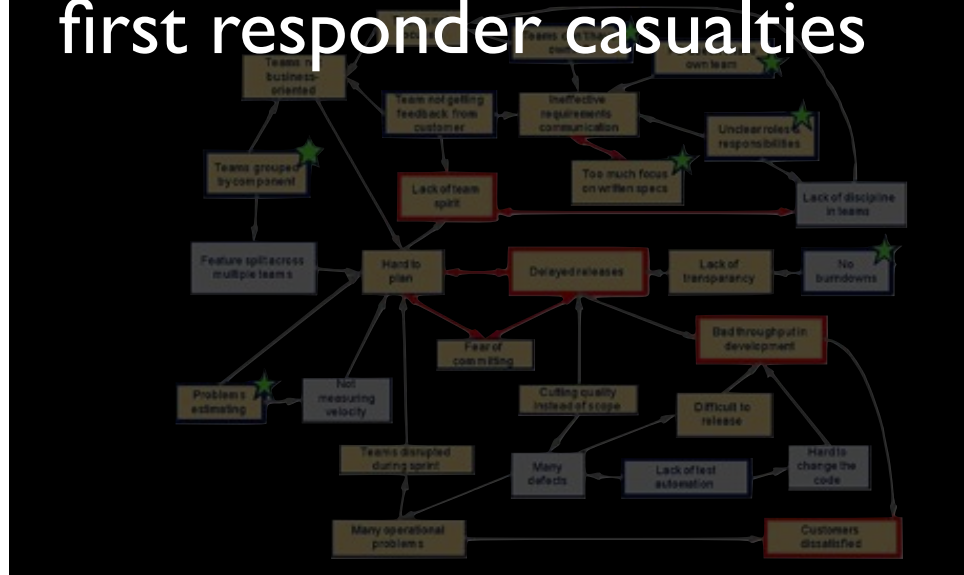


Brain science meets public safety:

What have we learned?

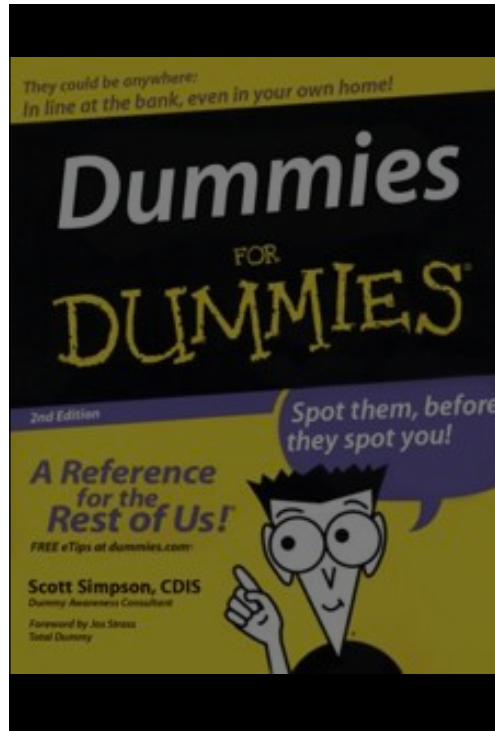
Dr. Richard B. Gasaway  
Situational Awareness Matters  
Public Safety Laboratory

# Root cause analysis of first responder casualties





First responders...  
appear to be doing some  
pretty dumb things.



## Dumb:

Lacking intelligence;

Inability to reason through a situation;

Thinking or behaving irrationally.



Momma always said:  
“Stupid is \_\_\_\_\_.”

Do first responders do dumb things  
at emergency scenes?

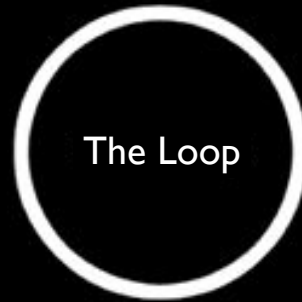
Do responders do dumb  
things on emergency  
scenes on purpose?

