



Human Maintenance: Innovations In Fatigue Management

Dylon Koch, Working Athlete



1



2

When It's More Than Just a Game

The professional **sports athlete** is
active an average of less than
28 minutes per game.

The **Working Athlete** is active an average of
7 hours per work day.

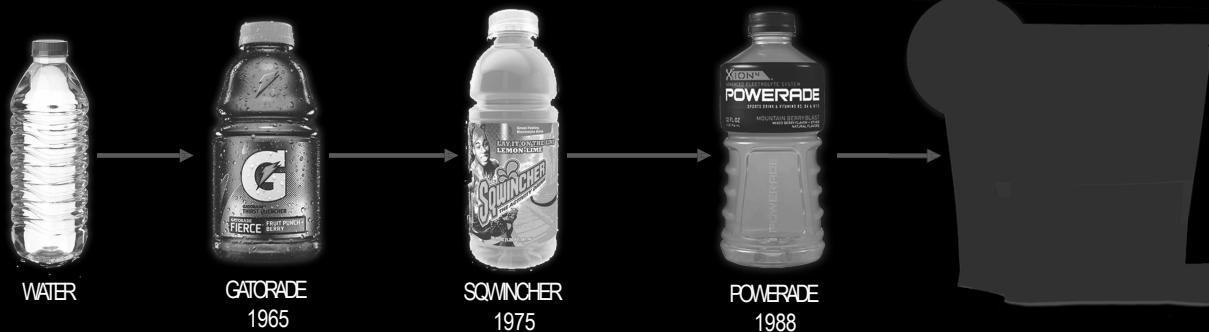


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3

The Evolution



4

Internal PPE

Safety Starts From Within
You invest in the best on the **outside**:



It's time to invest in the best on the **inside**.





5

confusion *dehydration*
decreased urine output *dry skin*
fever *stomach discomfort* *sunken eyes*

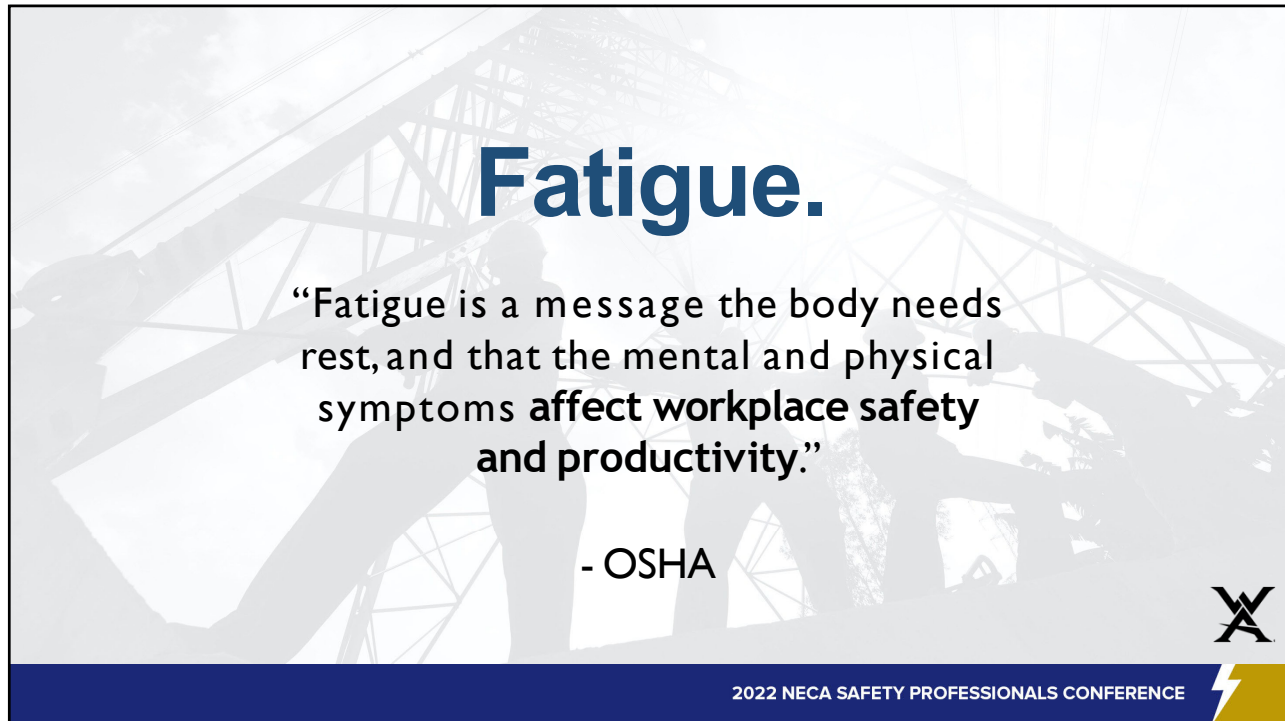
Commit to the Unseen

dizziness *extreme thirst* *no urination* *irritability*
fatigue *headache* *dry mouth*
low blood pressure *rapid heartbeat*



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Fatigue.

