

Diffuse Axonal Injury Classification

The [Diffuse Axonal Injury Classification](#) was first proposed by Adams in 1989¹⁾ and divides diffuse axonal injury (DAI) into three grades:

grade I : involves grey-white matter interfaces most commonly : parasagittal regions of frontal lobes, periventricular temporal lobes less commonly : parietal and occipital lobes, internal and external capsules, and cerebellum often inapparent on conventional imaging may have changes on MRS 3

grade II : involves corpus callosum in addition to stage I locations observed in approximately 20% of patients most commonly : posterior body and splenium but does advance anteriorly with increasing severity of injury most frequently unilateral may be seen on SWI 3

grade III : involves brainstem in addition to stage I and II locations most commonly : rostral midbrain, superior cerebellar peduncles, medial lemnisci and corticospinal tracts.

DTI with 3-D fiber tractography can visualize acute axonal shearing injury, which may have prognostic value for the cognitive and neurological sequelae of traumatic brain injury²⁾.

1)

Adams JH, Doyle D, Ford I et-al. Diffuse axonal injury in head injury: definition, diagnosis and grading. Histopathology. 1989;15 (1): 49-59.

2)

Le TH, Mukherjee P, Henry RG, Berman JL, Ware M, Manley GT. Diffusion tensor imaging with three-dimensional fiber tractography of traumatic axonal shearing injury: an imaging correlate for the posterior callosal "disconnection" syndrome: case report. Neurosurgery. 2005;56(1):189. PubMed PMID: 15617604.

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