

Brain Injury



The brain serves as the control center for all of the body's functions including conscious activities (walking and talking) and unconscious ones (breathing, heart rate, etc.). The brain also controls thought, comprehension, speech and emotion. Injury to the brain, whether the result of severe head trauma or a closed head injury in which there is no fracture or penetration of the skull, can disrupt some or all of these functions.

Brain injury can have serious and lifelong effects on physical and mental functioning, including loss of consciousness, altered memory and/or personality, and partial or complete paralysis.

Traumatic brain injury (TBI) results mainly from motor vehicle incidents, falls, acts of violence, and sports injuries. It is more than twice as likely in males than in females. The estimated incidence rate is 100 per 100,000 persons with 52,000

annual deaths. The highest incidence is among persons 15 to 24 years of age and 75 years and older.

Enclosed within the bony framework of the skull, the brain is a gelatinous material that floats within a sea of cerebrospinal fluid. This fluid supports the brain and acts as a shock absorber in rapid head movements. The outer surface of the skull is smooth, but the inner surface is jagged – this can cause significant damage in closed head injuries as the brain rebounds within the skull over rough bony structures.

Injury to the brain can be caused by fracture or penetration of the skull (such as in the case of a vehicle accident, fall or gunshot wound), a disease process (neurotoxins, infections, tumors, metabolic abnormalities, etc.) or a closed head injury (such as in the case of Shaken Baby Syndrome or rapid acceleration or deceleration of the head).

When the injury results from trauma, damage to the brain may occur at the time of impact or may develop later due to swelling (cerebral edema) and bleeding into the brain (intracerebral hemorrhage) or bleeding around the brain (epidural or subdural hemorrhage).

When the head is hit with sufficient force, the brain turns and twists on its axis (the brain stem), interrupting normal nerve pathways and causing a loss of consciousness. If this unconsciousness persists over a long period of time, the injured person is considered to be in a coma, a condition caused by the disruption of the nerve fibers going from the brain stem to the cortex.

A closed head injury often occurs without leaving obvious external signs but the difference between closed and penetrating injuries can be profound. In a bullet wound to the head, for example, a large area of the brain may be destroyed but the result may be minor if that area was not a critical one.

In contrast, closed head injuries often result in more widespread damage and extensive neurologic deficits, including partial to complete paralysis, cognitive, behavioral, and memory dysfunction, persistent vegetative state, and death.

Injured brain tissue can recover over a short period of time. However, once brain tissue is dead or destroyed, there is no evidence that new brain cells can regrow. The process of recovery usually continues even though new cells do not grow, perhaps as other parts of the brain take over the function of the destroyed tissue.

The rehabilitation process begins immediately. Once memory begins to be restored, the rate of recovery often increases. However, many problems may persist, including those related to movement, memory, attention, complex thinking, speech and language, and behavioral changes.

Beyond the obvious physical effects of brain injury, survivors frequently cope with depression, anxiety, loss of self-esteem, altered personality, and in some cases, a lack of self-awareness by the injury survivor of any existing deficits.

Sources: Institute of Neurological Disorders and Stroke.

The above excerpt is from the Christopher & Dana Reeve Foundation Paralysis Resource Center website.

<https://www.christopherreeve.org/living-with-paralysis/health/causes-of-paralysis/brain-injury>

Websites

The Traumatic Brain Injury Model Systems National Data and Statistical Center (TBINDSC)

<http://www.tbindsc.org>

3425 S Clarkson St.

Englewood, CO 80113

Phone: 303-789-8202

TBINDSC, located at Craig Hospital in Englewood, Colorado, is a central resource for researchers and data collectors within the Traumatic Brain Injury Model Systems (TBIMS) program. The primary purpose of the TBINDSC is to advance medical rehabilitation by increasing the rigor and efficiency of scientific efforts to longitudinally assess the experience of individuals with traumatic brain injury (TBI). The TBINDSC provides technical assistance, training, and methodological consultation to 16 TBIMS centers as they collect and analyze longitudinal data from people with TBI in their communities, and as they conduct research toward evidence-based TBI rehabilitation interventions.

