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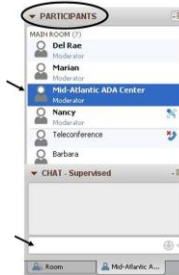
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**Anastasia B. Edmonston MS CRC
TBI & Person Centered Planning Trainer
MD Mental Hygiene Administration
&
The Mental Health Management Agency of
Frederick County**

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Today We Will Discuss:

- Brief overview of the brain
- Who is impacted and how
- Brain Injury and Employment
- What are the possible physical, cognitive and behavioral health issues related to brain injury
- Strategies for support in the workplace
- Resources

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Living with Brain Injury, what it Might Feel Like: The Processing Exercise



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Definitions

- Traumatic Brain Injury is an insult to the brain caused by an external physical force
- Diffuse Axonal Injury the tearing and shearing of microscopic brain cells
- Acquired Brain Injury is an insult to the brain that has occurred after birth, for example; TBI, stroke, near suffocation, infections in the brain, anoxia

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Hiding in Plain Sight- Have They or Haven't They?

All but one of these prominent Americans is
Working and living with a Brain Injury

- Ben Vereen
- Bob Woodruff
- Jason Priestly
- George Clooney
- Anne Hathaway
- Ben Roethlisberger

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Skull Anatomy

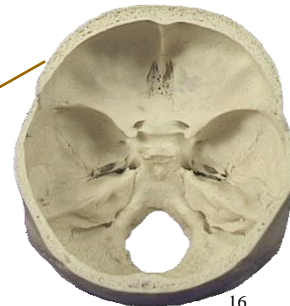
The skull is a rounded layer of bone designed to protect the brain from penetrating injuries.



The base of the skull is rough, with many bony protuberances.

These ridges can result in [injury to the temporal and frontal lobes](#) of the brain during rapid acceleration.

Bony ridges



adapted from Dr. Mary Pepping
of the University of Idaho's
presentation *The Human
Brain: Anatomy, Functions,
and Injury*

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Skull Anatomy

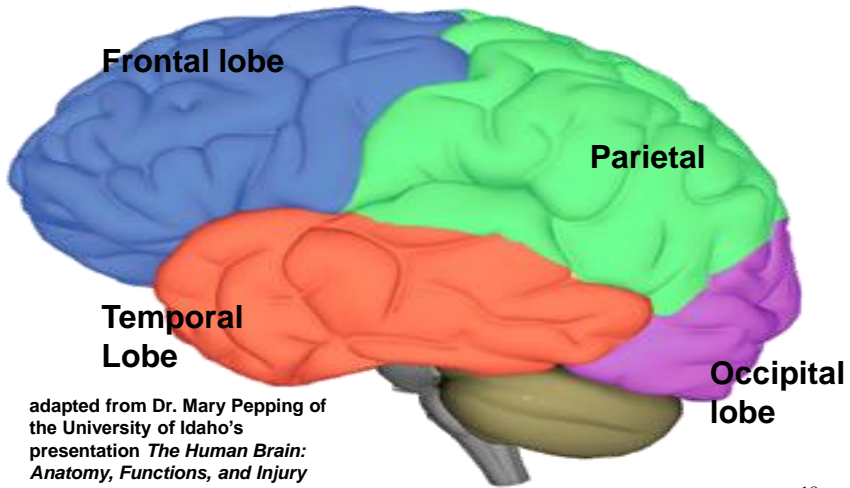


adapted from Dr. Mary Pepping of the University of Idaho's presentation *The Human Brain: Anatomy, Functions, and Injury*

Injury to frontal lobe from contact with the skull

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Lobes of the Cerebrum



adapted from Dr. Mary Pepping of the University of Idaho's presentation *The Human Brain: Anatomy, Functions, and Injury*

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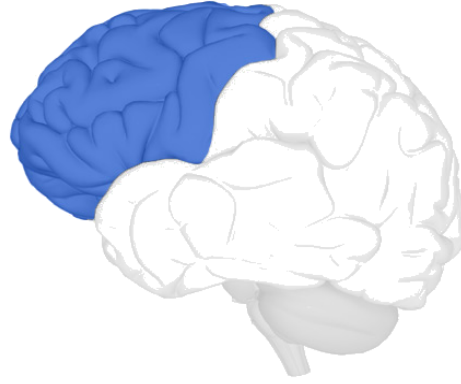
The Frontal Lobe

The frontal lobe is the area of the brain responsible

for our “executive skills” - higher cognitive functions.