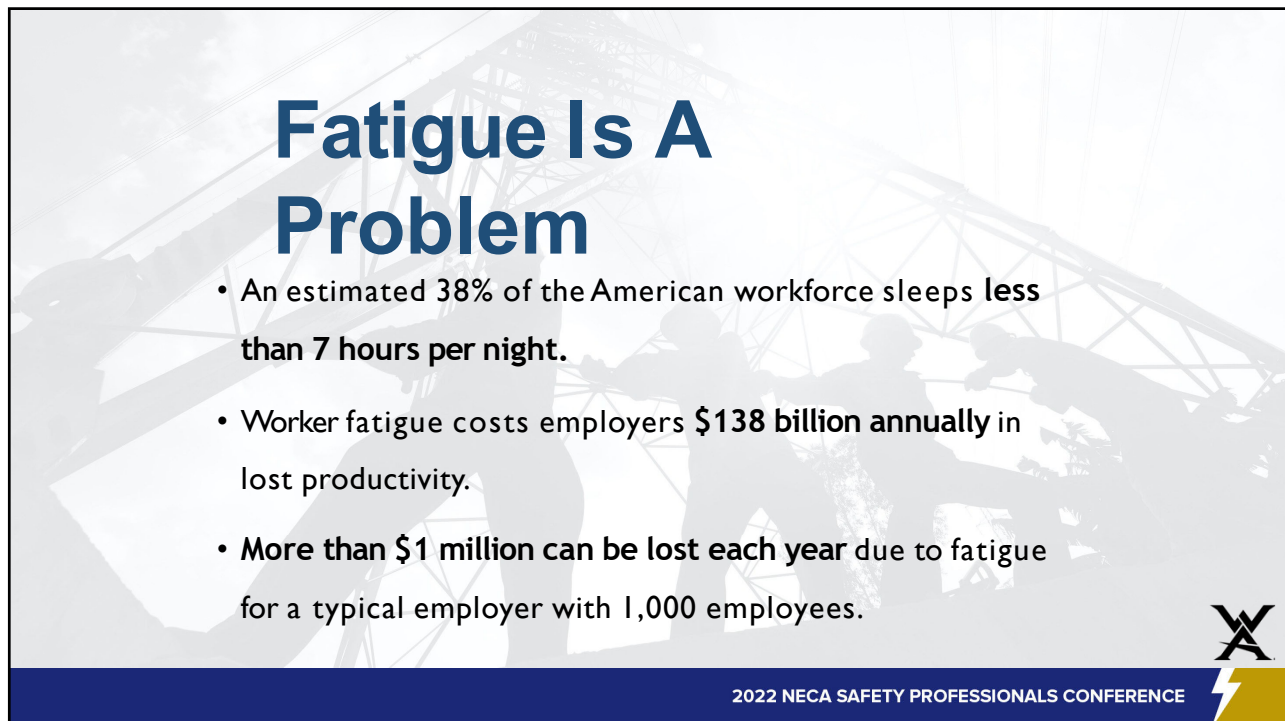
“Fatigue is a message the body needs rest, and that the mental and physical symptoms **affect workplace safety and productivity.**”

- OSHA




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Fatigue Is A Problem

- An estimated 38% of the American workforce sleeps **less than 7 hours per night.**
- Worker fatigue costs employers **\$138 billion annually** in lost productivity.
- **More than \$1 million** can be lost each year due to fatigue for a typical employer with 1,000 employees.



