OBAMA HOLDS CONCUSSION CONFERENCE, MONEY PLEDGED

President Barack Obama held a White House conference with sports, military, and research leaders to highlight the rising problem of traumatic brain injury in sports, and called for an end for the expectation that athletes "suck it up" after a big hit.

The NCAA and the Department of Defense are initiating a $30-million fund to advance concussion safety practices in college sports and the military. The NFL has pledged $25 million over the next three years for youth sports safety.

The NFL is dedicating $16 million of their previous donation toward tests and studies of the chronic effects of repetitive concussions. The National Institute of Standards and Technology is investing $5 million over the next five years to develop more advanced materials that can provide better protection against concussions for athletes, troops, and others.

President Obama has made concussion news when he said he would have to "think long and hard" about allowing his hypothetical sons play football, and that he would not want them to play professionally.

RECOVERY FROM SPORTS-RELATED CONCUSSION SLOWER THAN BELIEVED

Scientists at the Sahlgrenska Academy in Sweden have shown that analysis of the cerebrospinal fluid after concussion can be used to determine the magnitude of brain injury and to follow its course. They argue the studies show that recovery from concussion takes much longer time than previously known, and this may be of major significance for athletes of all ages in return to play considerations.

"It has previously been believed that concussion heals in seven-10 days, and the Swedish Boxing Federation has decided the rest period to be of one month after a concussion, in order to be on the safe side. But our studies show that a concussion, such as may be experienced after being knocked out, can take more than four months to heal," said Sanna Neselius, a PhD student at the University of Gothenburg.

The cerebrospinal fluid samples analysed by Ms. Neselius and her colleagues can be monitored until normalization and thereby be a valuable instrument to stop athletes resuming sport too early.

Currently, assessment is often based on physical symptoms, neuropsychological tests, and the neurological examination of the athlete. Ms. Neselius' believes these tests are not sensitive enough, nor can we rely on the athletes self-reported lack of symptoms. "Concussion symptoms usually pass after a few days, but the neurological damage may still be present," she says.

For the study, 30 amateur boxers were matched against 25 non-boxing controls. Brain injury biomarkers were analyzed in cerebrospinal fluid and blood one to six days after a bout and after a rest period for at least 14 days; a subset of the study focused on one boxer who was knocked out.

"The CSF concentrations of neurofilament light (NFL), phosphorylated NFH (pNFH), glial fibrillary acidic protein (GFAP), Total-tau and S100B and plasma-tau were significantly increased one to six days after a bout compared to controls," the author writes, while NFL, pNFH and GFAP remained elevated after the rest period. "Possession of APOE–4 allele did not influence biomarker concentrations. The neurological assessment showed no significant differences between boxers and controls, however boxers with elevated CSF NFL by follow up performed significantly poorer on the Trailmaking A and Simple Reaction Time tests."

The case of the knocked out boxer showed marked elevation of CSF NFL, with a peak at 2 weeks post trauma, not reaching below the reference limit until week 36. ■

CDC: CONCUSSION BY THE NUMBERS

US emergency departments (EDs) treat an estimated 173,285 sports- and recreation-related TBIs annually in 0-19 year-olds.

During the last decade, ED visits for sports- and recreation-related TBIs, including concussions, among children and adolescents increased by 60%.

Activities associated with the greatest number of TBI-related ED visits included bicycling, football, playground activities, basketball, and soccer.