Can a responder do dumb  
things accidentally?

**Unconscious Incompetence:**

**TOTALLY  
CLUELESS**

When it comes to understanding  
how the brain works...



First  
Responders

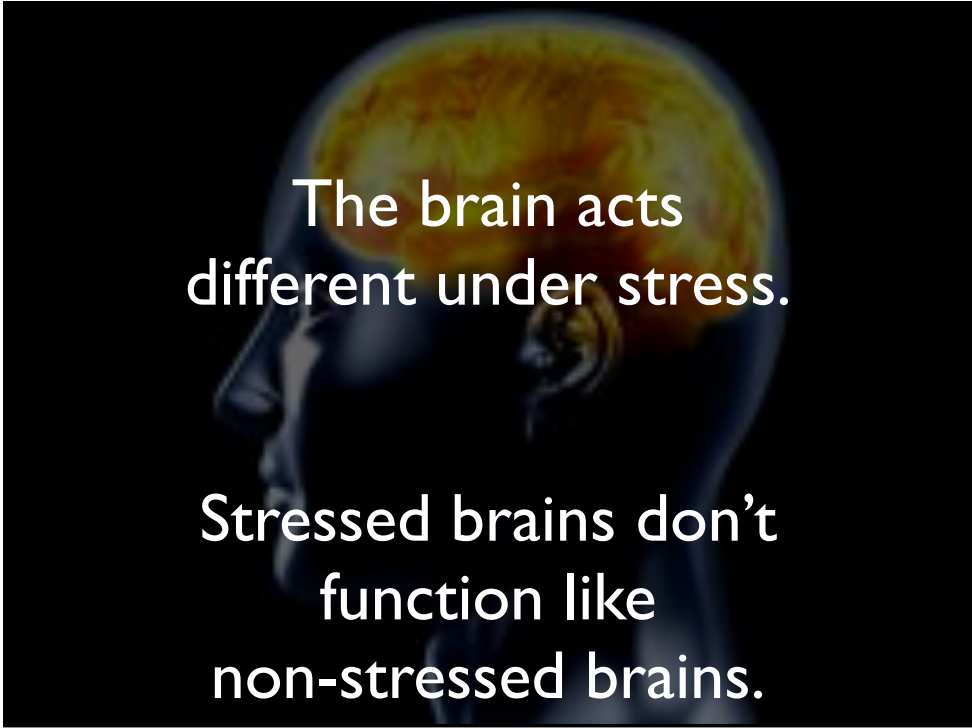




This program is designed to...



16 things we know about the brain  
&  
how it can impact the thinking and  
actions of first responders .