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9



10



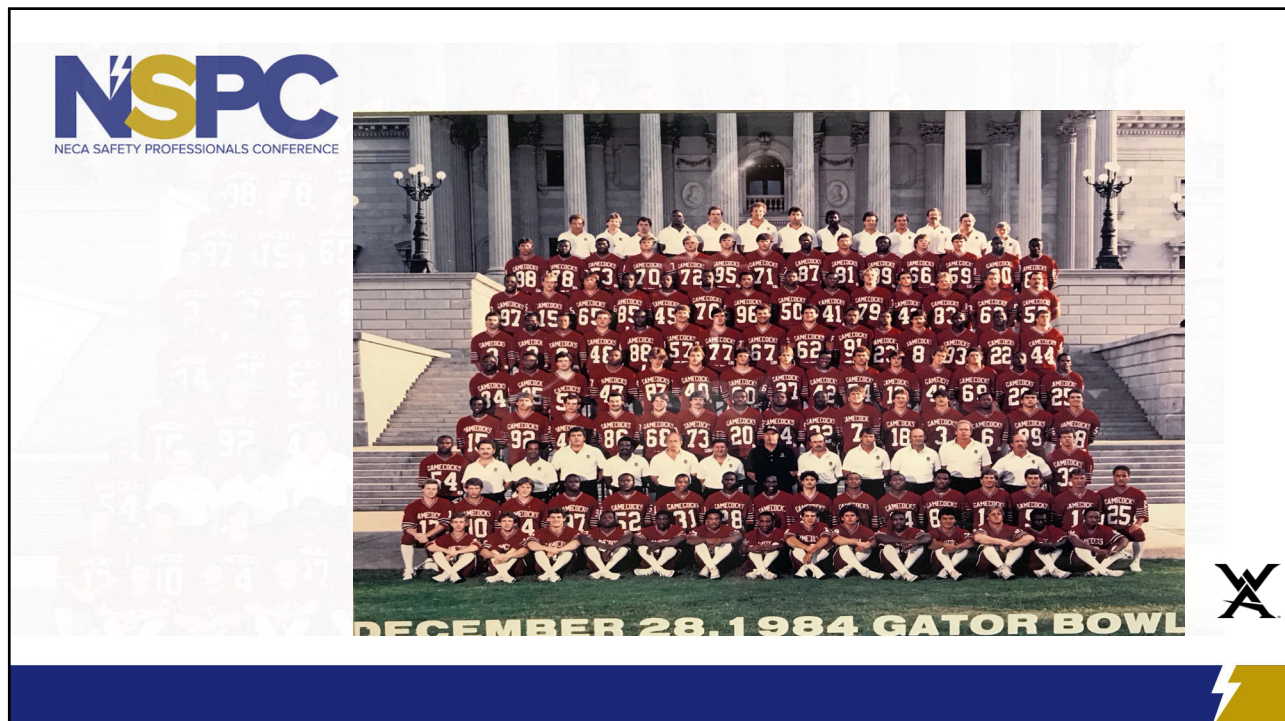
Most dangerous phrase in the English language is:

“We have always done it this way.”

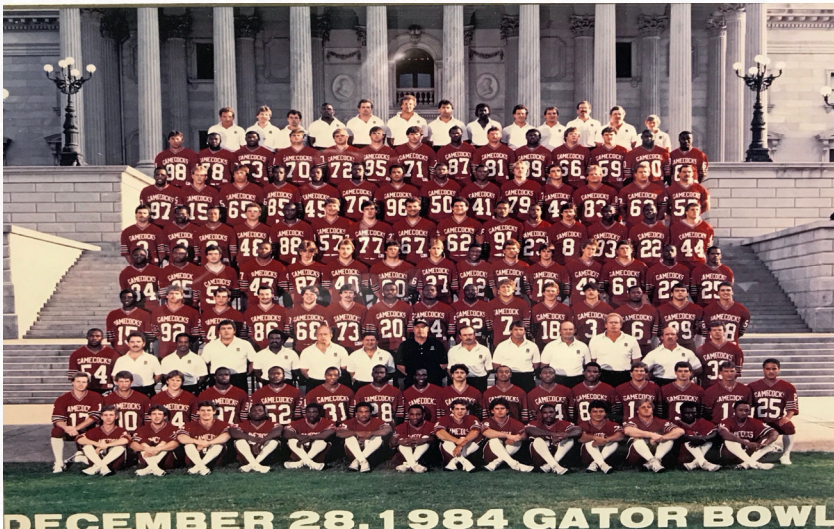
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NSPC
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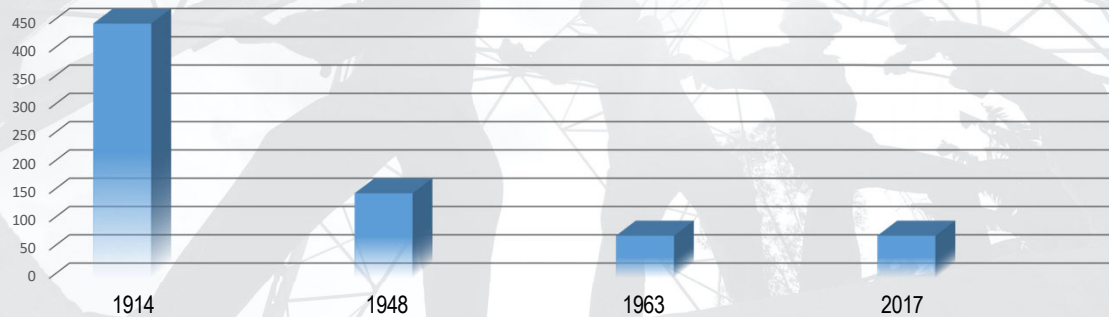


