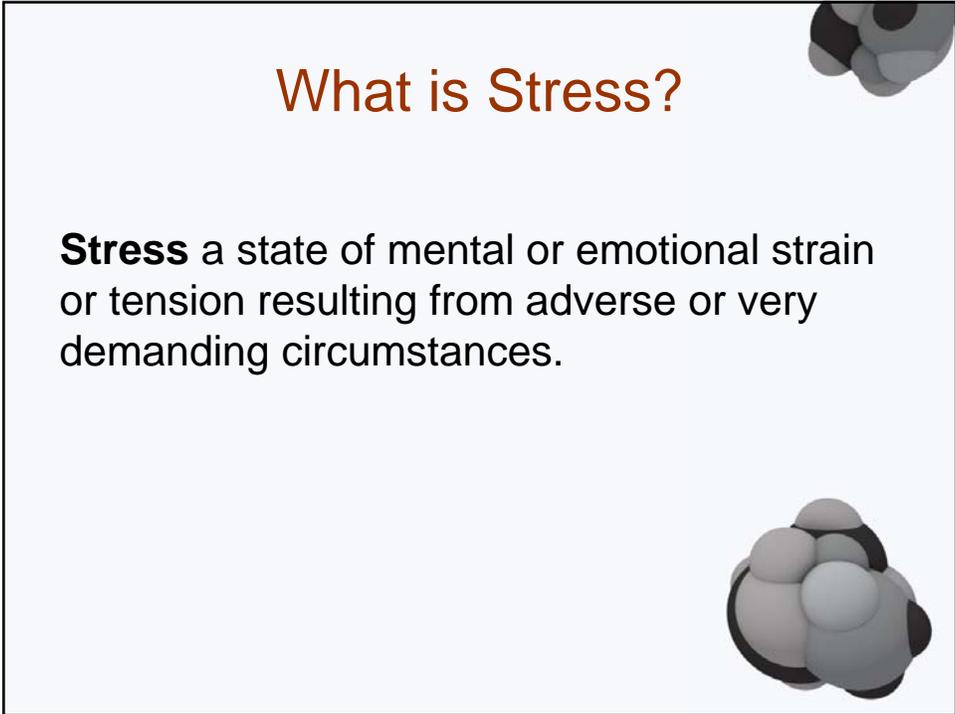


## Chemistry of Stress...and Success in the Workplace

Tom Chism  
Sr. Safety & Health Specialist  
2016

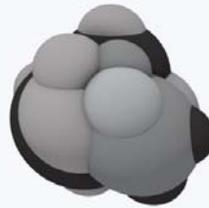


## What is Stress?

**Stress** a state of mental or emotional strain or tension resulting from adverse or very demanding circumstances.

## What is Stress?

- Stress is a normal part of life
- At times, it serves a useful purpose
  - Motivate us to excel in something
  - Run the last mile of a marathon
- At times it can seriously interfere with our job, family life and health
- 50% of Americans say they fight with friends and loved ones because of stress
- 70% say they experience real physical and emotional symptoms from stress.



## What is Stress?

- **Everyone has different stress triggers**
- **Work stress tops the list according to surveys**
- **40% of US workers admit to experiencing office stress**
- **One-quarter say work is the biggest source of stress in their lives.**

WebMD Causes of Stress



## What is Stress?

Causes of work stress include:

- Being unhappy in your job
- Having a heavy workload or too much responsibility
- Working long hours
- Having poor management, unclear expectations of your work, or no say in the decision-making process
- Working under dangerous conditions
- Being insecure about not being successful
- Having to give speeches in front of colleagues or others

## What is Stress?

Life stresses can also have a big impact:

- The death of a loved one
- Divorce
- Loss of a job
- Increase in financial obligations
- Emotional problems (depression, anxiety, anger, guilt, low self-esteem)
- Taking care of an elderly or sick family member
- Traumatic event, such as a natural disaster, theft, rape, or violence against you or a loved one
- Chronic illness or injury



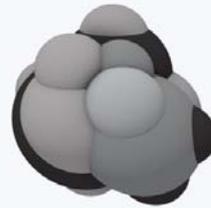
## What is Stress?

Sometimes the stress comes from inside, rather than outside.

- You can stress yourself out just by worrying about things.

All of these factors can lead to stress:

- Fear and uncertainty
- Attitudes and perceptions
- Unrealistic expectations
- Change.



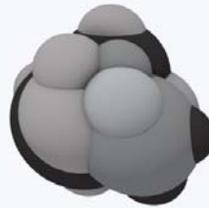
## What is Stress?