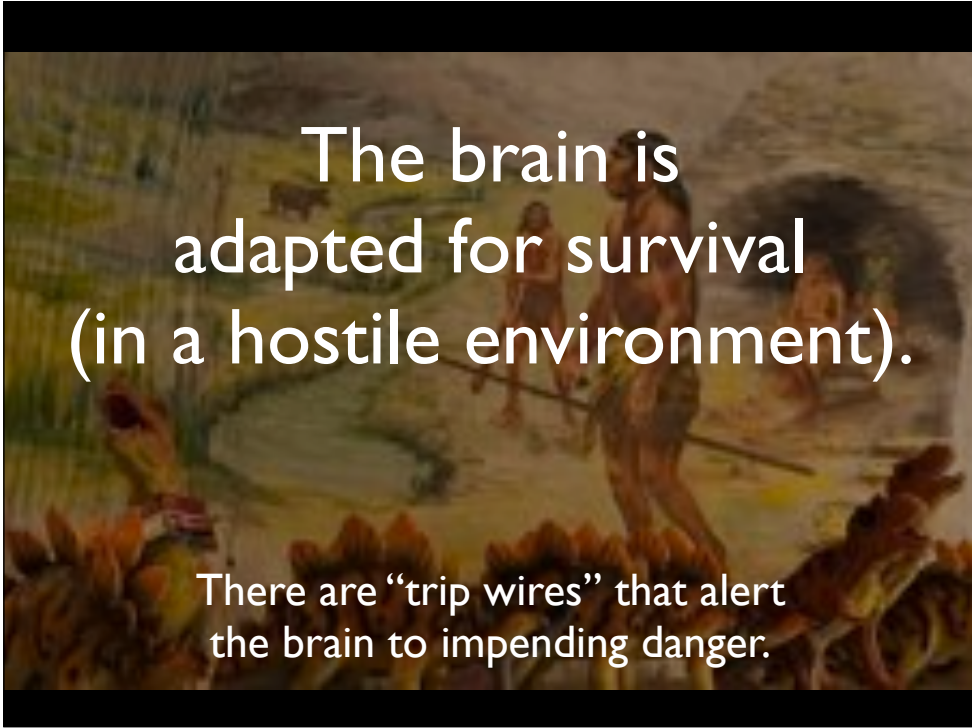


The brain acts  
different under stress.

Stressed brains don't  
function like  
non-stressed brains.



Here's why...

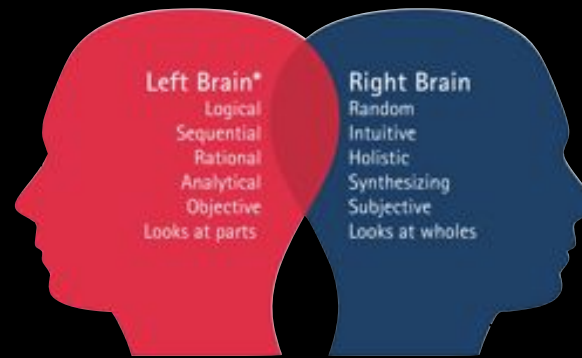
A painting depicting a prehistoric scene. In the center, a man and a woman are walking through a landscape. The man is holding a spear. The woman is carrying a bundle on her back. They are surrounded by a hostile environment with various animals, including a large brown bear in the foreground and a dark, shadowy figure in the background. The overall tone is somber and dangerous.

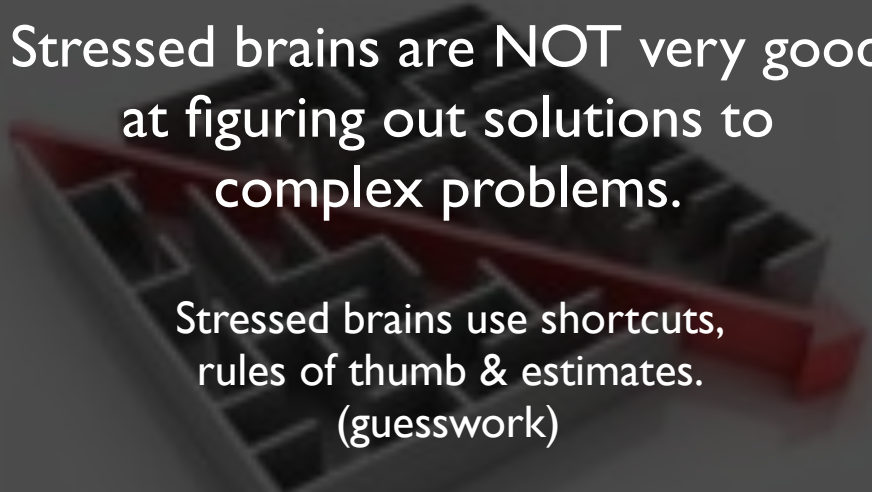
The brain is  
adapted for survival  
(in a hostile environment).

There are “trip wires” that alert  
the brain to impending danger.

Under stress, behavior may  
not appear rational.

That's because it's not!

