

TBI and Physical Therapy



STRATEGIES FOR CAREGIVERS OF TBI/CONCUSSION PATIENTS

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- lots of attention in media recently with focus on football players as well as soldiers returning from active duty with concussive injuries and other physical injuries.
- Occurs when a blow to head that results in a change in brain function,
- Its effects can range from minutes to years

TODAYS PRESENTATION



- **By the numbers**
- **Coup and contra coup**
- **Variety of TBI/Concussions Presentation**
- **Common Symptoms**
- **Treatment approach**
- **Strategies for CGs**



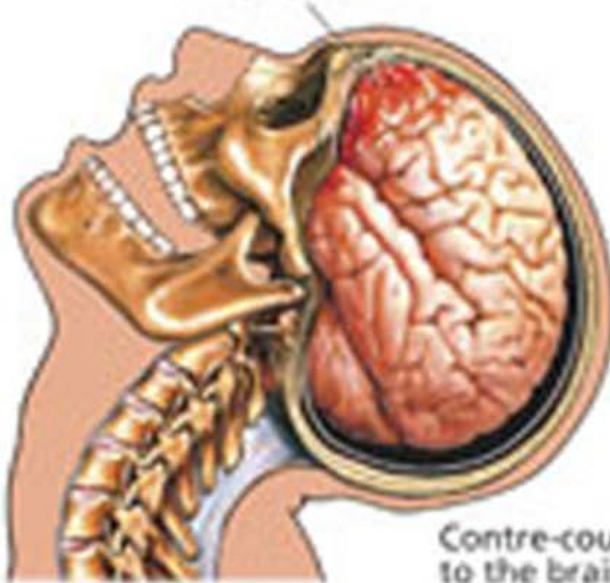
- **Not all blows cause brain injury.**
- **Other times even shaking head and upper body can cause the brain to collide with the skull**
- **Closed TBI vs Penetrating TBI**



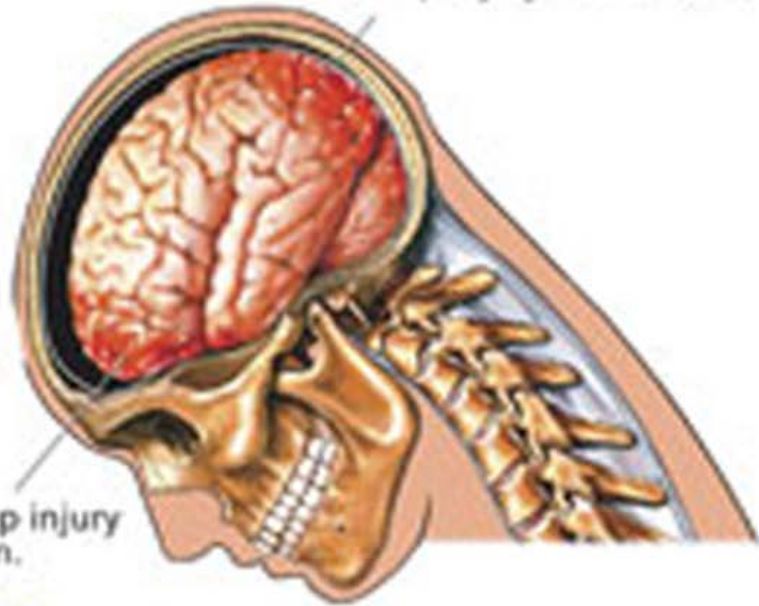
- Falls are the leading cause of TBI among children 0-4 yrs old and in adults 75+.
- Among all age groups, MVAs result in the largest percentage of TBI-related deaths (31.8%)
- Shaken Baby Syndrome and inflicted TBI are the leading cause of child maltreatment deaths in USA.



Contre-coup injury to the brain.



Coup injury to the brain



Contre-coup injury to the brain.



Contre-coup Injury to the Brain.