- Your stress level will differ based on your personality and how you respond to situations
- Some people let everything roll off their back. To them, work stresses and life stresses are just minor bumps in the road
- Others literally worry themselves sick.



## What is your Stress level?

- **Numerous stress surveys online**
  - to determine your stress level and
  - how stress affects different parts of your life
- **Stress Indicators Questionnaire (good one)**
  - Produced by the “The Counseling Team International in San Bernardino CA.
- **Physical Indicators**
- **Sleep indicators**
- **Behavioral Indicators**
- **Emotional Indicators**
- **Personal Habits.**

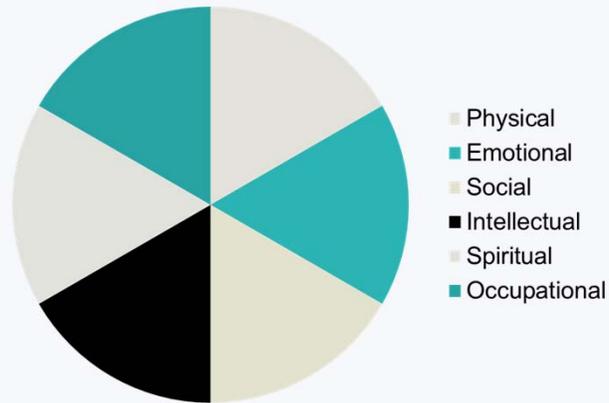


## Chemistry of Stress....Success

- Improve Well-Being
- Improve Performance



## What is Well Being?



Source: American Journal of Health Promotion & National Wellness Institute

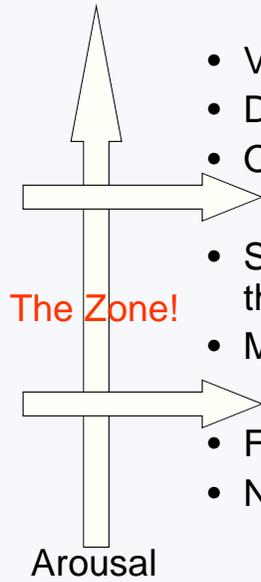
## What is Well Being?

### Perspectives on Wellness:

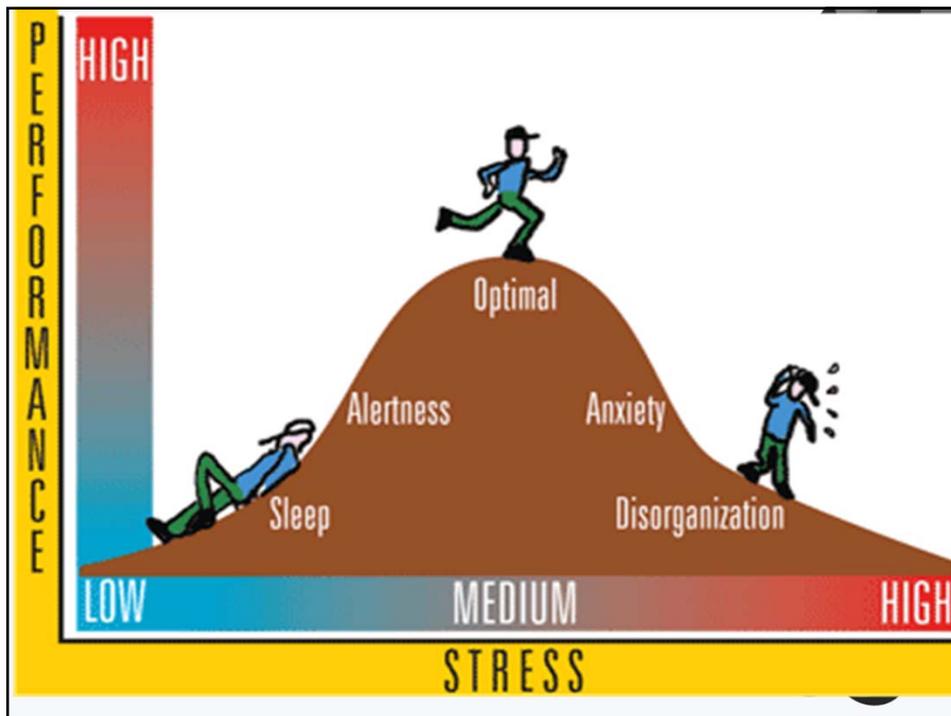
- Physical – *fitness, nutrition, medical self-care*
- Emotional – *stress management, depression*
- Social – *community, family, friends, co-workers*
- Intellectual – *educational, career development*
- Spiritual – *love, hope, charity*
- Occupational – *safe, nurturing worksite environment*

Source: American Journal of Health Promotion & National Wellness Institute

## What is Performance?



- Verbal & physical clumsiness
- Disconnection, anxiety, panic
- Overwhelmed.
- Superhuman, think clearly & faster than those around you
- Multitask, lots of energy.
- Flat, uninspired, don't care
- Need adrenaline to increase arousal.