DECEMBER 28, 1984 GATOR BOWL

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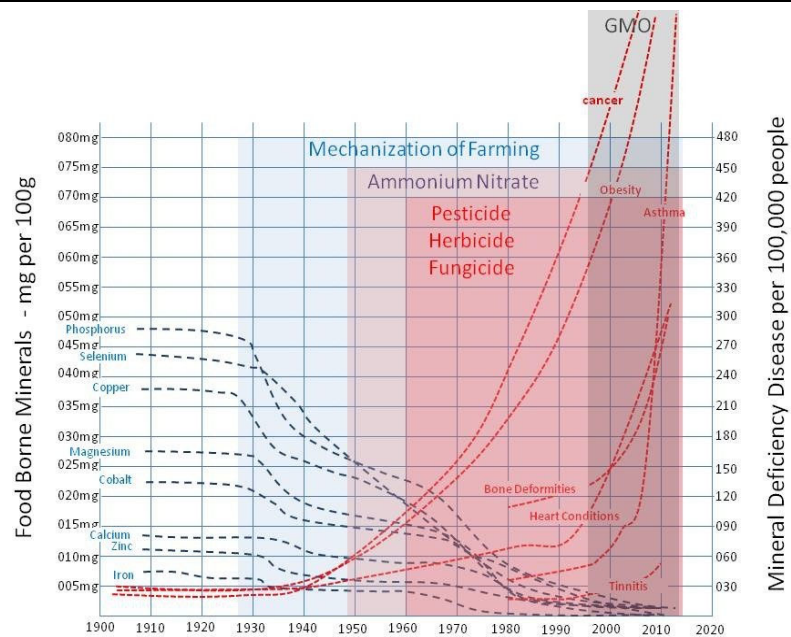
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Average Mineral Content In Selected Vegetables -USDA




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13




14

Support Your System With the Right Things




Magnesium

Promotes healthy sleep cycles & decreases nighttime cramps.




Glutamine

Speed up recovery of sore, broken-down muscles & boost brain function.




BCAAs

Rebuilds muscle tissue & reduce fatigue.



1000mg of Vitamin C

Increase the formation of collagen, boost the immune system, and maintain cartilage & bone strength.



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What are BCAAs?

BCAAs allow for more intense activity & faster recovery times.

UP TO

18%

Of energy used

while working out comes from BCAAs

Approx.

30%

Chronic muscle loss

impacts approximately 30% of those over age 60

About

35%

Of muscle tissue


is made up of BCAAs

2%

Per year

Muscle mass declines

about 2% each year after the age of 50



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Hydration & Performance

“What you really want to know is what’s going on in your blood and your urine can’t tell you that.”

- Dr. Harry Preuss, MD



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17

Are you Hydrated ?

DECODE YOUR URINE LEVEL

LEVELS: 1 - 3
YOU'RE ADEQUATELY HYDRATED.

1

2

3

LEVELS: 4 - 6
YOU'RE "MODERATELY DEHYDRATED"

4

5

6

LEVELS: 7 - 8
YOU'RE DANGEROUSLY DEHYDRATED.
TAKE ACTION NOW.

7

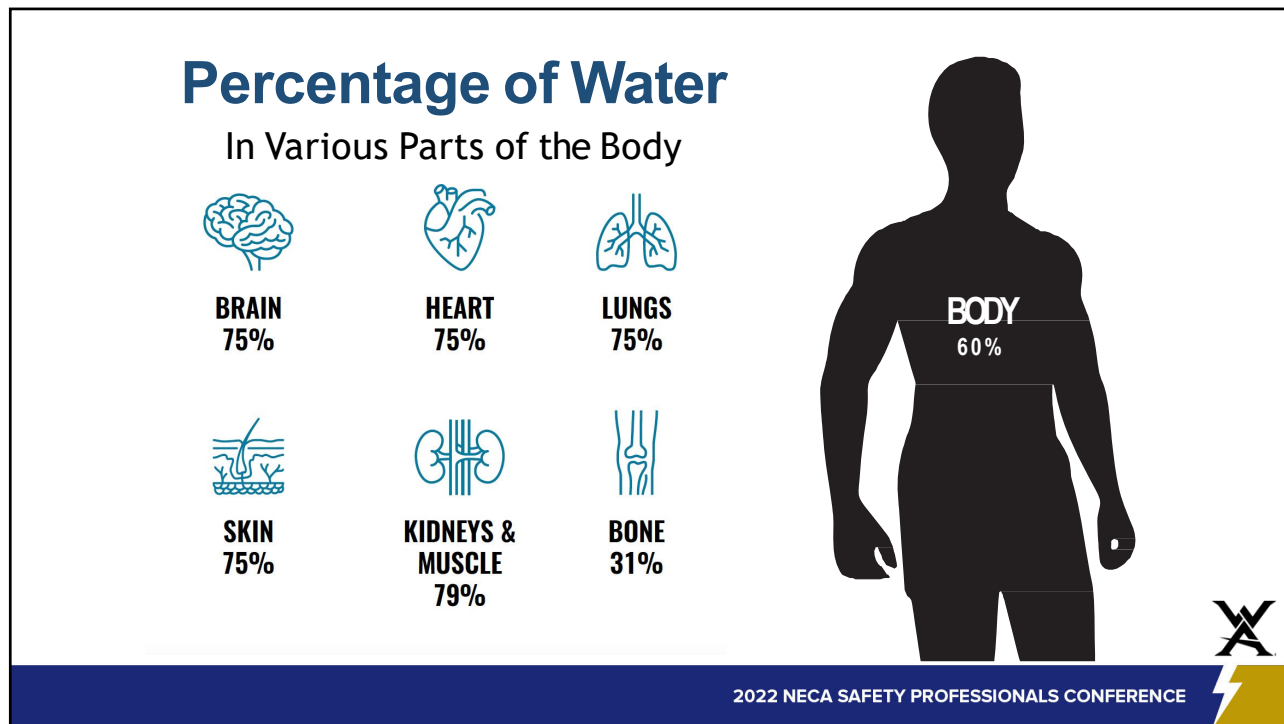
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18