These include:

- Problem solving
- Spontaneity
- Memory
- Language
- Motivation
- Judgment
- Impulse control
- Social and sexual behavior.



adapted from Dr. Mary Pepping of the University of Idaho's presentation *The Human Brain: Anatomy, Functions, and Injury*

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Temporal Lobe

The temporal lobe plays a role in emotions, and is also responsible for smelling, tasting, perception, memory, understanding music, aggressiveness, and sexual behavior.

The temporal lobe also contains the [language area](#) of the brain.



adapted from Dr. Mary Pepping of the University of Idaho's presentation *The Human Brain: Anatomy, Functions, and Injury*

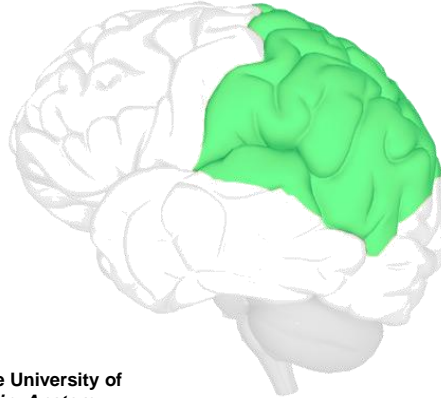
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Parietal Lobe

The parietal lobe plays a role in our sensations of touch, smell, and taste. It also processes sensory and spatial awareness, and is a key component in eye-hand co-ordination and arm movement.

The parietal lobe also contains a specialized area called Wernicke's area that is responsible for matching written words with the sound of spoken [speech](#).

adapted from Dr. Mary Pepping of the University of Idaho's presentation *The Human Brain: Anatomy, Functions, and Injury*

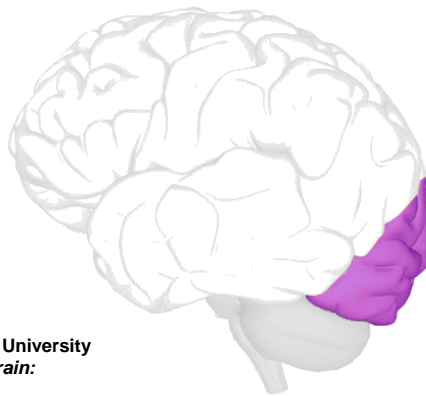


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Occipital Lobe

The occipital lobe is at the rear of the brain and controls [vision](#) and recognition.

adapted from Dr. Mary Pepping of the University of Idaho's presentation *The Human Brain: Anatomy, Functions, and Injury*

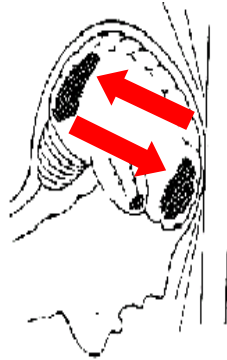


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Coup-Contra Coup Injury

A French phrase that describes bruises that occur at two sites in the brain.

When the head is struck, the impact causes the brain to bump the opposite side of the skull. Damage occurs at the area of impact and on the opposite side of the brain.

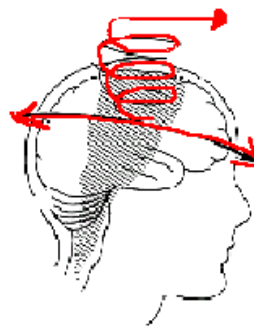


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Diffuse Axonal Injury

Brain injury does not require a direct head impact. During rapid acceleration of the head, some parts of the brain can move separately from other parts. This type of motion creates shear forces that can destroy axons necessary for brain functioning.

These shear forces can stretch the [nerve bundles](#) of the brain.



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Incidence of TBI

CDC 2010, 2002-2006 data

In the United States, *at least*

1.7 million sustain a

TBI each year...

275,000 are hospitalized

Incidence of TBI CDC 2010 Of those 1.7 million..

