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AN ACT CONCERNING YOUTH ATHLETES AND CONCUSSIONS: HB 5113- CONCUSSIONS

I am a Pediatric Neuropsychologist with a specialization in traumatic brain injury. Pediatric Neuropsychology is the medical profession with an expertise in neurodevelopment and the impact of neurological disease or neurological trauma on the developing brain. Neuropsychology is the lens that looks at cognitive and behavioral changes associated with neurological trauma and plays an instrumental role in the research of concussions in children and adolescence with significant National Institutes of Health and Center for Disease Control grant money targeting longitudinal studies of the effects of mild to severe brain injury on cognitive and behavioral development. This research has been instrumental not only for helping legislators realize the economic burden of brain injury on society and need for an increase in education for prevention, but for developing standards of care for diagnosis and medical interventions.

I completed my Pediatric Neuropsychology Fellowship specialization and served on medical faculty for 10 years in traumatic brain injury at Cincinnati Children's Hospital Medical Center, an institution consistently awarded in the Top 3 Best Pediatric Medical Centers by USA World News report on Best Hospitals. I am currently a neuropsychological consultant to multiple schools in Fairfield County in prevention and management of concussions, as well a primary referral source to pediatricians, neurologists, neurosurgeons and other concussion specialists for treatment of children suffering from complicated recovery and for diagnosis and treatment in the elementary to middle school age athlete. In addition, I am a Brain Injury Consultant to the ONS Foundation for Research and Education. In this capacity, I provide education to parents, athletes, teachers and coaches in Fairfield County and collaborate with the NFL Alumni Association to improve education and early diagnosis in the elementary and middle school age athlete.

I enthusiastically support additional legislation outlined in HB5113-Concussions for education to the youth athlete. There is a significant gap in our current legislation that neglects the health and safety of elementary and middle school athletes. Connecticut is behind the rest of the nation in extending policy for this age group and in essence, without it, we are placing these children at significant risk.

As you know, there is a significant increase in organized and commercialization of youth sports that involve contact. Though there is a dearth of studies on the incidence of concussions in the elementary and middle school athlete, a recent prospective study by Kontos et al. (Incidence of Sports-Related Concussions among Youth Football Players Aged 8-12; Journal of Pediatrics, September 2013) found that the overall injury rate for concussion in youth football players was comparable with that reported for high school samples. The NIH and CDC have identified this age group as at greater risk for concussions because the neuromuscular and neurological development of this age group leaves it at significant risk for concussion. Specifically:

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- 1) Younger athletes have less-well developed cervical and shoulder musculature.
- 2) Younger children have proportionately bigger heads than adults. As a result of these two facts, a blow to the head or whip-lash jolt exerts greater acceleration force to a child than to an older athlete because the neck muscles aren't able to absorb the blow and leave the brain more vulnerable to the impact.
- 3) From a neurological standpoint, the axons in a child's developing brain are not as well myelinated or insulated, thereby making the axons more vulnerable to traumatic injury.
- 4) Children's brains tend to fit more tightly within the skull and have a higher concentration of water, making the young brain less resilient to catastrophic swelling from a traumatic insult.

I am hope that this information has helped you in making your decision to support the extension to younger athletes outlined in this HB5113-Concussions. Please decide to make a difference in changing the outcome for these children.

Kind Regards,

Patricia McDonough Ryan, PhD
Pediatric and Sports Neuropsychologist

ONS Foundation for Research and Education

Concussion Center of Fairfield County