19

Turning Hydration Into Health

- *Our core belief is that the mental and physical health of your employees directly affects their safety & performance.*

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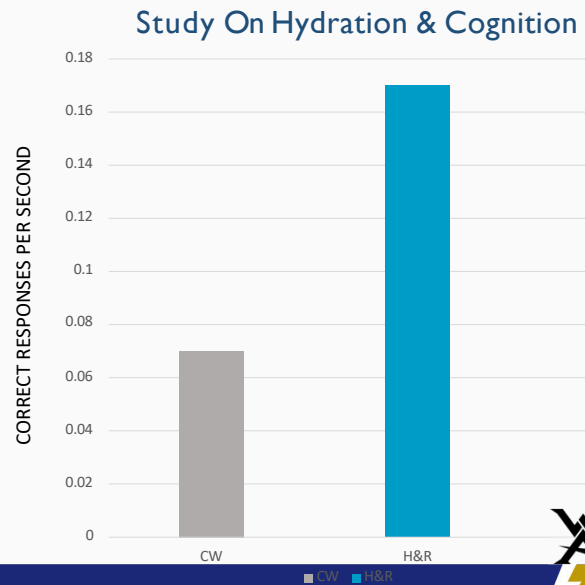
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BYU Idaho Study

On Hydration And Cognition

Double blind study finds that adequate hydration helps improve cognitive reaction time more than water alone.

142%
Improved Reaction Time



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Sludgeblood

“Normal circulation brings blood back to your heart, which pumps it to the lungs to be oxygenated. Fluid loss stresses this mechanism.”

- Good To Go



Healthy Blood = Healthy Body

- The average adult has approximately 5.5 liters of blood.
- A healthy blood sugar level is considered 80-100 m/dl
- Average person should have around 4.9 grams (1 tsp) of sugar in their blood at any given time.

Why then do companies overload their products with 5x the amount of sugar that is required?



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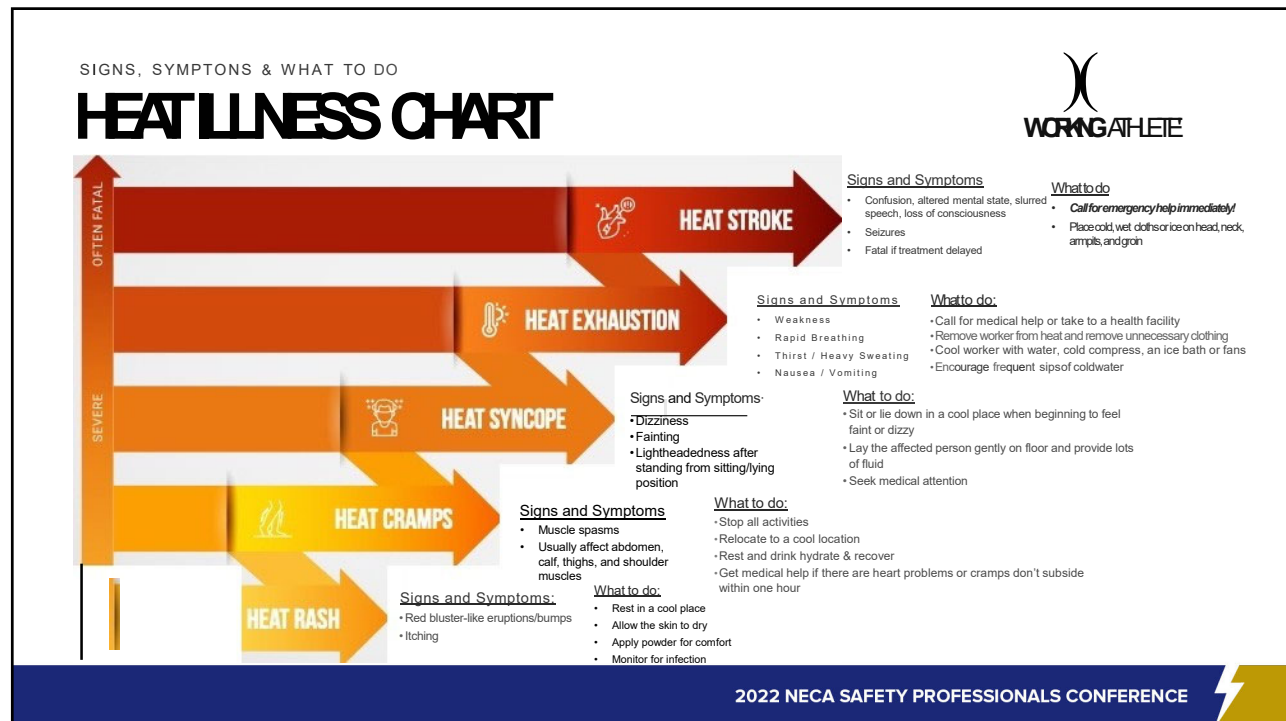
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Benefits Of Hydrated Blood