Concussions By the #s



- CDC and P estimated 1.6 - 3.8 million sports related concussions occur each year
- 5-10% of athletes will experience concussion each season
- fewer than 10% of sports related concussions result in LOC
- 47% of athletes report they feel no Sx's after concussive blow

Mod and severe by the #s



- TBI cause ~ 30% of traumatic deaths in USA
- ~2.5 million TBIs annually in USA
- Total cost of TBIs in USA in 2010, including direct and indirect medical costs, was approximately \$76.5 billion



- **profession football player will experience 900-1500 blows to head per season**
- **football #1 sport for concussion risks in males (75%chance); soccer for females (50%)**
- **78% occur during games (not practice)**
- **most common Sx's are headache (85%); dizziness (70-80%)**

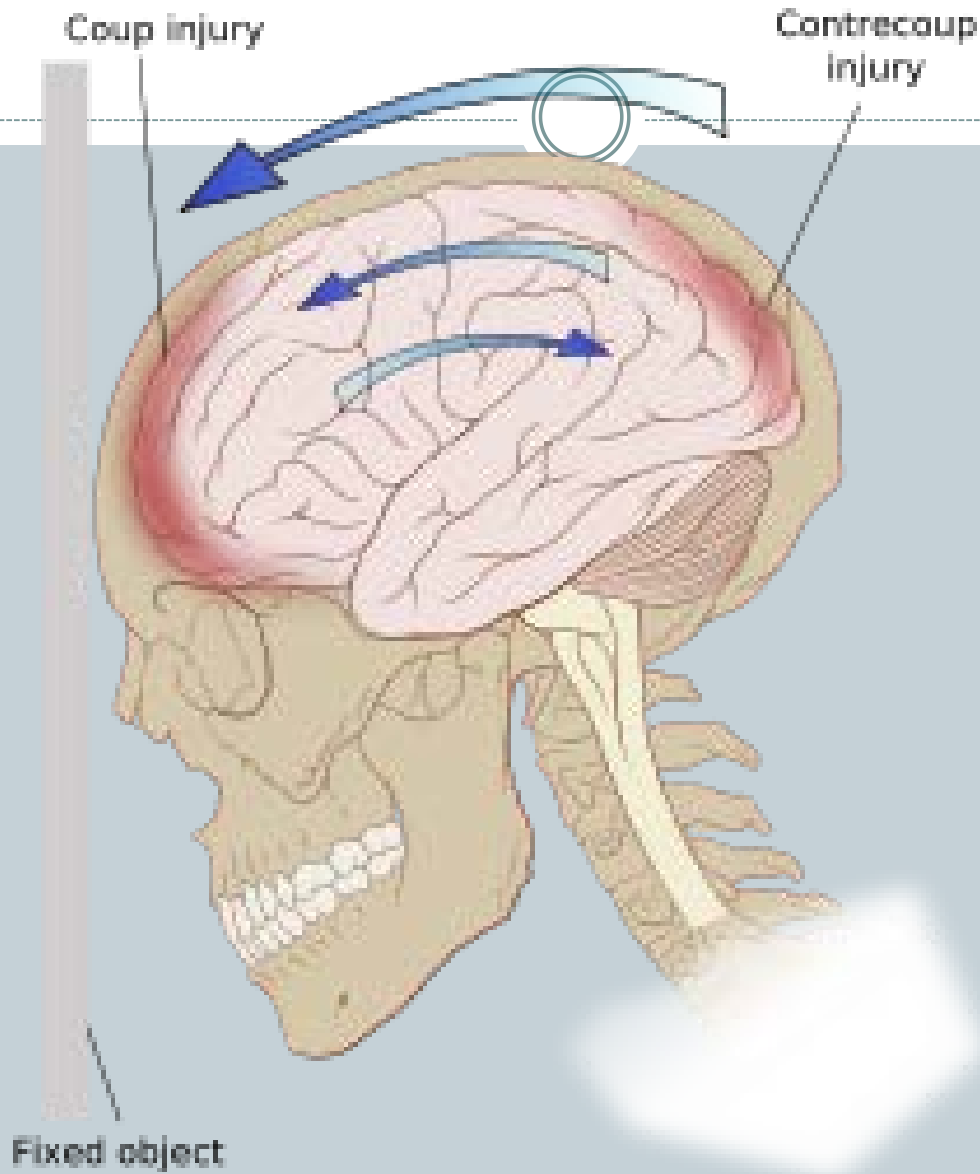


- speed of professional boxers punch = 20 mph;
- impact of football payer hitting stationary player = 25 mph;
- speed of a soccer ball being headed by a payer = 70 mph;

How does it occur?

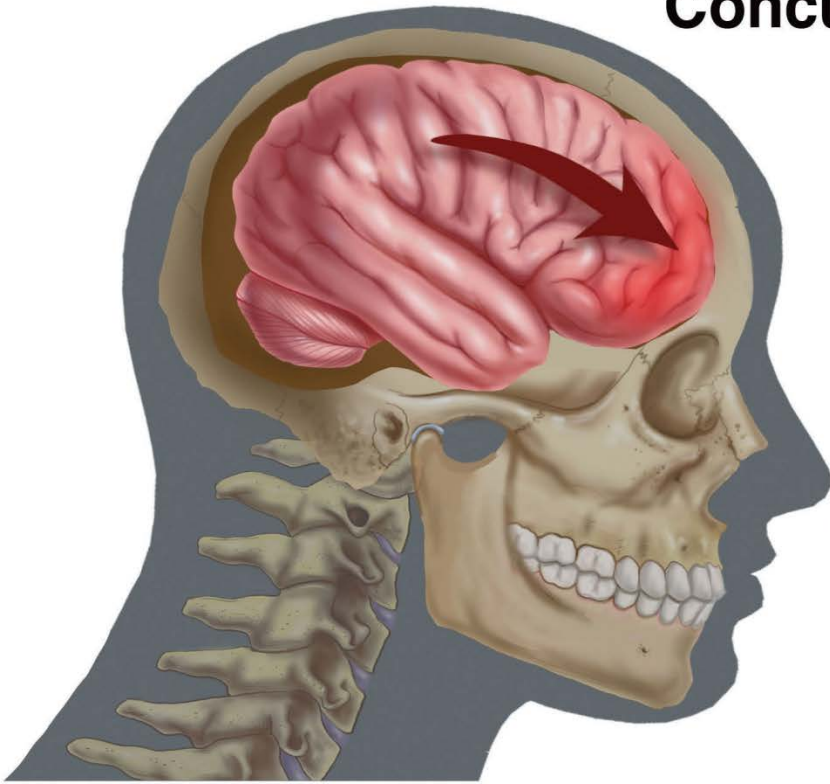


- When a force is applied to head that causes rapid deceleration (hit head on dashboard for example – not only cause)
- This in turn causes brain to hit the skull
- This is called coup
- It “bounces” back and hits the opposite skull section
- This is the “ContreCoup”

