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Addressing TBI & CTE



TBI

- **Traumatic brain injury (TBI):** a form of acquired brain injury, occurs when a **sudden trauma causes damage to the brain.**
 - violently hits an object
 - object pierces the skull and enters brain tissue
 - shock wave from explosions
- **Extent of the damage to the brain:**
 - mild
 - moderate
 - severe



Symptoms

- **Mild TBI:**

- conscious or lose consciousness for a few seconds or minutes
- headache
- confusion
- lightheadedness/dizziness
- blurred vision
- ringing in the ears
- bad taste in the mouth
- fatigue or lethargy
- change in sleep patterns
- behavioral or mood changes
- trouble with memory, concentration, attention or thinking



Symptoms

- **Moderate or Severe TBI:** may show the same symptoms & may also have:
 - worsening or unretractable headache
 - repeated vomiting or nausea
 - convulsions or seizures
 - an inability to awaken from sleep
 - dilation of one or both pupils of the eyes
 - slurred speech
 - weakness or numbness in the extremities
 - loss of coordination
 - increased confusion
 - restlessness or agitation



Symptoms

- **Even more serious head injuries may result in:**
 - **Stupor:** an unresponsive state but can be aroused briefly by a strong stimulus.
 - **Vegetative state:** unconscious and unaware of surroundings, but has a sleep-wake cycle and periods of alertness.
 - **Persistent vegetative state (PVS):** stay in a vegetative state for more than a month.
 - **Coma:** totally unconscious, unresponsive, unaware, and unarousable.



Treatment



- **Anyone with signs of moderate or severe TBI should receive medical attention as soon as possible.**
- **Little can be done to reverse the initial brain damage caused by trauma.**
- **Medical personnel stabilize & focus on preventing further injury.**
 - **insuring proper oxygen supply**
 - **maintaining blood flow and controlling blood pressure**

Treatment



- **Imaging tests:**

- **Mild to moderate injuries may receive skull and neck X-rays to check for bone fractures or spinal instability.**
- **Moderate to severe cases may receive a computed tomography (CT) scan.**

Treatment



- **Mild TBI:**
 - rest
 - avoid further injury
- **Moderately to severely TBI:**
 - avoid further injury
 - individually tailored rehabilitation:
 - physical therapy
 - occupational therapy
 - speech/language therapy
 - physiatry (physical medicine)
 - psychology/psychiatry
 - social support

