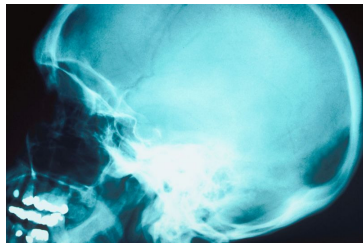


Impact One Instrument

Product Announcement

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Head impact trauma is the leading cause of injury and death in young children. Such injury can result in a lifetime of medical care, thus putting a substantial burden on healthcare systems and healthcare costs.



The prognosis and optimal treatment can be affected by many variables. Among these are force applied, area over

which force was distributed, and the direction and location of the force applied. Damage may accumulate or multiply with multiple moderate hits, or occur with the first concussive force delivered.

The Department of Defense is now funding studies of head impact and other models of neurotrauma, toward a goal of better care of soldiers suffering impact injury or neurotrauma in battle. And new evidence shows that retired professional football players show tau tangles in brain that are not present in normal age matched controls.

In order to study impact damage of various types, learn how to protect against it, and learn how to treat it most effectively, Neurotrauma scientists need to create reproducible head impacts in animals (under anesthesia), with or without a treatment, and study the results both functionally (e.g. behavior) and histologically. Pneumatic, electrical and mechanical devices exist for inflicting such impacts, however, these are very large, noisy, and difficult to position, making reproducible impacts virtually impossible.

With the help of an SBIR grant from [NIH](#), [MyNeuroLab.com](#), now a part of Leica Biosystems, was able develop a device with a remote power source and an actuator small and light enough to

mount on a conventional stereotaxic instrument. Mounting on a stereotaxic instrument enables the researcher to take advantage of that instruments function of very precise positioning relative to skull landmarks, and ability to make reproducible angular approaches, and to limit the maximum depth of penetration. The instrument can generate a maximum impact velocity of up to 6 meters/sec.



A comparison study:

David L. Brody, Christine Mac Donald, Chad C. Kessens, Carla Yuede, Maia Parsadarian, Mike Spinner, Eddie Kim, Katherine E. Schwetye, David M. Holtzman, Philip V. Bayly Electromagnetic Controlled Cortical Impact Device for Precise, Graded Experimental Traumatic Brain Injury *Journal of Neurotrauma* Apr 2007, Vol. 24, No. 4 : 657 -673

-found this new design to have less overshoot than a pneumatic device, and that this overshoot was no longer related to impact velocity setting. Impact velocity was highly reproducible (this has proven true over 4 years of testing, without recalibration). Damage in histology was visible and reproducible, and the extent of damage correlated with the velocity setting.

This instrument, the [Impact One](#), will be exhibited at the [Society for Neuroscience Meeting in Chicago](#).