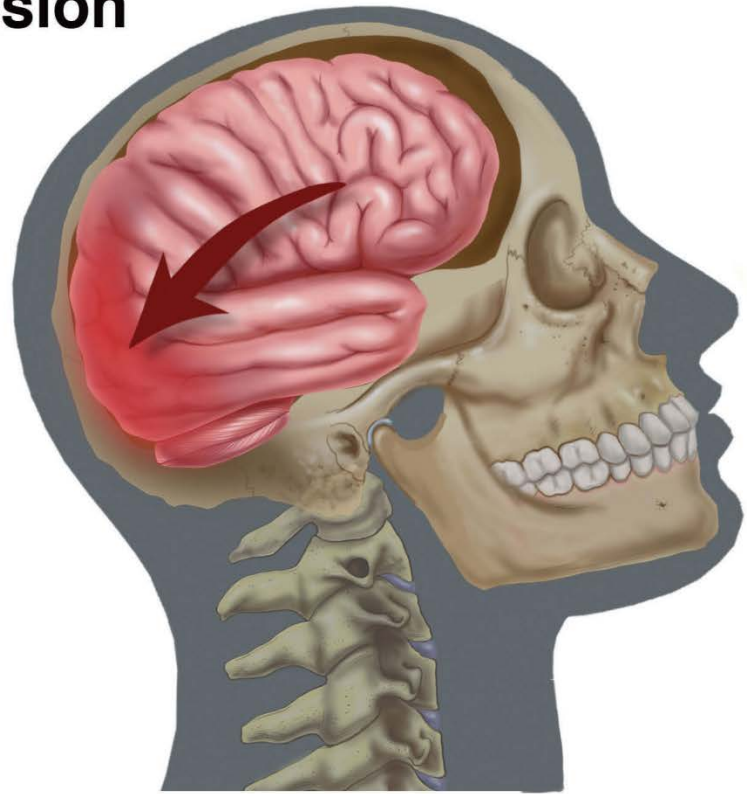




Concussion



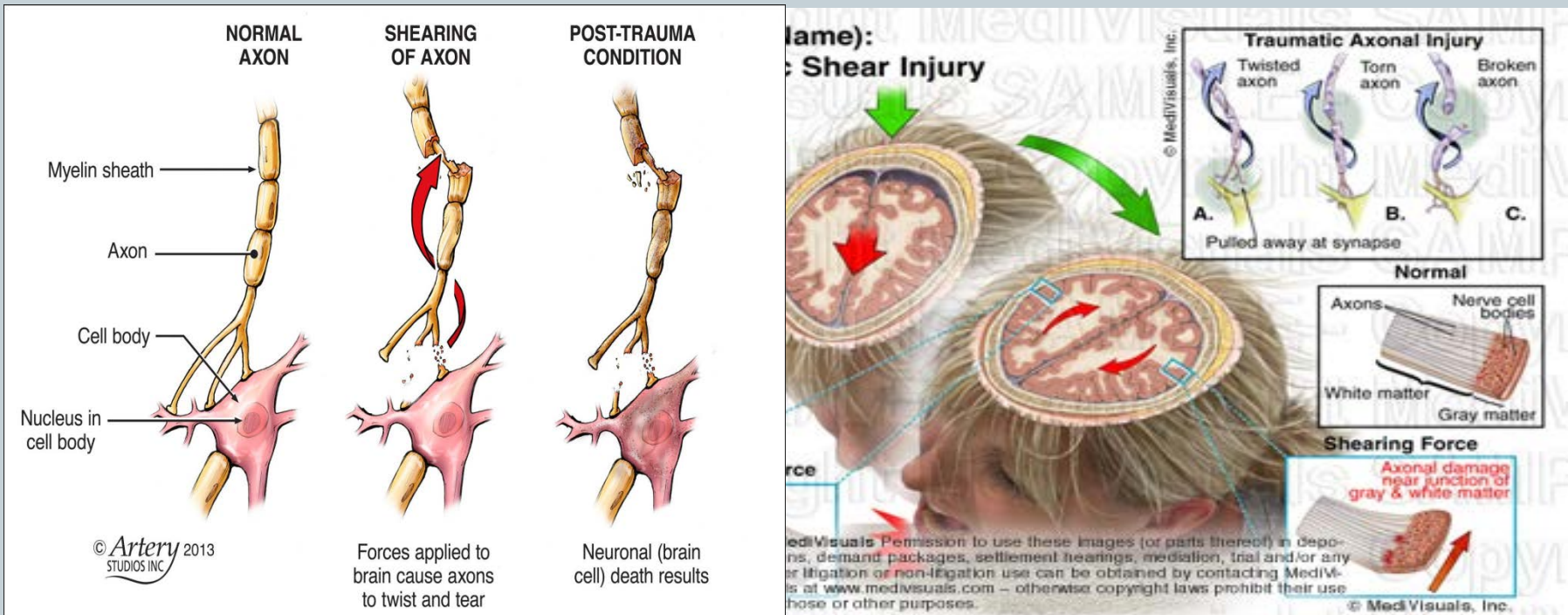
Initial impact of concussion (coup)



