The Distracted Brain at Work

Brain Injury Association of Maryland for the Chesapeake Region Safety Council

Bryan Thomas Pugh 10/09/2019
Increase your knowledge of the brain
Know the scope & impact of distractions on the brain
Be able to identify, avoid, and reduce distractions which may cause errors or injuries
PHINEAS GAGE
America’s most famous distracted employee brain injury created the modern era of neuroscience
TBI Defined

TBI is an insult to the brain caused by an external physical force, such as a: Fall, motor vehicle accident, assault, sports-related incident, or Improvised Explosive Device (IED) exposure

ABI Defined

Acquired Brain Injury (ABI) is an insult to the brain that has occurred after birth, such as: TBI, stroke, near suffocation, infections in the brain, or anoxia
How much does the adult brain weigh?

- 7 pounds
- 3 pounds
- 1.5 pounds
How many Americans are treated in Emergency Departments (ED), hospitalized, or die as a result of a Traumatic Brain Injury?

- 231,840
- 1.2 million
- 2.8 million
Which of these celebrities has **NOT** had a Work Related TBI?

- Rebel Wilson
- Jackie Chan
- Angelina Jolie
- Lady Gaga
What is the leading cause of brain injury in the US?

- Motor vehicle accidents (MVAs)
- Falls
- Violence (such as assaults or gunshot wounds)
Leading Causes of Non-Fatal TBI

- Falls: 40%
- MVA: 14%
- Struck by/against: 16%
- Unknown or other: 19%
- Assaults: 11%

Adapted from CDC, 2013
80% Mild
Loss of consciousness (LOC) <30
Post traumatic amnesia (PTA) <1 hour

10-13% Moderate
LOC 30 minutes – 24 hours
PTA 1-24 hours

7-10% Severe
LOC > 24 hours
PTA > 24 hours
But a brain injury doesn’t require an impact directly to the head.

Sudden acceleration-deceleration can cause injury to the brain. Although axons are usually elastic, if they’re stretched quickly they can be torn, leading to axonal death.
Risk Factors

Gender
Men are 2 times more likely to sustain a TBI than women.

Young and Old
Very young people and very old people are more likely to sustain TBI as a result of falls.

Adolescents
Due to intentional injuries and moving vehicle accidents.

Source: John Corrigan, PhD, Ohio Valley Center 2014
Behavioral Risk Factors

Violence-Prone
Or exposed to those who are

Substance Use
Or exposed to those who use substances

Socioeconomic status
Why might that be?

Source: John Corrigan, PhD, Ohio Valley Center 2014
Civilian groups Prone to Multiple TBI’s

- Athletes/Former Athletes – especially boxers, football and hockey players
- Former Military Personnel – Hospital admissions non-combat (84%); combat (%16)
- Victims of Intimate Partner Violence and childhood physical abuse
- People who use Drugs (PWUD)
- People with Mental Illness

How many of your colleagues or employees fall into one or more of these categories?

Source: John Corrigan, PhD, Ohio Valley Center 2014
Frontal Lobe

The frontal lobe is responsible for our “executive functioning” skills

These include:
- Problem solving
- Spontaneity
- Memory
- Language
- Motivation
- Judgment
- Impulse control
- Social and sexual behavior
Temporal Lobe

The temporal lobe plays a role in emotions and is responsible for:

- Smelling
- Tasting
- Perception
- Memory
- Understanding music
- Aggressiveness
- Sexual behavior
The VLPGC

- We all have a system called the ventrolateral prefrontal cortex (VLPGC) which is the central system for **inhibiting thoughts**.
- (There are others but the VLPGC appears to be the main one).
- This braking system is part of the most fragile, temperamental, and energy-hungry region of the brain.
The VLPGC

• As a result, the more you use it, the more its capacity decreases.
• According to Roy Baumeister from FSU, who studies this stuff, “Self-control is a limited resource...After exhibiting self-control, people have a reduced ability to exhibit self-control.”
• Which means, every time you stop yourself from taking action, it is harder to stop yourself the next time.
The Brain – Designed to Scan

- Humans are built to be interrupt-driven
- That’s how we stay tuned to our environment.
Attention: The Limited Resource

- Focus uses a measurable amount of glucose and other metabolic resources.
- Each task you do tends to make you less effective at the next task.
- Distractions, over the day, can deplete the resources needed to continue to make good decisions.
- Or to start making mistakes.
The Brain – Types of Attention