# Chemistry of Success

SIF  
SEVERE INJURY AND  
FATALITY PREVENTION  
GUIDEBOOK

WCF

## ERROR PRECURSORS

TASK DEMANDS	INDIVIDUAL CAPABILITIES
Time pressure (in a hurry)	Unfamiliarity with task / first time
High workload (memory requirements)	Lack of knowledge (mental model)
Simultaneous, multiple tasks	New technique not used before
Repetitive actions, monotonous	Imprecise communication habits
Irrecoverable acts	Lack of proficiency / inexperience
Interpretation requirements	Indistinct problem-solving skills
Unclear goals, roles, and responsibilities	Hazardous attitude for critical task
Lack of unclear standards	Illness / fatigue
WORK ENVIRONMENT	HUMAN NATURE
Distractions / interruptions	Stress (limits attention)
Changes / Departures from routine	Habit patterns
Confusing displays or controls	Assumptions (inaccurate mental picture)
Workarounds / OOS instruments	Complacency / Overconfidence
Hidden system response	Minset (tuned to see)
Unexpected equipment conditions	Inaccurate risk perception (Pollyanna)
Lack of alternative indication	Mental shortcuts (biases)
Personality conflicts	Limited short-term memory

STRESS

Figure 6.1

Error precursors are conditions that make error more likely.

# Chemistry of Success

- Workplace stress can spill into personal life
- Personal stress can spill into work
- Not as focused
- Not able to complete a task
- Irritable.



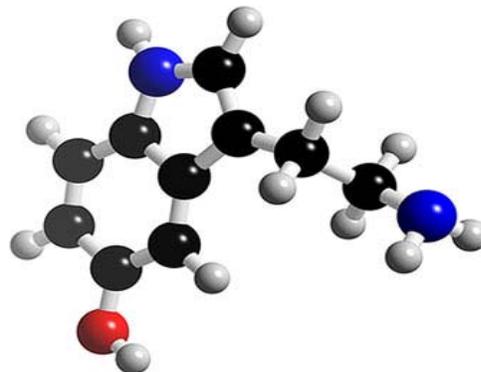
## Chemistry of Success

- 33% of the 40.2 million workdays lost by illness and injury are from stress, anxiety, and depression.
- Stress can be a hidden trigger behind cardiovascular problems, musculoskeletal disorders, obesity, depression, and violence.

Source: National Safety Council - News Release September 21, 2005

## Your “Internal Chemistry” Players

- Adrenaline
- Cortisol
- Serotonin
- Melatonin
- Oxytocin

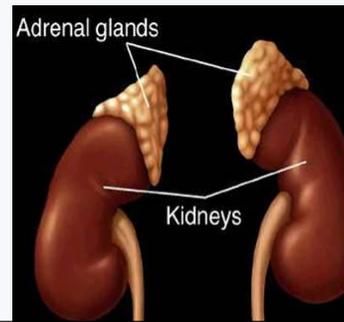


# Adrenaline

## “The Acute Stress Response”

Immediate change in heart rate and force of contraction

- ↑ in the production of blood cholesterol
- ↑ in the blood’s ability to clot
- ↑ in the depositing of plaque
- ↑ respiratory rate
- ↑ blood pressure
- ↑ mental awareness
- ↑ chance of producing cortisol
- ↓ urine production



# Cortisol

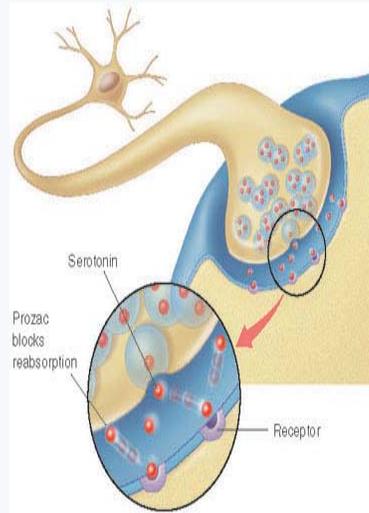
## “The Chronic Stress Response”