Secondary impact (contrecoup)

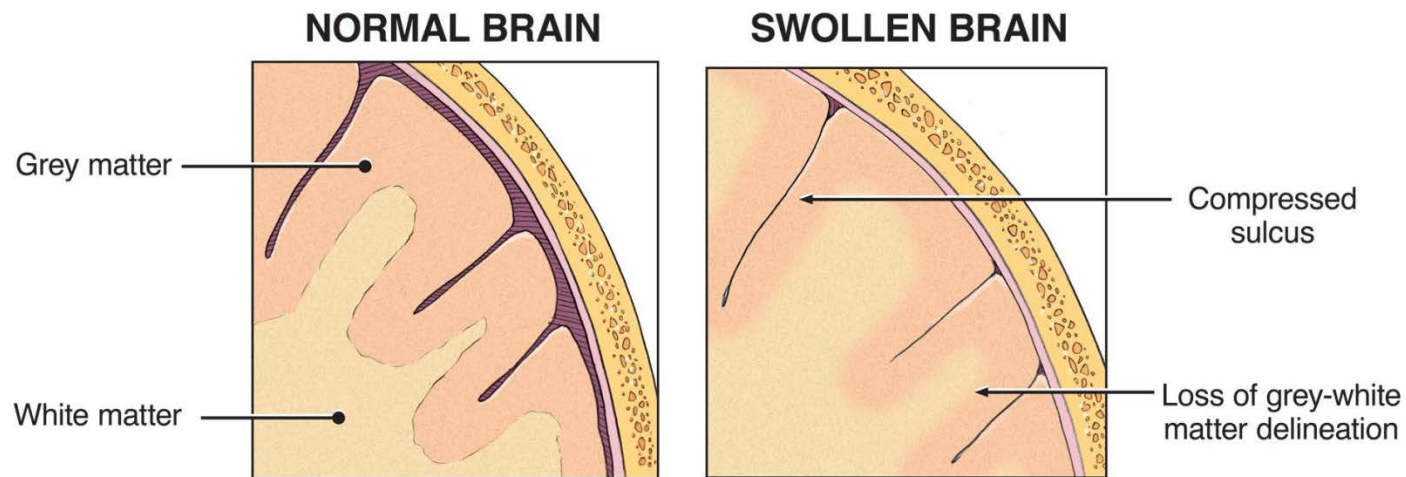


- Along way can also experience sheer forces between the two





- Finally, can also have swelling and hemorrhaging that cause delayed effects of brain injury



Diversity of injury



- As the direction and intensity, swelling, bleeding, and site of brain injury can vary so can the resultant injury present in such a great manner
- Typically separate into 3 categories by the immediate effects of the brain injury

• **mild TBI** - May lose consciousness (0-30 min)

• AMS <24hrs

• some amnesia <24 hrs

• GCS=13-15

• **moderate TBI**- LOC 30 min - 24 hrs

• AMS- >24 hrs

• Amnesia 1-7 days

• GCS=9-12

• **Severe TBI**- LOC>24 hrs

• AMS >24 hrs

• Amnesia > 7 days

• CGS = 3-8

Variety of Presentation



- **Physical (often inter-related issues)**
 - headaches
 - dizziness, nausea, vertigo
 - balance difficulties (awareness/weakness/coordination)
 - weakness, fatigue
 - tone, range of motion,
 - coordination of movement
 - ringing in ears
 - vision deficits