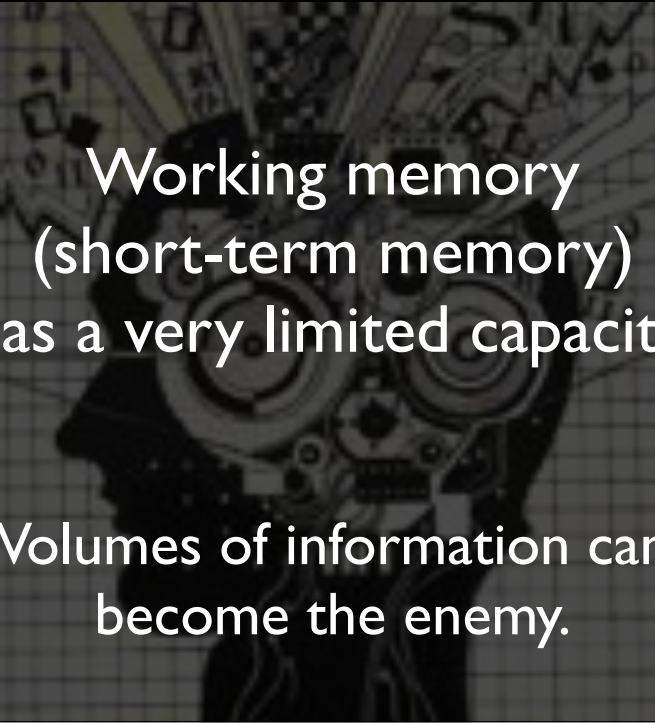




Stressed brains are NOT very good  
at figuring out solutions to  
complex problems.

Stressed brains use shortcuts,  
rules of thumb & estimates.  
(guesswork)

Confusion stresses the brain.  
And the brain doesn't like confusion.  
So it gets to work... making sense of things.



Working memory  
(short-term memory)  
has a very limited capacity.

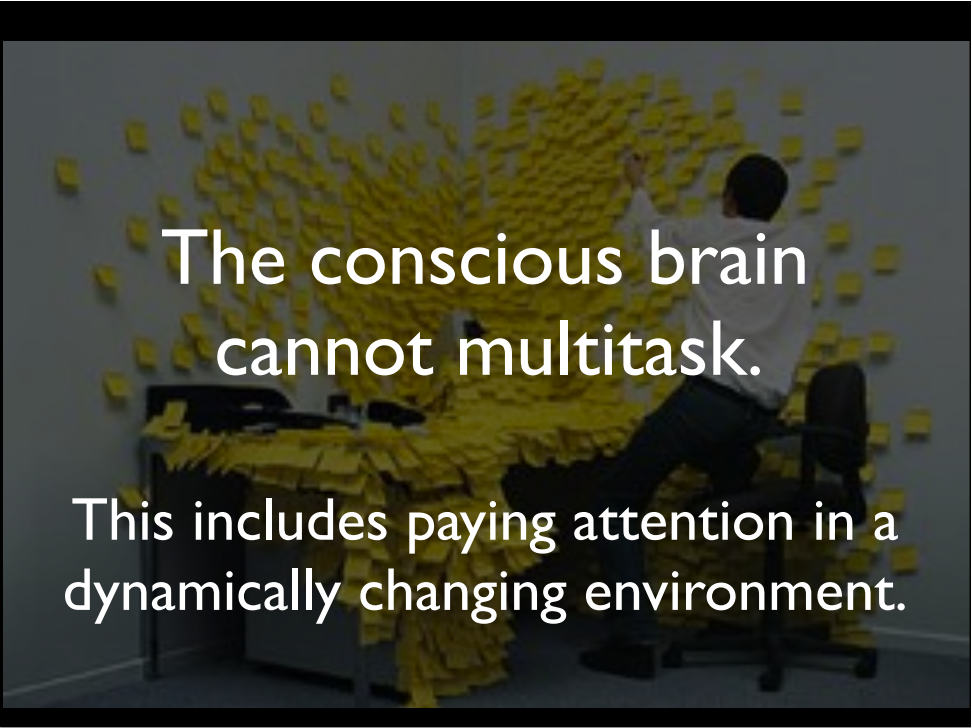
Volumes of information can  
become the enemy.