- ↑ **Increased risk of weight gain, resulting in Heart Disease and Diabetes:**
  - Increases blood sugar during stress at expense of muscle protein
  - Increases appetite
  - Promotes truncal obesity
  - Increases urine production = blood volume = hypertension
- ↑ **Increased risk of Osteoporosis:**
  - Inhibits bone formation and bone resorption
- ↑ **Increased risk of Illness:**
  - susceptibility to infection and disease
- ↓ **serotonin**
  - Mood altering - Makes us feel anxious, short-tempered and shaky



# Serotonin

- The “rush” vs. the “bliss”
- Low levels of serotonin are linked to anxiety and depression
- Regulates appetite & mood
- Cortisol suppresses serotonin
- During the night our brain breaks down serotonin to create melatonin



# Melatonin

- Melatonin's production is triggered by darkness and shuts off when light hits the eye
- Required precursor molecule to serotonin



## How They Work

Adrenaline → Improved Performance

Too much Adrenaline → ↑Cortisol

↑ Cortisol → ↑Weight ↓Health

When Cortisol ↑ Serotonin ↓

Serotonin → Melatonin

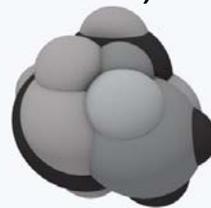
Melatonin → ↑Sleep

Sleep → Improved  
Performance



## So then...for Success...

1. Manage your **Adrenaline** to Improve Performance
2. Avoid **Cortisol** to maintain health, weight and relationships
3. Maximize **Serotonin** to improve mood, eating habits and sleep (**Melatonin**)



## Goal 1 – Manage Adrenaline

- Plan your day & your APE events
- Try not let other people's urgencies run your life
- Control your thoughts – stay positive
- Learn to say “no” and “let go”
- Use adrenaline triggers sparingly

*Man is distressed, not by events,  
but of his perception of these events*

*- Epictetus*

## Adrenaline Triggers

- Caffeine – 300mg/day is our limit
- Nicotine
- Being late
- Speeding
- Exercising on an empty stomach
- Not getting enough sleep



## Goal 2 – Avoid Cortisol

- Use your adrenaline sparingly
- Avoid exercise first thing in the morning on an empty stomach
- Eat regularly



## Goal 3 – Maximize Serotonin

- Spend at least 30 minutes outside everyday
- Perform low intensity exercise everyday
- Eat regular and balanced meals to keep blood sugar levels as optimal as possible
- Use only small hits of simple carbohydrates when mood is low – 40g or 160 calories



## Sleep

- Have a regular routine
- Try to get to bed before 10 PM
- Sleep in a dark room
- Aim for 7-9 hours per night



## The Effects of Inadequate Sleep

- Increased heart disease
- Decreased immune function
- Increased appetite...overeating and obesity
- Decreased performance
- Decreased memory and capacity to learn

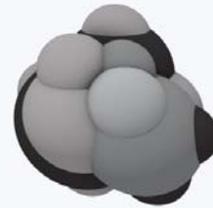


## Nutrition for Success



Eat to avoid heart disease and diabetes:

- Regular, balanced meals comprised of smaller portions
- Get your carbohydrates from fruits & vegetables primarily
- Avoid processed & refined foods
- Use small hits of simple Carbs when mood is low (40g)
- Eat less saturated fat and get some Omega 3 FAs everyday



## Exercise Prescription



### 1. Cardiovascular Exercise: 3-4x per week

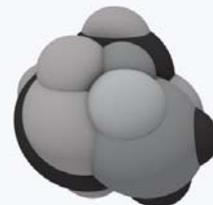
- 30 minutes
- Higher intensity (if stressed) to burn cortisol
- Long and slow to increase serotonin

### 2. Resistance Training: 2-3x per week

- 2 sets of 12 reps – total body

### 3. Flexibility Training: 3-4x per week or daily

- Emphasize chest, hamstrings and hip flexors



- 
- How to Make Stress Your Friend



## Daily Habits...how does this work everyday?

- Eat breakfast
  - Plan your day – be clear on your priorities and goals
  - Do some exercise *every day* (even just 5-10 minutes)
  - Eat well (smaller, regular portions, greater nutrient density, more fruits and vegetables)
  - Use adrenaline triggers when needed
  - Plan for enough sleep
  - Sit less...*stand* more...*move* more
  - Think positively about stress
  - Stress gives us access to our heart
  - Take responsibility for your life
- 