Model Systems Knowledge Translation Center: TBI Model Systems Centers

<http://www.msktc.org/tbi/model-system-centers>

1400 Crystal Drive, 10th Floor

Arlington, VA 22202

Phone: 202-403-5600

TTY: 877-334-3499

Email: msktc@air.org

This page lists contact information for the 16 model TBI facilities in the U.S.

Brain Injury Guide and Resources from the Missouri Department of Health and Senior Services and the MU Department of Health Psychology

<http://www.braininjuryeducation.org/>

American Brain Coalition

<https://www.americanbraincoalition.org/>

P.O. Box 1549

Maple Grove, MN 55311

Phone: 763-516-3583

The American Brain Coalition, a non-profit organization, seeks to advance the understanding of the functions of the brain, and to reduce the burden of brain disorders through public advocacy for increased support of research that will lead to better treatment; services and support that will improve patients' quality of life; as well as a national commitment towards finding cures for individuals with disabling neurological and psychiatric disorders.

Beyond High C

www.beyondhighc.com

Phone: 714-728-2144

Email: beyondhighc@gmail.com

Beyond High C offers low-cost online group music sessions to people with brain injuries.

The Brain Aneurysm Foundation

<http://www.bafound.org>

269 Hanover Street

Hanover, MA 02339

Phone: 888-272-4602

E-mail: office@bafound.org

The Brain Aneurysm Foundation is the nation's only nonprofit organization solely dedicated to providing critical awareness, education, support and research funding to reduce the incidence of brain aneurysms.

Brain Injury Association of America (BIAA)

<http://www.biausa.org>

3057 Nutley St. #805

Fairfax, VA 22031-1931

Phone: 703-761-0750

National Brain Injury Information Center: 800-444-6443 (Toll-free)

Email: info@biausa.org

BIAA is dedicated to increasing access to quality health care and raising awareness and understanding of brain injury through advocacy, education and research. The organization provides help, hope and healing for individuals who live with brain injury, their families and the professionals who serve them through a nationwide network of state affiliates, local chapters and support groups.

Brain Trauma Foundation

www.braintrauma.org

228 Hamilton Ave. 3rd Floor

Palo Alto, CA 94301

Phone: 408-369-9735

BTF focuses on conducting innovative clinical research, updating its evidence-based guidelines on coma and concussion, and working towards its goal of improving outcomes for the millions of people who suffer from traumatic brain injuries every year.

Brainline: All About Brain Injury and PTSD

<https://www.brainline.org>

Brainline offers resources about brain injury to caregivers, people living with TBI, military personnel, professionals, and children living with brain injury.

Bob Woodruff Foundation/ReMIND

<https://bobwoodrufffoundation.org>

1350 Broadway, Suite 905

New York, NY 10018

E-mail: general@bobwoodrufffoundation.org

Phone: 646-341-6864

The Bob Woodruff Foundation provides resources and support to injured service members, veterans and their families and programs that serve them. Special emphasis is placed on the "hidden signature injuries" of the wars in Iraq and Afghanistan – traumatic brain injury (TBI) and combat stress injuries including post-traumatic stress disorder (PTSD).

Craig Hospital: Traumatic Brain Injury (TBI) Resources

<https://craighospital.org/resources/topics/traumatic-brain-injury>

Phone: 800-247-0257

Craig Hospital: Emotional Problems after Traumatic Brain Injury

<https://craighospital.org/wp-content/uploads/sites/Educational-PDFs/Model-Systems/348.Model-System-TBI-and-Emotional-Problems.pdf>

International Brain Injury Association (IBIA)

<http://www.internationalbrain.org>

P.O. Box 1804

Alexandria, VA 22313

703-960-6500 (Alexandria), 713-526-6900 (Houston)

Email: congress@internationalbrain.org

IBIA is dedicated to the development and support of multidisciplinary medical and clinical professionals, advocates, policy makers, consumers and others who work to improve outcomes and opportunities for persons with brain injury.