- Removes toxins and waste
- Transports oxygen-rich blood to the brain & extremities
- Transports essential minerals and vitamins throughout the body
- Natural lubricant to joints, muscle tissue & cartilage
 - Increases metabolism
 - Cooling mechanism
- Improve digestive system



23



24

Mental Focus



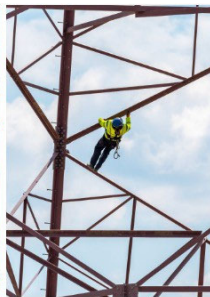
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Top 5 Causes for Fatigue Related Accidents on the Job



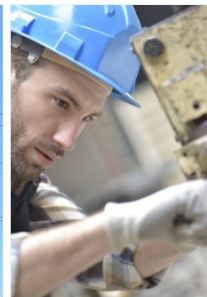
Ambient
Temperature



Physical
Exertion



Hydration/
Access to Fluids



Age



Weight



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What Fatigue Costs

A typical employer can expect to experience more than **\$1 million lost each year to fatigue:**

- **\$272,000** due to absenteeism
- **\$776,000** due to presentism
- An additional **\$536,000** in healthcare costs could be avoided with optimization of sleep health



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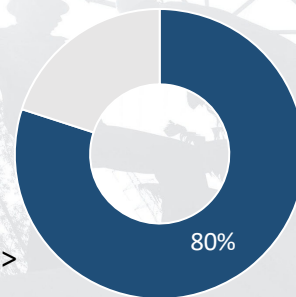
Less Sleep = More Fatigue

Adults require **7-9 hours of sleep** per night.

60% of shift workers report having trouble sleeping.

Approximately **23% of working Americans** suffer from insomnia.

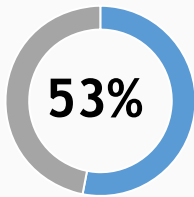
About **80% of Americans** are deficient in magnesium, which is essential for sleep.



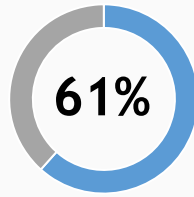
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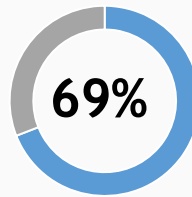
Over Stimulation = More Fatigue



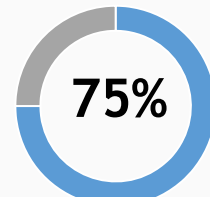
of people report checking email while driving.



of people say they check their email on vacation.



cannot go to sleep without checking their phone.



admit to using their phone in the bathroom.



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Mental Fatigue Precedes Physical Fatigue

Most working injuries/accidents occur due to mental fatigue.



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30



31

diuretic *synthetic*

drained adrenal glands *increased blood pressure*

Dangers Of Store Bought Energy Drinks

heart palpitations *kidney issues* *stroke*

liver damage

over stimulation

stresses energy pathway

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4 Healthy Aging

After age 30, you begin to lose as much as 3% to 5% of muscle per decade.

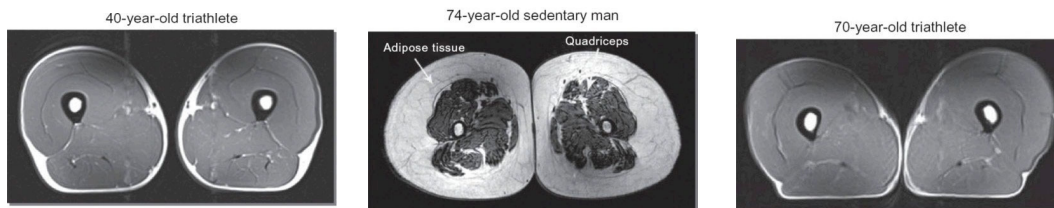
Most men will lose about 30% of their muscle mass during their lifetime.