52,000 die of their injuries This equals the approximate number of people needed to fill Yankee Stadium

TBI By Cause CDC 2010

- Falls-35.2% (young children & elderly)
- Unknown/Others-21%
- Motor Vehicle-Traffic-17.3%
- Struck by/against-16.5% (unintentionally by object or another person)
- Assault-10%

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TBI Numbers CDC 2010

- Children aged 0-4, older adolescents aged 15-19 years, and adults aged 65 + more likely to sustain a TBI
- About 75% of TBIs that occur each year are concussions or other forms of mild traumatic brain injury
- In every age group, TBI rates are higher for males

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Distribution of Severity:

- Mild injuries = 75%
(Loss of Consciousness < 30 min, Post Traumatic Amnesia <1 hour)
- Moderate = 10 - 13%
(LOC 30 min-24 hours, PTA 1-24 hours)
- Severe = 7 - 10%
(LOC >24 hours, PTA >24 hours)

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Concussion & Sports Epidemiology

- Per Lisa McGuire of the Centers for Disease Control & Prevention, as many as **3.8** million sports-related concussions and more severe TBIs occur each year in the US
- In the period from 2001-2009, there was a 60% increase in ED visits among those **0-19** years old. *(Gilchrist, J. et al MMWR 2011)*

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The Cost of Brain Injury

Pro Publica, 1.17.12 in *Giffords May Get Better Brain –Injury Care Than Most of Her Constituents* by Lena Groeger

- According to the National Institutes of Health, funding for TBI research in \$85 million
- Treatment for a single individual with severe TBI \$2-\$4 million
- In 2011 the estimated total cost of TBI was \$73.3 billion (Lisa McGuire of the CDC)

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“Unidentified traumatic brain injury is an unrecognized major source of social and vocational failure”

Wayne Gordon, Ph.D of the Brain Injury Research Center at Mount Sinai School of Medicine
Quoted in the Wall Street Journal 1.29.08

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2000 Epidemiological Study of Mild TBI
J. Silver of NYU, cited in WSJ by
Thomas Burton 1.29.08

- 5,000 interviewed
- 7.2% recalled a blow to the head w/unconsciousness or period of confusion
- Follow up testing found; **2x rate of depression, drug and alcohol abuse**
- Elevated rates of **panic and obsessive-compulsive DO**

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The fact that someone is living with a brain injury is often hidden, especially in the workplace

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Case Study: Return to Work After Complicated Concussion

- Professional woman in her mid 40's
- Accounts manager with 20 years on the job, same employer
- Hit by a van as a pedestrian in parking lot- resulting in a serious concussion
- Return to work difficult
- Interventions provided
- Resolution

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Physical Issues

*Adapted from McNamee et. al, in the Journal of Rehabilitation
Research & Development 2009*

- Headaches
- Pain Syndromes
- Dizziness
- Postural instability
- Seizure disorder
- Fine motor deficits
- Hearing deficits (common among returning service members)

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Physical Issues

Adapted from McNamee et. al, in the Journal of Rehabilitation Research & Development 2009

- Visual deficits
- Insomnia
- Fatigue
- Side affects of certain medications (some seizure medications administered in the morning can induce sleepiness).

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Cognitive/Thinking Issues

- Difficulty staying on topic (attention)
- Trouble concentrating
- Vague, unclear language
- Perseveration (repeating themselves)
- Confused
- Memory problems
- Very concrete in their thinking (poor abstract thinking, doesn't get jokes)
- Talks too loud/too fast
- No first hand memory of injury

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It is important to note that many cognitive or neurological problems manifest themselves behaviorally or as what are referred to as neurobehavioral problems

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Cognitive/Thinking Issues

- Difficulty following directions
- Might have difficulty with simple orientation questions
- Aggressive or hostile response to seemingly benign question(s)
- Delayed response time to your questions
- Tangential responses to your questions
- Confabulation (hard to determine at first interaction)

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Behavioral Health Issues

May Include the following:

- Depression
- Anxiety
- Substance Abuse

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Factors that can Impede Employment

- Longer duration of post traumatic amnesia/loss of consciousness
- Mobility challenges
- Cognitive difficulties
- Impulse control/modulation of affect
- Neurobehavioral issues

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Oklahoma Vocational Rehabilitation Training

- What the Employment Specialist Should Keep in Mind...
 - Four neuropsychological disability characteristics:
 - slower learning curves
 - lowered capacity for generalization
 - need for constant practice
 - vulnerability to change

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Return to Work-The Maryland Picture

- For the nearly 500 individuals served by the Maryland TBI Project 7.03-6.10, unemployment rates ranged from @ 67%-87% any given year. Of those, the majority were employed worked part time
- The DORS Acquired Brain Injury Program, initiated in 2006 has provided comprehensive prevocational, vocational and long-term supported employment services to individuals with brain injury. Closure rate for the DORS ABI project is better than that consumers with ABI who are not in the Program (by over 9 percentage points).