LoveYourBrain Foundation

www.loveyourbrain.com

PO Box 247

Norwich VT 05055

Together with his brother Adam, champion snowboarder Kevin Pearce created the LoveYourBrain Foundation, a non-profit organization that is working to connect, educate and empower people to live a brain healthy lifestyle. Through yoga, meditation and mindfulness programs, LoveYourBrain is improving lives, creating community and optimizing health for everyone they reach.

National Association of State Head Injury Administrators (NASHIA)

<http://www.nashia.org>

PO Box 1878

Alabaster, AL 35007

Phone: 202-681-7840

Email: execdirector@nashia.org

NASHIA assists state governments in promoting partnerships and building systems to meet the needs of individuals with brain injury and their families.

National Center on Health, Physical Activity and Disability: Exercise for People with a Traumatic Brain Injury

<http://www.nchpad.org/1407/6273/Exercise~for~People~with~a~Traumatic~Brain~Injury>

4000 Ridgeway Drive

Birmingham, AL 35209

Phone: 800-900-8086

National Center on Shaken Baby Syndrome

<http://www.dontshake.org/>

1433 North 1075 West- Suite 110

Farmington, UT 84025

Phone: 801-447-9360

E-mail: mail@dontshake.org

The National Center on Shaken Baby Syndrome has a mission to prevent shaken baby syndrome through the development and implementation of education, programs, public policy and research; to establish networks, support and train families, caregivers and professionals.

National Institute on Neurological Disorders and Stroke: Traumatic Brain Injury Information Page

<https://www.ninds.nih.gov/Disorders/All-Disorders/Traumatic-Brain-Injury-Information-Page>

This page has information on traumatic brain injury including treatment, prognosis, and research as well as links to publications and related organizations.

National Institute on Neurological Disorders and Stroke (NINDS): Traumatic Brain Injury: Hope Through Research booklet

<https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Hope-Through-Research/Traumatic-Brain-Injury-Hope-Through>

Shepherd Center: Brain Injury

<http://www.myshepherdconnection.org/abi>

2020 Peachtree Road NW

Atlanta, GA 30309-1465

Phone: 404-352-2020

Patient education materials for patients and their families includes information on the brain, brain injury, cognitive issues associated with brain injury.

Society for Neuroscience

<http://www.sfn.org>

1121 14th Street, NW, Suite 1010

Washington, DC 20005

Phone: 202-962-4000

E-mail: info@sfn.org

SFN advances the understanding of brain research by providing information to neuroscientists, the public, and to legislators.

Traumatic Brain Injury Center of Excellence (TBICoE)

<https://health.mil/Military-Health-Topics/Centers-of-Excellence/Traumatic-Brain-Injury-Center-of-Excellence>

7700 Arlington Blvd., Suite 5101

Falls Church VA 22041

Phone: 800-870-9244

Crisis Intervention: 800-273-8255 press 1

TBICoE provides active duty military, their beneficiaries, and veterans with traumatic brain injuries (TBIs) with state-of-the-art clinical care, innovative clinical research initiatives and educational programs through ongoing collaboration with military, VA and civilian health partners, local communities, families and individuals with TBI. There are 15 locations at military medical centers, VA hospitals and civilian partners in 11 states and one in Germany. Formerly called Defense and Veterans Brain Injury Center (DVBIC).

United States Brain Injury Alliance (USBIA)

www.usbia.org

PO Box 1804

Alexandria, VA 22313

Phone: 703-960-6500

Email: mroberts@aol.com

The 17 state members of USBIA are the first point of contact for people who have sustained a brain injury. The state can provide resources and services for rehabilitation, support and other community-based services.

The information contained in this message is presented for the purpose of educating and informing you about paralysis and its effects. Nothing contained in this message should be construed nor is intended to be used for medical diagnosis or treatment. It should not be used in place of the advice of your physician or other qualified health care provider. Should you have any health care related questions, please call or see your physician or other qualified health care provider promptly. Always consult with your physician or other qualified health care provider before embarking on a new treatment, diet or fitness program. You should never disregard medical advice or delay in seeking it because of something you have read in this message.

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