What is Biofeedback?

Any Kind of Feedback From the Body

- Biofeedback programs **MEASURE** stress indicators in the body
- Biofeedback teaches **AWARENESS** of stress and tension
- Biofeedback training can teach us to **RELEASE** tension and stress
Our **stress response**, the **fight/flight/freeze** response, is like a **gas pedal** that revs up our mind and body in reaction to **stress** as well as danger.

Our **relaxation response** is like a **brake** that we can apply to **calm down** when we are speeding out of control from stress.
What Makes Stress Management So Difficult?

Our inner gas pedal is **Automatic**

- We go from **0 to 100** in an instant in response to stressors
- Our mind does not differentiate **danger** from **stress**

Our inner brake is **Not Automatic**

- It takes *awareness and practice* to
  - Catch ourselves “**speeding**”
  - Develop skills to **relax** “at will”
  - Maintain appropriate **cruising speed**
  - Make **braking more automatic**
The stress response impairs our **concentration, working memory, rational thinking and ability to function**

Only humans carry stress around:
- Stress comes from our **worries, fears, expectations, regrets, self-criticisms, and negative perceptions**
- Our stress level is determined more by our **perception of the stressor** than the stressor itself

What is supposed to be a **burst of energy for survival** results in **chronic stress** with many consequences for health and wellness
Stress and Performance

Peak Performance

Psychological Responses to Stress Overload

- Anxiety, Nervousness, Worry
- Avoidance of Tasks (Flight)
- Decrease in Performance
- Emotions: Anger, Confusion, Depression, Hopelessness, Sadness, Tearfulness (Fight or Flight)
- Feeling Overwhelmed (Freeze)
- Perfectionism
- Poor Concentration/Memory

Yerkes-Dodson Principle
Robert M. Yerkes, M.D. and John D. Dodson, M.D, 1908
Stress and the Mind/Body Connection

**Unstressed Mind and Body**

- **Breathing**: Smooth, calm, slow
- **Blood Pressure**: Normal cardiac flow
- **Emotions**: Manageable, calm moods
- **Heart Rate**: Steady circulation, oxygen
- **Hormones**: Regulating normally
- **Immune System**: Protecting the body
- **Mind**: Focused, clear thinking, memory
- **Muscles**: Contract as needed, then relax
- **Stomach**: Digesting normally
- **Sweat Glands**: As needed to cool off

**Stressed Mind and Body**

- **Breathing**: Shallow and quick
- **Blood Pressure**: Increased cardiac output
- **Emotions**: Fear, anger, panic, nervousness
- **Heart Rate**: Speeds up to pump more blood
- **Hormones**: Adrenalin, cortisol, norepinephrine
- **Immune System**: Shuts down to save energy
- **Mind**: Instinctive, higher thinking shuts down
- **Muscles**: Tense up, ready for action
- **Stomach**: Digestion shuts down; “butterflies”
- **Sweat Glands**: More active to cool the body
After they outrun the lion...

...they go back to grazing and playing.

We need to stop running when we are not being chased!

* Why Zebras Don’t Get Ulcers, Robert M. Sapolsky, 2004
Two Ways to Access Biofeedback Services

One-on-One Biofeedback Appointment
- Feedback from **Stress Profile** and recovery rates
- Determine personalized **optimal breaths per minute**
- Learn mindfulness strategies and **deep relaxation**
- Custom-made relaxation **recordings**
- Measurement, assessment, **training of mind and body stress factors**

Walk-In Biofeedback Hours
- Learn **diaphragmatic breathing** (emWave)
- **Class assignments**
- Listen to **relaxation recordings**
- Fun interactive **biofeedback games** on individual computer stations
- Intensive **relaxation training**
- **Mindfulness**
- **Brief and deep relaxation**

*The first 3 individuals are admitted each hour*
Psychological Symptoms

- Anxiety (general/social/test)
- Concentration, forgetfulness
- Depression, tearfulness, hopeless
- Excessive worry or fear
- Irritable, angry
- Learning, memory
- Motivation, confidence
- Performance, give up
- Shame, overwhelmed
- Task avoidance, performance