Variety of Presentation



- **Behavior**
 - **Decreased concentration**
 - **Memory problems**
 - **Sensitivity to light/noise**
 - **Depression**
 - **Anxiety and aggression**
 - **Irritability and mood swings**

Acute Concussions



- **REST - #1** – physical and mental
- **Headaches** – not aspirin/advil/ IB – bleeding
- **Go to ED if:**
 - Loss of consciousness, even if only briefly
 - Any period of amnesia, or loss of memory for the event
 - Feeling dazed or confused or sleepy
 - Vomiting
 - Unequal pupil size, unilateral weakness
 - Seizure or slurred speech

ACUTE CARE SETTING



- Best approach involves a multi-disciplinary team
- Including neurologist physician, pharmacist, PT, OT, SLP, and if needed behavior specialists,
- Case managers, and family / support;

- In some cases team will also include:
 - Vocational training;
 - Behavior training specialist;
 - Psychologists

Acute care PT will likely include



- Improving strength and ROM
- Bed mobility
- Regaining ability to tolerate upright positions
- Sitting balance
- Transfer training
- Standing balance
- Gait training
- CG training
- Recommendations for equipment, prevent complications

OUTPATIENT TREATMENT



- While in Physical Therapy or Occupational Therapy will address the immediate issues at hand limiting the patients function
- Best if done by a therapist who has experience with neurological patients, and preferably with TBI

Outpatient



- During the evaluation the therapist will usually attempt to find the primary functional deficit as well as what can be done in treatment to address this
- This should involve the clients needs/wants/goals as well as his/her baseline and the best way to attain these goals and maximize the clients function
- This can be done in a restorative or a compensatory manner, or both.



- **Common referrals to therapy include**
- headaches
- dizziness, and vertigo
- balance difficulties
- weakness, fatigue
- tone, range of motion, coordination of movement

Need for assistive devices (mobility and ADLs) such as a walker, wheelchair, bracing



- Treatment approach will vary by client and what they respond best to as well as what they need to address deficits
 - vestibular therapy
 - individualized exercises
 - balance exercises
 - manual therapy
 - Pain management

As a side bonus these may also impact the behavior side of TBI, such as mood, concentration, and memory



- **Outcomes - unique per injury, as every injury is unique**
- **Even concussions can have effects that last 3-6 months**

STRATEGIES



Strategies for Care Givers





Coping with behavior problems of persons suffering from TBI



- **Common issues after the injury, a person may experience:**
 - Personality changes,
 - Memory
 - Impaired or deficits with judgment deficits
 - Impulse control issues
 - Poor concentration
- **These issues are all stressors**
- **Must learn to adept (relationship/expectations/communications)**



- **PERSONALITY CHANGES**
- Even with good recovery – the person living in the body may be a different person in some ways (energy, consideration, easy going, etc)
- Don't compare the two (doesn't help)
- Don't criticize deficits or make fun (likely to anger / frustrate / sadden / embarrass).



- **MEMORY PROBLEMS**
- Short term or learning new skills (hardest) or amnesia of time period
- Keep distractions to a minimum (environment)
- Repetitions (object, address, use of AD, safety)
- Write key points (client and CG)
- Stick to a routine when possible



- **LACK OF EMOTION**
- Earlier in recovery may lack emotions, such as: smiling, laughing, crying, anger, or enthusiasm
- This is also part of injury
- Encourage and be a model of appropriate response
- Don't take personally



- **EMOTION LABILITY**
- Overreaction or mood swings
- Example: sudden tears, anger, laughter (appropriate or not)
- TBI sufferer has lost ability to modulate their emotional response to a degree
- It is unintentional
- Be model of appropriate behavior, minimize criticism, help teach that emotion can be controlled