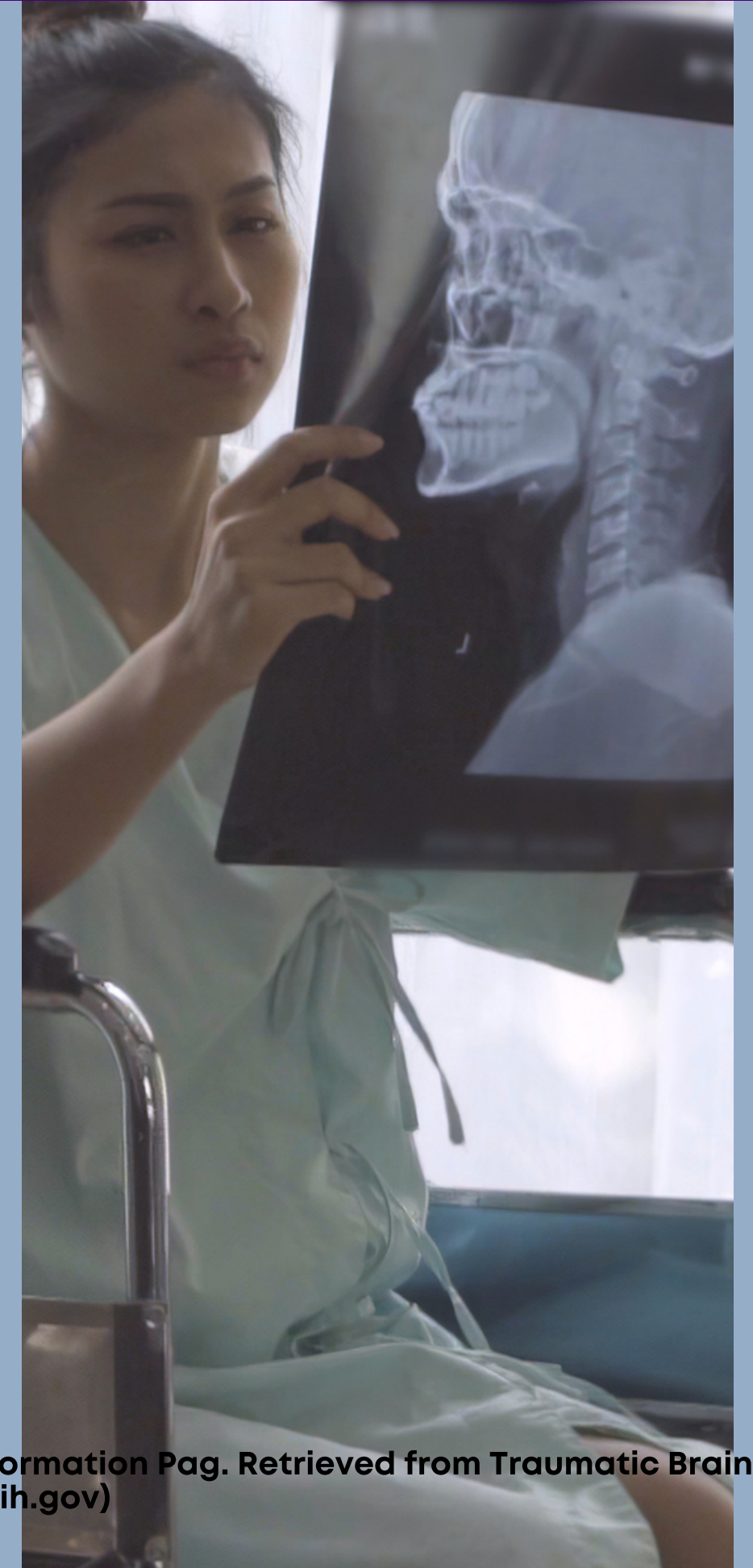
Treatment

- **Hyperbaric Oxygen Treatment (HBOT):** use of oxygen at higher-than-atmospheric concentrations and pressures for the treatment of disease.
 - Main function is to temporarily super-saturate body tissues with oxygen.
 - Demonstrated marked improvement even years after their injuries occurred. (not FDA approved)



Prognosis

- **Disabilities resulting from a TBI vary:**
 - severity of the injury
 - location of the injury
 - age and general health of the individual
- **Some common disabilities include:**
 - problems with cognition
 - sensory processing
 - communication
 - behavior or mental health



CTE

- **Chronic traumatic encephalopathy (CTE):** brain degeneration likely caused by **repeated** head traumas.
 - football, hockey, boxing and other sports
 - military personnel serving in war zones
 - physical abuse
- **CTE is a diagnosis made only at autopsy**
 - tau and other protein buildup
- **CTE is a progressive, degenerative brain disease for which there is no treatment.**
 - current approach is to prevent head injury



Symptoms

- **No specific symptoms clearly linked to CTE**
 - possible signs and symptoms of CTE can occur in many other conditions.
- **In the few people with proved CTE,**
 - cognitive
 - behavioral
 - mood
 - motor changes



Symptoms

- **Cognitive impairment**
 - Difficulty thinking
 - Memory loss
 - Problems with planning, organization and carrying out tasks
- **Behavioral changes**
 - Impulsive behavior
 - Aggression
- **Mood disorders**
 - Depression or apathy
 - Substance abuse
 - Suicidal thoughts
- **Motor symptoms**
 - Parkinsonism
 - Motor neuron disease



More Information & Resources

Brain Injury Association of America, Inc.

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Brain Injury Resource Center

P.O.Box 84151

Seattle, WA 98124

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<https://www.headinjury.com>

Tel: 206-621-8558

Arizona Brain Injury Alliance

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Phoenix, AZ 85034

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