Physiological Symptoms

- Chest tightness, racing heart
- Cool clammy hands, trembling
- Headaches, migraines
- Jaw tension and pain, TMJ
- Muscle tension
- Pain
- Panic attacks
- Poor circulation
- Sleep issues, fatigue
- Stomach issues, nausea, IBS
Start With Awareness

Notice the Signs of Stress

Mental and Emotional
- Angry, Upset, Irritable
- Anxious
- Avoid or Run From Tasks
- Depressed
- Mind Racing, Concentration
- Overwhelmed, Helpless
- Poor Concentration or Focus

Physical
- Chest Pain or Tightness
- Cold and/or Sweaty Hands
- Muscle Tension
- Pounding Heart
- Sleep Problems
- Stomach Discomfort
- Trembling or Shaking
Heart Rate Variability (HRV) Training

EmWave Computer Program

• Uses a **simple breathing technique** to quickly calm your mind and relax your body
• Encourages **autonomic balance** or **coherence** between stress and relaxation
• Learn to change your **heart rhythm** and **heart pattern**
• Also teaches **diaphragmatic breathing** for:
  - immediate calming
  - improved concentration, memory and mental clarity
  - peak performance
  - positive mental and emotional focus

Other Fun Interactive Biofeedback Programs

• **Dual Drive**: Calm breathing wins the race
• **Relaxing Rhythms**: Games improve calmness, emotional balance, and mindful meditation
**Additional Biofeedback Measurements**

**Muscle Tension (EMG or Electromyography)**
- We tend to brace against stress which can decrease blood flow to our tissues
- Constant muscle tension can cause tightness, stiffness, tiredness, pain, headaches

**Hand Temperature**
- The stress response pumps blood to the large muscles, heart, lungs to power us up to run away or fight
- This decreases circulation to the hands and feet (makes extremities colder) and brain (poor concentration)
- Hand temperature can range from $68^\circ$ to $98^\circ$

**Sweat Gland Activity (SR or Skin Response)**
- Sweat glands are the most reactive indicator of stress in our body; stress causes our heart rate to increase and hormones to flood our body
- Known as the Galvanic (electric) Skin Response
- Measured as Skin Conductance or Skin Resistance
**Brief Relaxation**

**Tap the brake** throughout the day as needed to calm yourself when stressed

Brings you back to **peak performance**

Use techniques **proactively** to prevent stress overload

- Slow, low breathing every hour for a few minutes
- Quick **body scan** to prevent tension build-up
- Stretch out your neck, arms and legs
- Close your eyes and take a **mini mind vacation** to a relaxing place or peaceful memory
- Use an app for a **2-minute meditation**

Once learned, any relaxation technique can be used as a brief technique
Deep Relaxation

**Bring the car to a complete stop**
for a needed break from stress

*10 Minutes or More Once a Day...*

- Conditions our mind and body to effortlessly let go of tension
- Teaches skills to more easily use brief techniques throughout the day
- Protects the immune system
- Helps prevent or improve stress related health problems such as cardiac, blood pressure, IBS, etc.
- Improves mental health issues
Relaxation Skills Practice

They are called skills because they take **practice** like any other skill.

It takes only **10 Minutes a Day** to learn these skills.

Choose a time that fits into your routine:
- Morning
- Afternoon
- Bedtime
- Break From Studying
Effective Stress Management = Effective Braking

Whenever we notice signs of stress, especially stress overload, that is the time to

*Put on the Brake*

- Ask for and allow help
- Balance work and play
- Breathe
- Create boundaries
- Change stress *inducing* thoughts to stress *reducing* thoughts
- Eat nutritiously
- Exercise
- Meditate and/or be mindful
- Relax
- Seek spiritual support
- Socialize and enjoy relationships with family and friends
Resources and Practice

caps.byu.edu/biofeedback

- Make an Appointment
- Walk-In Hours
- Relaxation Recordings
- Importance of Breathing
- Paced Breathing
- Handouts
- Apps and Websites
- Additional Resources
- YouTube Channel
- Meet the Team
- What is Biofeedback
Awareness + Practice = Effective Stress Management

How we can support you in using the **KNOWLEDGE** and **SKILLS** you learn here in your daily life

- We can help you choose **awareness and practice goals**
- We can refer you to appropriate **resources**
- We can ask you about your **goals, progress, and stress** when you return
- We can support you in customizing **biofeedback and relaxation training** for your stress issues