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Sarcopenia



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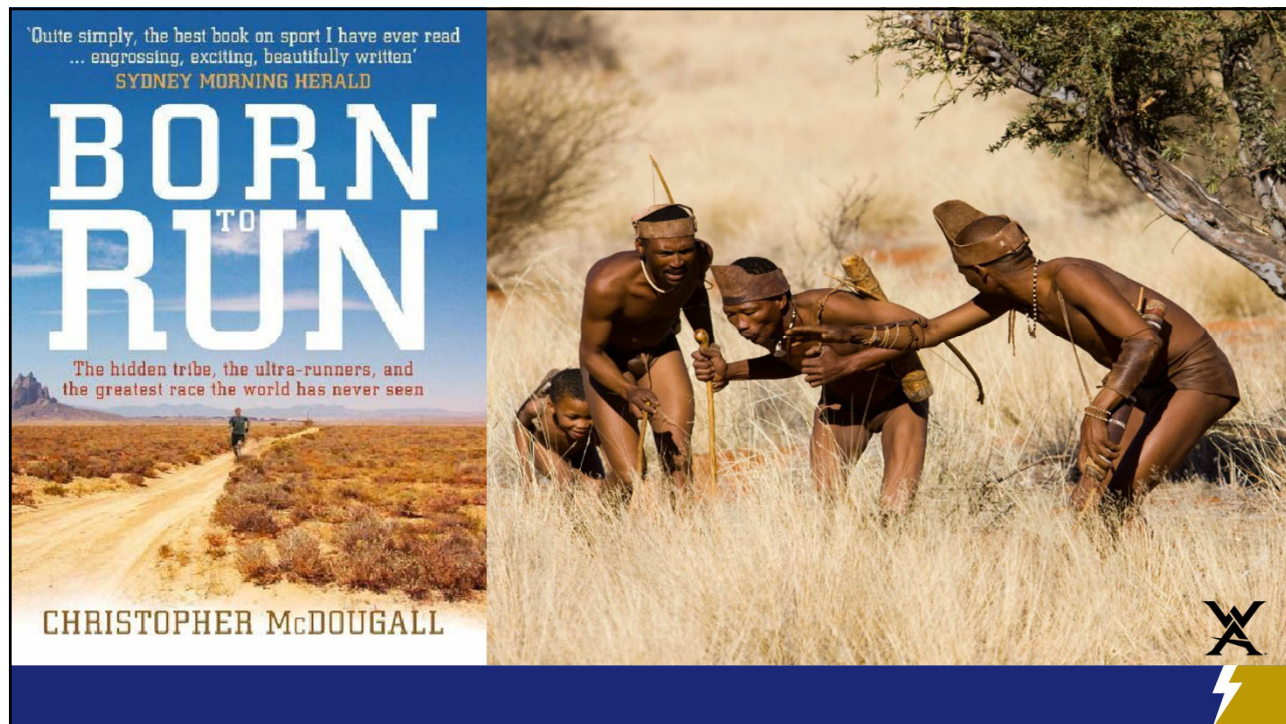
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Combating Fatigue In A Perfect World

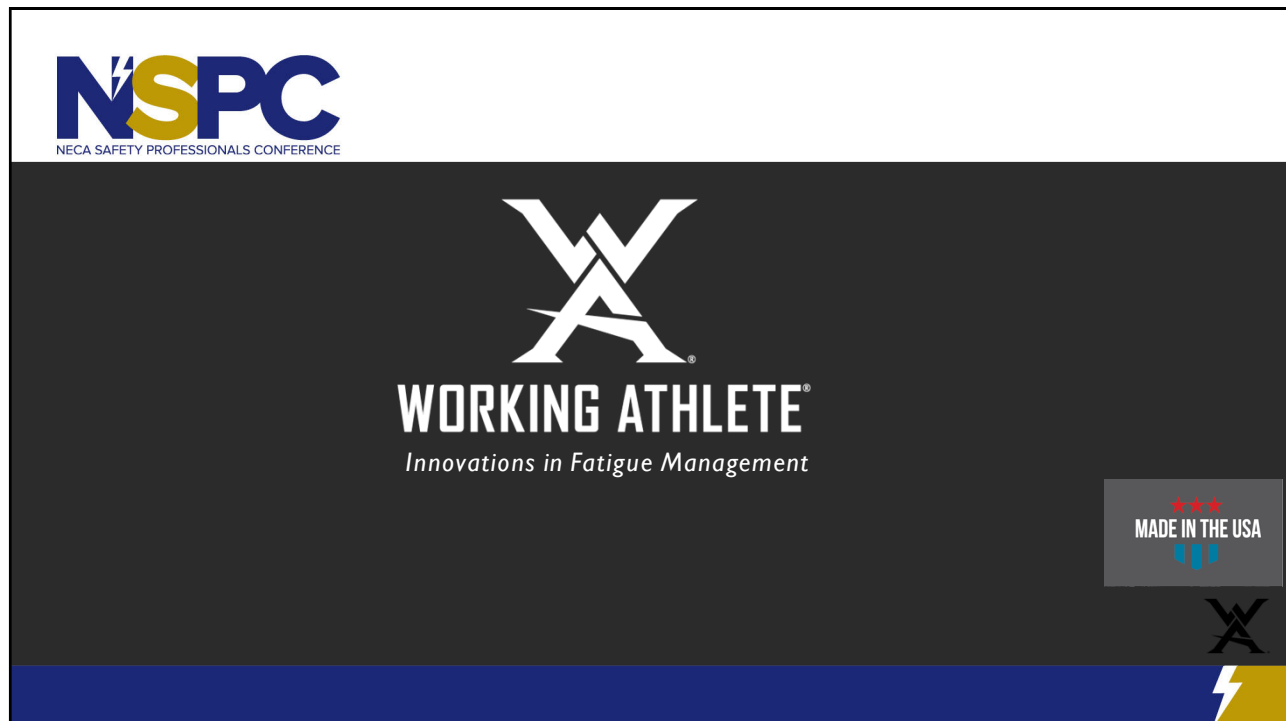
- Nap stations
- Prepackaged meals
- Dimmed lighting
- Controlled workload
- Noise sensitive
- Comfortable environment

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37



38

“Very often people talk as if some group has taken control of some industry and they wonder how it happened. And in most cases, they created the industry. It did not exist until they got there.”

