimer's disease is associated with a lack of acetylcholine in certain regions of the brain.

- Dopamine is a neurotransmitter involved in controlling movement and posture. It also **modulates mood and plays a central role in positive reinforcement and dependency.** The loss of dopamine in certain parts of the brain causes the muscle rigidity typical of Parkinson's disease.
- GABA (gamma-aminobutyric acid) is an inhibitory neurotransmitter that is very widely distributed in the neurons of the cortex. GABA contributes to motor control, vision, and many other cortical functions. **It also regulates anxiety.** Some drugs that increase the level of GABA in the brain are used to treat epilepsy and to calm the trembling of people suffering from Huntington's disease.
- Glutamate is a major excitatory neurotransmitter that is associated with **learning and memory.** It is also thought to be associated with Alzheimer's disease, whose first symptoms include memory malfunctions.
- Norepinephrine is a neurotransmitter that is important for **attentiveness, emotions, sleeping, dreaming, and learning.** Norepinephrine is also released as a hormone into the blood, where it causes blood vessels to contract and heart rate to increase. Norepinephrine plays a role in **mood disorders such as manic depression.**
- Serotonin contributes to various functions, such as regulating body temperature, **sleep, mood, appetite, and pain. Depression, suicide, impulsive behavior, and aggressiveness all appear to involve certain imbalances in serotonin.**

# A simplified sampling of neurochemicals and their relation to functioning

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# How the Brain Gets Hijacked Due to Stress and Fear

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# CHRONIC ACTIVATION

Neurochemical Depletion

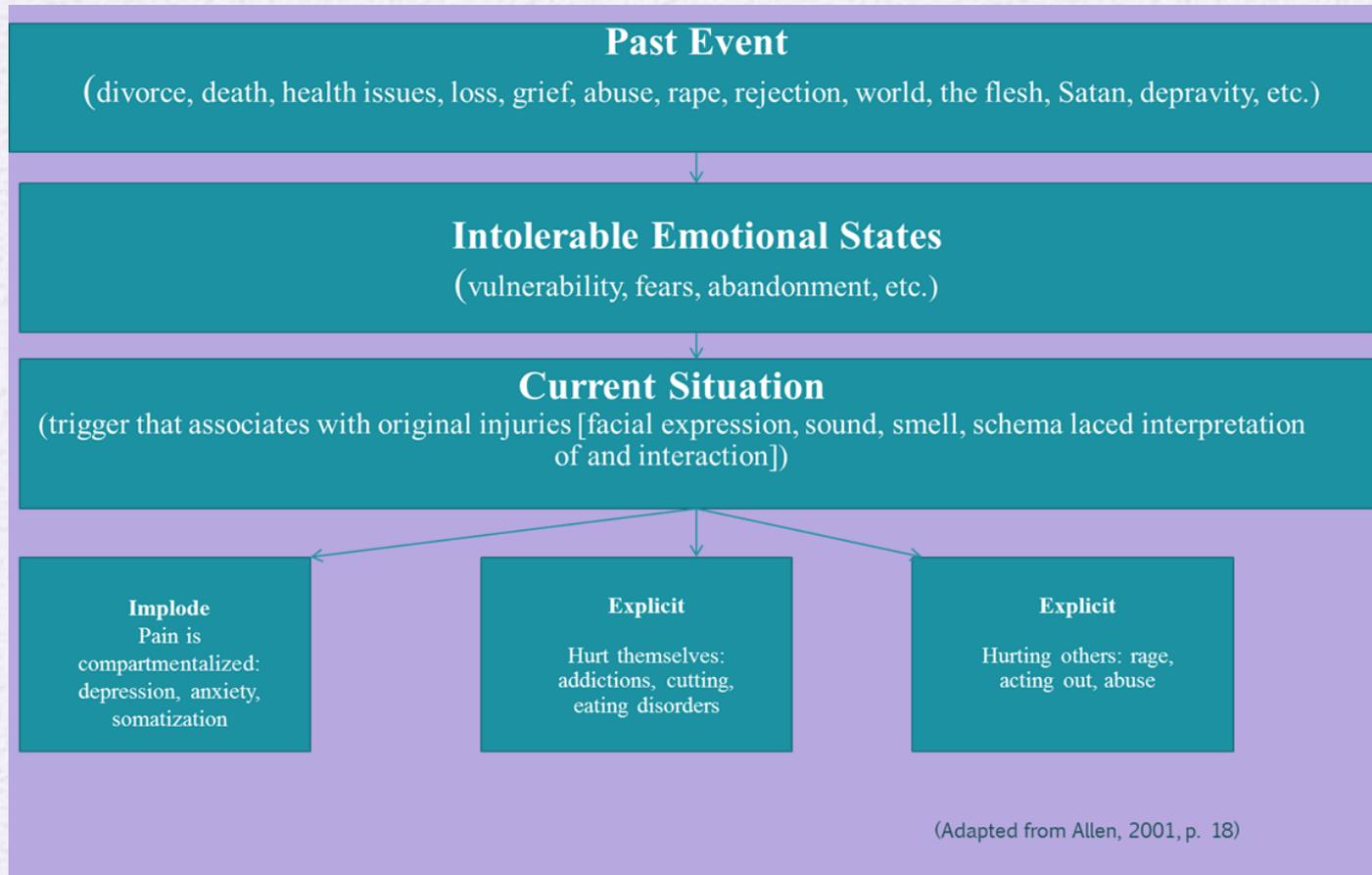
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ANXIETY