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**Return to Work-
MD ABI Program Return to Work Data
Compared to national Rehabilitation
Services Administration (RSA) data**

- The DORS ABI Program rehabilitation rate for the first five years was $84/(84+51) = 62.22\%$
- RSA 48% return to work successively (without Supported Employment)
- RSA 53% with Supported Employment

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According to Israeli researchers, unemployment among individual post TBI “appears to be a complex interaction between pre-morbid characteristics, injury factors, post injury impairments, and personal and environmental factors” the researchers concluded that such an array of factors made predicting return to work difficult

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Evidence-based Suggestions for Employment Success

- Providing VR services early in the rehabilitation process
- Creating supportive work environment
- Providing cognitive skills training
- Supplying assistive technology and training in its use

VR Research in Brief (2012)

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Functional Manifestations of Living with a Brain Injury

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A memory deficit might look like trouble remembering or it might look like.....

(Capuco & Freeman-Woolpert)

- She frequently misses appointments-avoidance, irresponsibility
- He says he'll do something but doesn't get around to it
- She talks about the same thing or asks the same question over and over
- He invents plausible sounding answers so you won't know he doesn't remember

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An attention deficit might look like trouble paying attention or it might look like ...

(Capuco & Freeman-Woolpert)

- He keeps changing the subject
- She doesn't complete tasks
- He has a million things going on and none of them ever gets completed
- When she tries to do two things at once she gets confused and upset

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A deficit in executive skills might look like the inability to plan and organize or it might look like...

(Capuco & Freeman-Woolpert)

- Uncooperativeness, stubbornness
- Lack of follow through
- Laziness
- Irresponsibility

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Unawareness might look like...

(Capuco & Freeman-Woolpert)

- Insensitivity, rudeness
- Overconfidence
- Seems unconcerned about the extent of her problems
- Doesn't think she needs supports
- Covering up problems ("everything's fine...")
- Big difference in what he thinks and what everyone else thinks about his behavior
- Blaming others for problems, making excuses

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Strategies-Cognitive Adapted for the Work Place

- Create templates of routine work tasks/daily schedule or “to do” lists
- Use of a daily job log/calendar/contact sheet used in manual or electronic format
- Label drawer/files/shelves
- Log should be completed each day and reviewed each night
- Questions and/or comments for job coach/boss/co-worker should be written down as well as the answer provided

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Strategies-Cognitive Adapted for the Work Place

- Identify mentor/colleague to assist individual
- Decrease distractions (partitions, use of earplugs, noise cancelling headphones, reduce noise...)
- Teach strategies to maintain/regain focus (checklists; planner)
- Break down tasks into smaller steps
- Provide cues to re-direct consumer (work flow charts)
- Modify work load & Increase pace of work assignments gradually

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Strategies-Cognitive Adapted for the Work Place

- Provide written and verbal instruction
- Model tasks whenever possible
- Encourage the individual to paraphrase instructions back to the speaker (use of email/text to summarize expectations)
- Enter instructions in job log
- Use a digital recorder/recording app to enter reminders and instructions to review/reinforce later
- Use a highlighter (red)
- Alarm watch/cell phone

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Strategies-Cognitive Adapted for the Work Place

- Observe if individual responds better to visual or verbal cues
- Use consistent cues and checklists that foster self-monitoring. Include individual in planning these cues
- Teach self-prompting techniques
- Use a daily written assignment template/create a daily schedule
- Use of smart device to take photos of steps to complete tasks/finished product

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Strategies-Behavioral Adapted for the Work Place

(the following behavioral strategies maybe more pertinent to an employment specialist working with the individual)

- Provide clear expectations for behavior
- Plan and role-play social interactions that might occur at job site
- Encourage individual to slow down and think through responses.
- Outline strategies for controlling temper (count to five....)
- Evaluate behavior and review possible alternative responses with individual

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Strategies-Behavioral Adapted for the Work Place