- AGGRESSIVE BEHAVIOR

- ***If not a physical threat*** there are some suggestions to diffuse anger – usually from frustration:
 - Remain calm – and avoid argument (can agree if appropriate)
 - Validate their feelings/emotion
 - Negotiation (“if not now, when?”)
 - Offer other way to vent anger (write, walk, breathing)
 - Ask – what will make them feel better/safer/calmer
 - Isolate person from disruptive environment
 - Try to establish consistent response to their anger (all CGs)
 - Seek support (groups/councilor / law enforcement)



- **LACK OF AWARENESS OF DEFICITS**
- **Common with TBI**
- **Part of injury / part mechanism of dealing with deficits**
- **Safety concern! (ex: use of AD)**
- **Encourage activities that are safe**
- **Cues when doing task right (visual, verbal)**
- **Build up to more complex/challenging tasks (environment)**



- **SELF CENTERED ATTITUDE**
- **Lack of abstract thinking (see from other person view)**
- **May result in rude / careless / unreasonable remarks**
- **Cue the remarks**
- **How what they say make others feel**
- **Practice polite behavior**
- **Awareness may need to be relearned**



- **CONCENTRATION DEFICITS**
- **Common issue with TBI**
- **Easy does it – not too much at once – slow down**
- **Repeat questions – allow time to process**
- **Fatigue will make task harder (ask)**
- **Have person write, to clarify, to remember**



- **INAPPROPRIATE SEXUAL RESPONSE**
- **From changes in regulation of hormonal activity or emotional response**
- **Increased or decreased**



- **DECREASED SEXUAL RESPONSE**
- Decreased may also be response to fear of failure or fear of lack of attractiveness
- Don't pressure to resume activity before ready
- Encourage dressing nice and hygiene to increase confidence



- **INCREASED SEXUAL RESPONSE**
- **Lack of impulse control**
- **Can result in verbal crudeness, inappropriate gestures, touching, or inappropriate advances (person or location)**
- **Remind behavior is inappropriate**
- **Spouse or S.O. not need to submit**
- **May need to isolate person**
- **May need to call help if need help physically**
- **Support groups can help TBI sufferer and their CGs/families**



COPING STRATEGIES FOR CAREGIVERS AND THEIR LIVES



- **As a caregiver be prepared.**
- **There will be good days and there will be bad days**
- **You have emotions too (Love, anger, frustration, jealousy, sadness, pride, etc)**
- **Know when its OK to take a time out for yourself**
- **CARE FOR THE CAREGIVER!**



- **WRITING THINGS DOWN**
- take a few minutes to write down the feelings you've experienced 48 hrs?
- Name every one of them, use in sentences, such as
 - I am furious at _____ because _____.
 - I am sad because _____.
 - I feel good because _____.
- Be honest, only you read, then destroy if want.
- Try to get insight into your feelings.
- Remember that feelings are just feelings. They are not always logical.



- **So now you've figured out your feelings and emotions.... What now?!**
- **Time to learn how to cope with negative emotions**

Coping with your Negative Emotions

- **Anger (at family, situation, yourself) –**
 - Let out anger safely
 - Burn energy at gym / plant garden / other
- **Jealousy – when all is ‘routine’ / miss normal life**
 - Ask for help / time off / need to find other joy in life
- **Depression – from lifestyle change**
 - You will not be helpful if you are depressed
 - Relationships effected as well
- **Frustration - endless variety of situations**
 - Join a support group
 - Vent without being judged
 - May have insight / suggestions



- Learn to relax (sounds easy – it isn't)
- find your favorite music (may have changed)
- Mediate – even just focused breathing x 10 min
- Find a topic you like and read up on it
- NEW hobby – puzzle, quiz, bird watching, etc
- Exercise. (changing environment and helps mood)
- Read a good book.
- Take a vacation and Utilize respite services



- **Focus on the positive**
- **Keep the negative in perspective**
- **Take care of caregiver (wholly – physical / emotional / social)**



**THANK YOU FOR YOUR
TIME AND ATTENTION**

QUESTIONS?