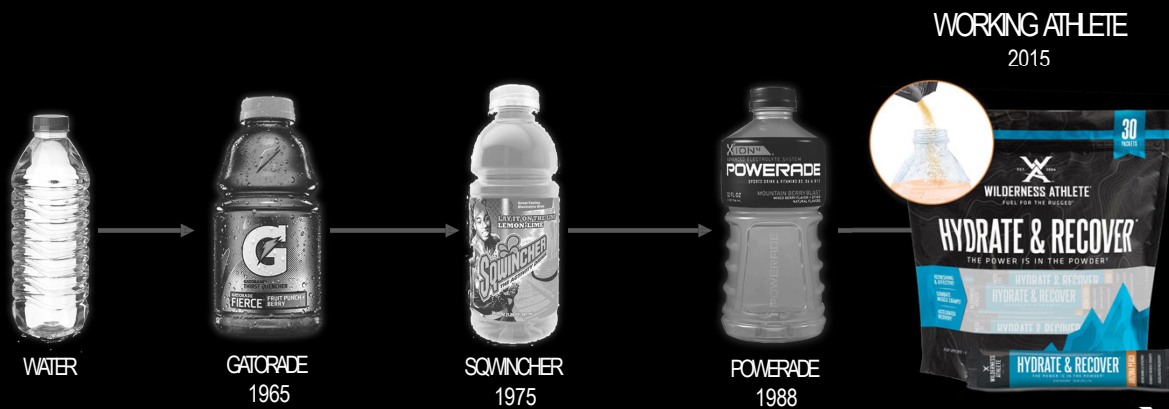
-Thomas Sowell



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The Evolution



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Safety Supported by Science



Harry G Preuss, M.D.

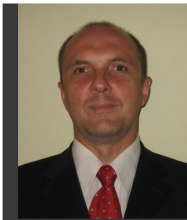
MD, MACN, CNS

Chair of Working Athlete®
Science, Research &
Formulations Board



**Richard P.
Scheckenbach, Ph.D.**

- Bachelor of Arts (Bacteriology)
- University of California, Los Angeles
- Ph.D. (Microbiology/Biochemistry)
- Oregon State University, Corvallis



Vladimir Oleynikov, Ph.D.

Bachelor of Science
Institute of Physical Education &
Sport, Moscow Russia

Ph.D. (Biochemistry)
Institute of Physical Education &
Sport, Moscow Russia



Eli Lankford, Ph.D.

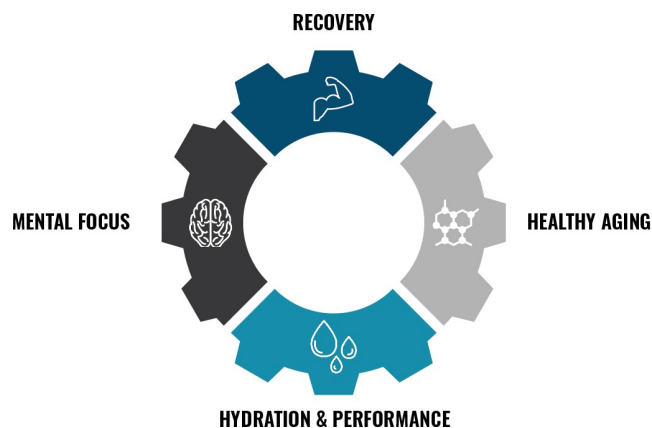
- Bachelor of Science
- The University of Utah, Exercise Science
- Master of Science
- The University of Montana, Health & Human Performance
- Ph.D. (Exercise Physiology)
- Brigham Young University



41

Force Multiplier

Factors that allow you to accomplish greater things than without them.



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Proactive vs Reactive

- Education resources
- Nutrition
- Functional movement
- On-the-job training



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Equivalent to 1 Serving of
Hydrate & Recover

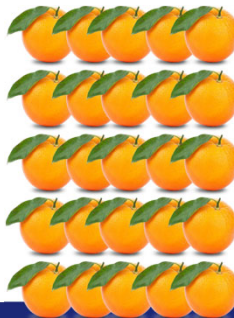
Glutamine = 4 oz Steak



Potassium = ½ Banana



Vitamin C = 25 Oranges



BCAA's = ½ Egg White



Magnesium = 2 cups of Spinach



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45



46

Complete the Online Evaluation



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