- Encourage individual to practice expressing thoughts in safe environment
- Role play possible conversations with others in the workplace
- Encourage individual to ask for time to organize thoughts

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Strategies-Behavioral Adapted for the Work Place

- Educate mentor/supervisor on specific communication difficulties and the way that he or she can assist individual
- Educate co-workers on brain injury aftermath
- Identify co-worker who will work with individual to prompt and redirect as needed

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Strategies-Behavioral Adapted for the Work Place

- Plan and rehearse social interactions
- Review workplace interactions with individual and identify appropriate responses
- Assist employer/supervisor to identify difficulties and use feedback in a positive way (privately; calmly; clearly)

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Strategies-Behavioral Adapted for the Work Place

- Anticipate possible lack of awareness
- Assist individual in identifying and accepting/adjusting to limitations
- Promote questioning by the individual in work situations when they are unsure of what to do
- Identify feedback needs and strategies for supervisor

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“Returning to Work After Brain Injury, A strategy guide for job coaches”

Additional Tips from the Brain Injury Association of New Jersey 2009

- Develop a list of safe topics that can be used to start a conversation, e.g. recent ball game, movie, TV show or weekend activities. Practice these topics.
- When asking a question to a supervisor or co-worker, develop a canned phrase, “do you have a minute now? Can you help me with _____?”
- Suggest that the individual ask others what they think in order to promote two-way conversations.
- If necessary, develop a list of work-appropriated topics with the individual. Discuss how this is different than social-and family-appropriate topics for outside the workplace

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Keep in Mind-

Returning work post a Brain Injury

- Traditional vocational assessments penalize individuals with a history of brain injury secondary to poor cognitive processing/motor speed
- Situational assessments are far more valid in determining vocational skills
- Individuals with a hx of brain injury may have difficulty generalizing from one situation to another

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Even for individuals with poor new learning capacity, the three R's

Review

Rehearse

&

Repeat

Can lead to mastery of tasks as they eventually enter into memory

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Resources

- Brain Injury Association of America 703-236-6000, www.biausa.org
- Brain Injury Association of Maryland 410-448-2924, www.biamd.org
- Ohio Valley Center For Brain Injury Prevention and Rehabilitation, 614-293-3802, www.ohiovalley.org.
- www.headinjury.com. Good resource for memory aides and tips

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Resources

For additional PowerPoint Handouts on topics related to brain injury, please “Traumatic Brain Injury”, found under the “MHA Operations” tab of the MD Mental Hygiene Administration’s website at <http://www.dhmfh.maryland.gov/mha/SitePages/tbi.aspx>

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Resources

JAN

www.jan.wvu.edu/media/BrainInjury.html.

The Job Accommodation Network offers useful articles about working with individuals with brain injury on the job, and simple accommodations that can be used to maximize success on the job

(V) 1-800-526-7234

(TTY) 1-877-781-9403

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Brainline.org

45 Life Changing- iphone and ipad
Apps for People with Brain Injury

<http://www.brainline.org/content/2011/05/23-lifechanging-iphone-ipad-apps-for-people-with-brain-injury.html>

Resources

- *Understanding Brain Injury: A Guide for Employers* published by the Mayo Clinic
http://www.brainline.org/downloads/PDFs/AGuideforEmployers_English.pdf
- *Returning to Work After Brain Injury, a strategy guide for job coaches* A product of the Brain injury Alliance of New Jersey
<http://dhmh.maryland.gov/mha/Documents/Compensatory%20Strategy%20Guide.pdf>

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“What if There’s a Traumatic Brain Injury?”

**Presentation by Dr. John Corrigan of
the Ohio Valley Center
one-hour Webinar recorded 2.26.14
listen for free at:**

<http://ohiovalley.org/informationeducation/whatif/>

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Recommended Viewing

Beyond the Invisible: Living With Brain Injury

A production of The Brain Injury Association of New York
State

This DVD is a production of the Brain Injury Association
of New York State

contact them for a free copy at

518-459-7911

info@bianys.org

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Recommended Viewing

Film released by Miramax in 2007

The Lookout

Starring Joseph Gordon-Levitt, Jeff Daniels, Matthew
Goode and Isla Fisher

Aside from being a great bank heist movie, this movie
realistically depicts the struggles of a young man
living with the aftermath of a traumatic brain injury at
home, in the community and on the job.

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