• Attention is not a single thing

• **Three “Networks”**
  
  • FOCUS is the spotlight of the mind,
  
  • AWARENESS is our sensitivity to our surroundings and
  
  • EXECUTIVE ATTENTION includes the higher-order skills of planning and judgment.
The Brain – On Overload

- Lose FOCUS
  - Can’t connect with others or solve problems
  - (Collaboration, anyone?)
- Lose AWARENESS
  - Become detached or disengaged with our surroundings
  - The brain constantly changes based on external factors, without acknowledging that, you lose a vital component in critical thinking.
Lose EXECUTIVE ATTENTION

- Become black-and-white, relativistic thinkers unprepared for new or unique situations
- (New Projects or Initiatives anyone?)
The New York Times on Sunday contains more information than the average 18th century European learned in his lifetime.
A 2013 study commissioned by Nokia, found that we were checking our phones an average of 150 times a day.

A 2016 study by DSCOUT, a research firm, determined we touch our phones about 2,617 times.

While Apple has confirmed that users unlock their iPhones an average of 80 times per day.
One study found that office distractions eat an average 2.1 hours a day.

A UC-Irvine study, published in October 2005, found that employees spent an average of 11 minutes on a project before being distracted.

And after an interruption it took them 25 minutes to return to the original task, if they do at all.
More than a third of millennials and Gen Z (36%) say they spend two hours or more checking their smartphones during the workday.

That adds up to at least 10 hours every week when they’re doing something outside their job responsibilities.

Overall, just under two-thirds of survey respondents (62%) spend about an hour per day looking at their phones.

Meanwhile, a third of Baby Boomers claim they never engage with their personal devices at work.
Just Ban Phones, Right?

- Chatty Coworkers
- Office Noise
- Changes in Workspaces (Open Office concepts)
- Personal Technology
- Meetings ("unnecessary meetings")
When people are distracted, they are not paying attention and fail to see hazards, which can lead to injuries.
Not Just in the Office

“Distraction Loop”

- Employees are more susceptible to injuries when they focus on finishing on time instead of safety.
- Then when an injury or incident occurs, time is lost to provide care or correct the problem.
- After an incident, employees may feel additional pressure to make up that lost time.
Not Just in the Office

- Strict Deadlines
- Schedule over safety
- Overcommitted
- Getting it done quickly.
- Doing “more with less”.
- Complacency
- “Having a Bad Day”
Switching rapidly between tasks carries “switch costs.”

U.S. Navy’s Office of Naval Research study found a distraction as brief as 2.8 seconds DOUBLED the error rate while executing a complex task.

According to the Information Overload Research Group, U.S. workers waste about 25 percent of their time dealing with "an incessant stream of data," losing their employers a staggering $997 billion a year.
ADDRESSING THE PROBLEM

Management Issues

- Regular Walk Through
- Check in with EE’s
- Office Space/Work Site
- Adjust Workflow/Workload

- Provide and Enforce Breaks
- Empower employees to speak up
- Keep equipment regularly maintained
ADDRESSING THE PROBLEM

**Smartphones**

- Set up rules addressing personal use.
- Studies have shown, initially unpopular but gains in popularity once there are fewer interruptions

- Use Breaks for calls/social media
- If you don’t want to turn them off, set up auto text messages to let the caller know you will call them back.
ADDRESSING THE PROBLEM

Collegiality

- Employees need to watch each other’s backs.
- Find out what may be distracting them.
- Don’t create even more distractions.

Workplace Wellness

- Check In at DESIGNATED times
- Walk During Lunchbreaks
- “Micro-Breaks”
  - Pomodoro Technique
- Vacations are meant to be taken.
- Mindfulness Classes or Times
THE TOP TEN WAYS TO MINIMIZE YOUR DISTRACTIONS

10) Personal Technology  
9) Email  
8) Social Media  
7) Instant Messaging (IM)  
6) Browsing
THE TOP TEN WAYS TO MINIMIZE YOUR DISTRACTIONS

5) Phone Calls
4) The Work Environment
3) Confusion
2) Other People
   ▶ (“Chatty Coworker”)
1) YOU
DISTRACTIONS ARE A PART OF EVERY LIFE...SO RELAX.
THANK YOU!

Any questions?

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