DEPRESSION

BURN OUT

# Additive Effects of Post-Traumatic Stress



# What we do in good psychotherapy: Change the Brain

- Today we are going to focus on developing skills to alter the functioning of the brain when the brain stem and limbic system are hyper-activated.
- Like any skill you can learn to do this better and better the more you practice and apply the skills in your everyday life.
- Wimbledon...

# Top Down and Bottom Up

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# Changing the Brain State

- **Beta Waves:** Alert, aware, consciously learn. Higher beta waves are associated with anxiety and the fight or flight response.
- **Alpha Waves:** Relaxed and focused. Also present in pre-sleep and wake states.
- **Theta Waves:** Naturally dreaming or in a deep meditative state.
- **Delta Waves:** Dreamless sleep; restorative.

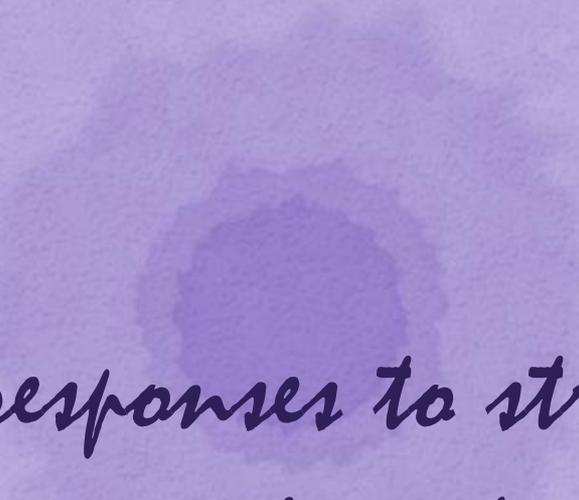
(Siegel, 2012)



*We will get back to the  
brain shortly*

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Let's look to the Scriptures for tools to help us regulate fear and stress before it captivates us



Three responses to stressful  
situations found in the  
Scriptures

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First, we'll look at a supernatural response to terrifying circumstances. Next, we'll look at a normal bio-psycho-social-spiritual reaction to terrifying circumstances. Finally, we will look at Jesus' response to a terrifyingly stressful circumstance, and cull from his example two tools for our own toolboxes.



*A supernatural response to a  
terrifying situation  
Daniel 3: 8-30*

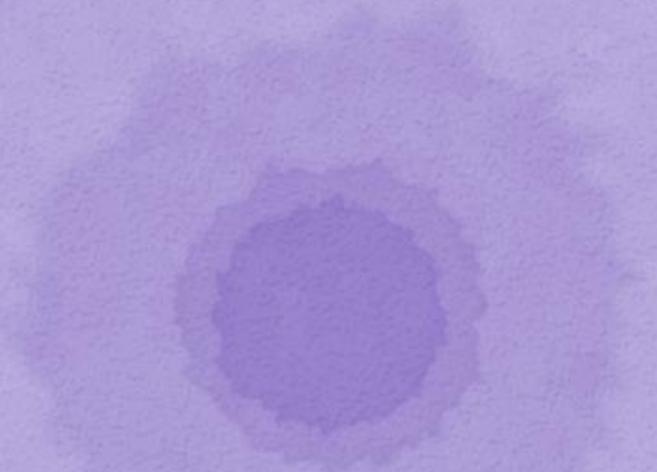
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**Encouragement:** God showed up in the midst of their terrifyingly stressful situation and saved and delivered them. We can learn to rest, assured that there will NEVER be a time when God's Presence and Power are not with us.

This is an example from the Scriptures of what appears to be a supernatural response to terrifying circumstances: they were empowered by God to obey and did so (without record of their emotional response...)

**Key:** Pray for supernatural power

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*A normal human reaction to  
terrifying circumstances  
Matt 8:23-27*

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**Encouragement:** We are just like the disciples. We face a situation that our brain interprets as threatening and cortisol pours out of our brain stem, our limbic system is activated and then we think, feel, and act like we are abandoned orphans with Father off asleep somewhere in the midst of our stress and terror.