The brain prioritizes incoming information  
(Based more on emotional cues than rational logic.)

And you may not be able to control what  
information is remembered or forgotten.

**HIGH PRIORITY**

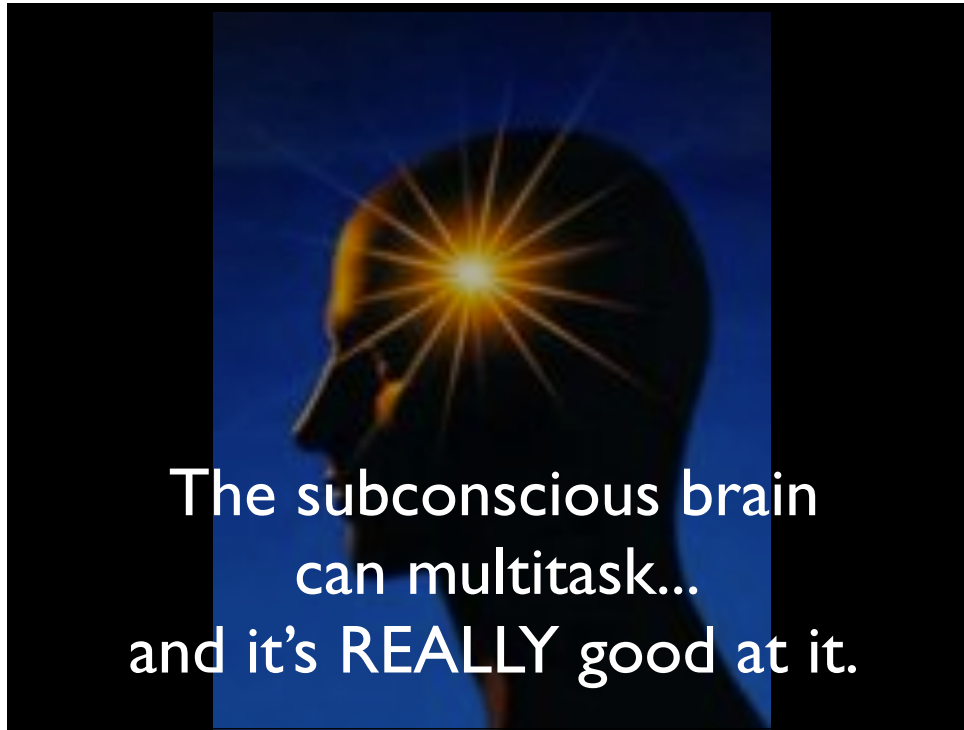
A person is sitting at a desk in a room that is completely covered with yellow sticky notes. The person is looking at the wall, which is densely packed with these notes, creating a chaotic and overwhelming visual environment. This visual metaphor represents the concept of multitasking and the limitations of the conscious brain.

The conscious brain  
cannot multitask.

This includes paying attention in a  
dynamically changing environment.

# The Multitasking Myth





The subconscious brain  
can multitask...  
and it's REALLY good at it.

Emotions compel behavior.

And the two biggie emotions are...



