



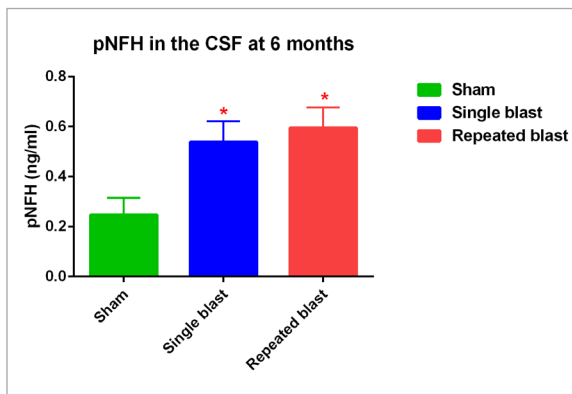
# US DEPARTMENT OF DEFENSE BLAST INJURY RESEARCH PROGRAM COORDINATING OFFICE

## TBI Biomarkers

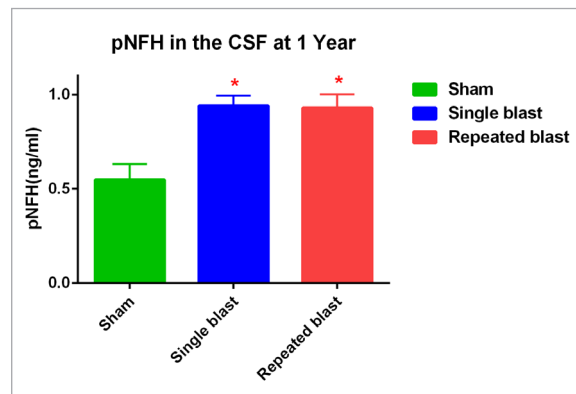
### Cerebrospinal Fluid Levels of Phosphorylated Neurofilament Heavy Chain Protein as a Chronic Biomarker of Blast-induced Traumatic Brain Injury

Neurofilament heavy chain (NFH) is a protein that supports neuron integrity and function. Phosphorylation of NFH (pNFH) affects its function and is known to be involved in neurodegeneration. Increased levels of pNFH in the cerebral spinal fluid (CSF) and plasma has been used as a biomarker of different neurodegenerative diseases. The researchers at Walter Reed Army Institute of Research (WRAIR; Silver Spring, MD) are evaluating the utility of pNFH as a chronic biomarker of blast-induced TBI in animal models using an advanced blast simulator. Preliminary findings indicate that pNFH levels increase significantly in the CSF at six months and one year after single and repeated blast exposures (Figures 1 and 2). These findings reveal the potential of CSF pNFH levels as a biomarker of blast injury progression in affected Service members.

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**FIGURE 1:** pNFH levels in the CSF at 6 months after single and repeated blast exposures. (Figure used with permission from the authors).



**FIGURE 2:** pNFH levels in the CSF at one year after single and repeated blast exposures. (Figure used with permission from the authors).