**Key:** Pray for one another, that when we feel stressed and afraid we recognize it, label it and humbly do what we can to regulate it before we hurt ourselves and/or others.

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*Jesus' Reaction to a Terrifyingly  
Stressful Situation*  
*Luke 22: 40-46*

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**Encouragement:** God knows what it is like to feel panic; to be distressed and terrified, and he gives us tools, when we ask him, to regulate distress and fear.

**Key:** Pray for one another that when we feel stressed and afraid we use specific tools that draw us closer to Father and cast out the fear.

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Two Tools for Your "Take Your  
Brain Back from Fear" Tool  
Box

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Two tools, among others, including humbly asking for prayer from people, that we see Jesus utilized in the face of His Terror are (1) He cried out to Father God for help and (2) He surrendered to Father's Will. Let's look at how we ourselves can use these methods in our relationship with Father when we are distressed and afraid. Particularly, how to surrender our mind without avoiding or stuffing painful affect; how to wrestle until we ascertain His Peace...

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## *Tool One: Secure Attachment with God*

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The LORD your God is in your midst,  
a mighty one who will save;  
he will rejoice over you with gladness;  
he will quiet you by his love;  
he will exult over you with loud singing (Zeph 3:17; ESV).



*Tool Two: Taking Back Your Brain  
from the world, flesh, and Satan*

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Christ Centered Mindfulness and Cognitive  
Behavioral Practices

# Wrestling With Your Brain to Ascertain God's Peace

Do not be anxious about anything, but in everything by prayer and supplication with thanksgiving let your requests be made known to God. <sup>7</sup> And the peace of God, which surpasses all understanding, will guard your hearts and your minds in Christ Jesus.

Finally, brothers, whatever is true, whatever is honorable, whatever is just, whatever is pure, whatever is lovely, whatever is commendable, if there is any excellence, if there is anything worthy of praise, think about these things.

(Phil 4: 6-8; ESV)

# Tool Two: Guard Your Thoughts

- Develop the discipline of guarding your thoughts as best as you can, moment to moment by bringing thoughts into relationship with God and transforming them with Truth.
- It is our automatic thoughts and interpretations of reality that lead to fear and subsequent affect and actions that lead to distress.

# What is Mindfulness?

- *“The process of keeping one’s mind in the present moment, while staying non-judgmentally detached from potentially destructive thoughts and feelings” (Symington & Symington, 2012, p. 71).*
- *Mindfulness practices are empirically based and have been successfully utilized to treat a variety of anxiety and other disorders (Hoffman, Sawyer, & Witt, 2010)*

# Moving from the Brain Stem to the Frontal Lobes

- Present Moment Awareness
- Non-judgmental Awareness of Thoughts and Feelings
- Observation of Internal Processes

- Experts recommend that scholars have multiple sources and tools for support so they can maintain a high commitment to pre-determined goals, time schedules, and organized plans (Marinsuo & Turkulainen, 2011). These tools can help us remain in the eustress, not the distress, zone (Abel, Abel, & Smith, 2012).

# CAUTION

- One caveat: the more trauma and terrifying experiences in one's history or the more fearful one's inborn temperament, the more support and tools will be needed for success.
- Psychiatric and psychological treatment is sometimes indicated and is no way ungodly or indicative of a lack of faith.

# Jesus Holds You and Your Brain in the Palms of His Hands

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27 "I am leaving you with a gift—peace of mind and heart. And the peace I give is a gift the world cannot give. So don't be troubled or afraid. (John 14; NLT)

17 ... that the God of our Lord Jesus Christ, the Father of glory, may give you a spirit of wisdom and of revelation in the knowledge of him, 18 having the eyes of your hearts enlightened, that you may know what is the hope to which he has called you, what are the riches of his glorious inheritance in the saints, 19 and what is the immeasurable greatness of his power toward us who believe, according to the working of his great might 20 that he worked in Christ when he raised him from the dead and seated him at his right hand in the heavenly places, 21 far above all rule and authority and power and dominion, and above every name that is named, not only in this age but also in the one to come. 22 And he put all things under his feet and gave him as head over all things to the church, 23 which is his body, the fullness of him who fills all in all. (Eph 1; ESV)

# Recommended Reading

- Barlow, D., Rapee, R., & Reisner, L. (2001). *Mastering stress: A lifestyle approach*. Dallas, TX: American Health.
- Symington & Symington (2012). *A Christian model of mindfulness: Using mindfulness principles to support psychological well being, value based behavior, and the Christian spiritual journey*. *Journal of Psychology and Christianity*, 31, 1, p. 71-77.
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