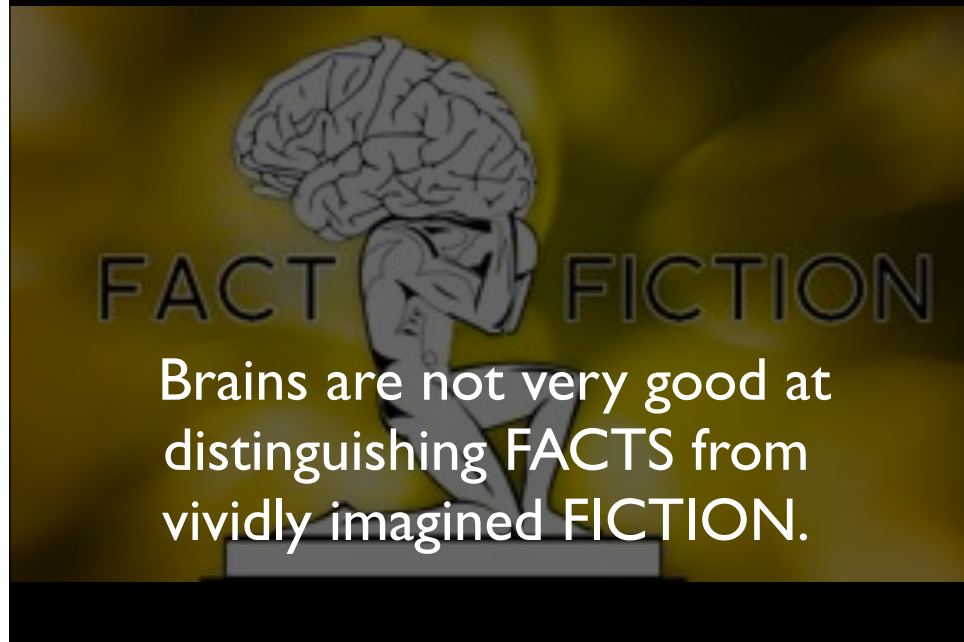


The brain processes audible  
messages as visual images.

Human's listen with the "Mind's Eye"

This can cause overload in  
dynamically changing environments and then...

The brain can be fooled into learning.

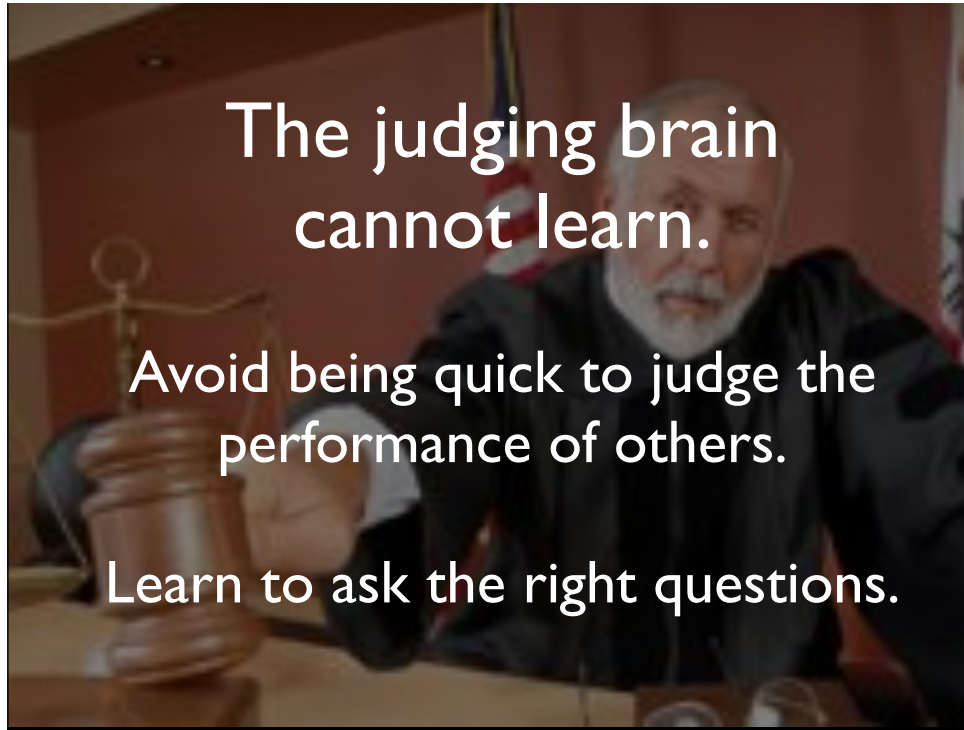


Brains can be stubborn.



Once locked on to doing something  
(like a plan of action)  
it can very difficult to change the  
mind or to see an alternate solution.





The judging brain  
cannot learn.

Avoid being quick to judge the  
performance of others.

Learn to ask the right questions.

Humans are a...

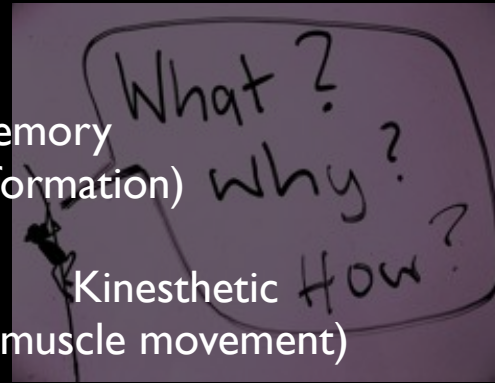
CREATURE OF HABIT

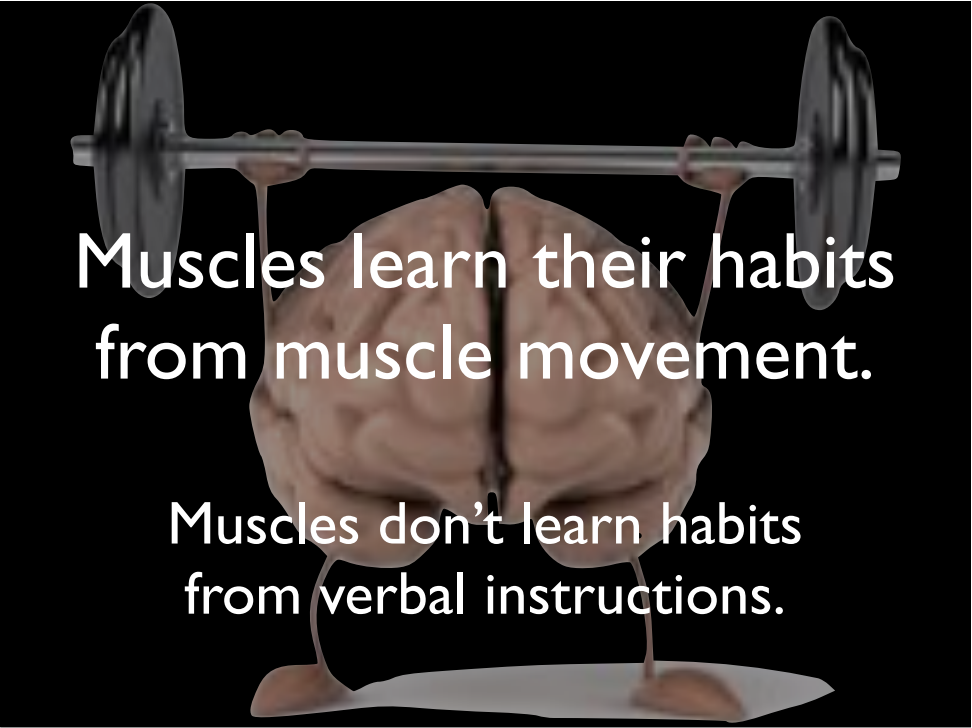
Stress induces automatic habitual performance.

Training and experience  
develops habits (memory).

Cognitive Memory  
(information)

Kinesthetic  
(muscle movement)





Muscles learn their habits  
from muscle movement.

Muscles don't learn habits  
from verbal instructions.

Not understanding how the brain works  
can have some strange consequences



The patient care drill...

Not understanding how the brain works  
can have some strange consequences



Scene Safe



BSI

The patient care drill...



Thank you to the members of our military,  
past and present.







THE  
Owner's Manual  
FOR YOUR  
The Brain



I have a favor to ask...

**Pay it forward**



Helping you see the bad things coming...  
in time to change the outcome.

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