App. Tab 34

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Sports Legacy Institute Announces Findings of Forensic Examinations on Wrestler Chris Benoit's Brain

Neuropathological Tests Find Evidence of Chronic Traumatic Encephalopathy Consistent with Numerous Brain Injuries

New York, September 5, 2007 --- Leading medical experts associated with the Sports Legacy Institute today appeared with Michael Benoit, father of professional wrestler Chris Benoit, to release the results of neuropathological tests that demonstrate his son suffered from a type of brain damage called Chronic Traumatic Encephalopathy (CTE), which was found in all regions of his brain. The Sports Legacy Institute (SLI), which oversaw and coordinated the testing, is an independent medical research organization dedicated to studying the long-term effects of head injuries in sports. SLI President Christopher Nowinski contacted Michael Benoit on June 28th, the Thursday after his son's death, to obtain permission to study the wrestler's brain. SLI's research has indicated there is a connection between the repeated head injuries suffered by many athletes involved in contact sports and an aggregation of abnormal Tau proteins in the brain, causing CTE. CTE's most common symptoms include depression, cognitive impairment, dementia, Parkinsonism and erratic behavior. Experts believe that CTE may have been a cause or contributing factor in the Benoit tragedy. While CTE has long been found in boxers, and more recently in NFL football players, the findings of CTE in Benoit suggest that athletes involved in other contact sports may also be at a heightened risk for this type of brain injury.

"When Chris Nowinski contacted me about conducting tests on Chris' brain, I was extremely hesitant given the circumstances surrounding my son's death," said Michael Benoit. "I agreed to the testing after he explained their desire to expand knowledge about the potential brain damage that athletes can suffer from repetitive head injuries in contact sports. When the results were explained to me by the SLI doctors, I was shocked to learn the extent of damage and saddened that he could have been suffering from this without anyone's knowledge. I hope the examination of Chris' brain leads to greater understanding and ultimately helps protect athletes of all ages."

Bennet Omalu, MD, MPH, a leading forensic neuropathologist, the Chief Medical Examiner of San Joaquin County, CA, and founding member of the Sports Legacy Institute examined Chris Benoit's brain as part of the Sports Legacy Project and had also examined the brains of Mike Webster, Terry Long, Andre Waters, and Justin Strzelczyk all of whom were professional football players, died by the age of fifty, and displayed similar psychological and behavioral profiles. Their brains showed evidence of CTE and two of the players - Long, and Waters - committed suicide.

Mike Webster died of a heart attack, but suffered from dementia, depression, and exhibited erratic behavior after retiring from football. When Justin Strzelczyk died at the age of 36, he had been telling relatives he was hearing voices from "the evil ones" and then led police on a 40 mile high-speed chase through central New York at speeds up to 100 mph on the wrong side of the highway, which resulted in an explosive crash and his death

"When the SLI approached Michael Benoit about testing Chris' brain as part of the Sports Legacy Project, our goal was to determine if there was evidence of CTE caused by repeated trauma to the head sustained during Chris Benoit's career. We have now confirmed multiple concussions are part of his medical history, along with clinical symptoms associated with CTE," said Julian Bailes, MD, Professor and Chairman of the Department of Neurosurgery at West Virginia University School of Medicine and an SLI founding member. "Because my SLI colleagues and I have found evidence of CTE in the brains of four former professional football players, we felt an examination of Chris Benoit's brain may bring awareness to CTE's existence outside of boxers and football players. The findings of CTE in Chris Benoit suggest that there may be a common syndrome among athletes who suffer multiple head injuries in contact sports."

The neuropathological findings were confirmed by other neuropathologists, and correlate with recent findings of an increased risk of depression and cognitive impairment in professional football players who have suffered multiple concussions, according to research conducted by Dr. Bailes and another SLI founding member, Robert Cantu, MD, Chief of Neurosurgery Service and Director of Sports Medicine at Emerson Hospital in Concord, MA, and Co-Director of the Neurologic Sports Injury Center at Brigham and Women's Hospital in Boston, MA.

Chronic Traumatic Encephalopathy (CTE) is a form of brain damage that is best documented in boxers, but can also occur in athletes who played football, ice hockey, rugby, soccer, or any sport associated with impacts to the head. It can only be confirmed by a post-mortem neuropathological immunohistochemical study. While studies show that as many as 20 percent of professional boxers show evidence of CTE, there has been little study of CTE in athletes involved in other contact sports.

According to the examinations, Mr. Benoit's brain exhibited large amounts of abnormal Tau protein, manifested as Neurofibrillary Tangles (NFTs) and Neuropil Threads [NTs]. These represent aggregates of abnormal Tau protein, which are remnants of the cytoskeleton of the brain cells and their connections. Frequent NFTs and NTs were distributed in all regions of the brain including the neocortex, the limbic cortex, subcortical ganglia and brainstem ganglia accompanied by loss of brain cells. Accumulation of abnormal Tau protein in the form of NFTs and NTs in the brain has been confirmed to cause neurodegeneration, cognitive impairment and dementia. There was no other neuropathological evidence for any chronic or acute disorder to explain his clinical symptoms.

"The findings of CTE in Chris Benoit's brain, which are consistent with the previous examinations of athletes who suffered from repeated head traumas, confirm the need for a large-scale study of CTE in athletes who participate in contact sports," said Chris Nowinski, who retired from professional sports after multiple concussions and conceived SLI, a collaboration of doctors and advocates that includes renowned attorney Robert Fitzsimmons, who played an integral role. "The link between CTE and contact sports is clear. We need to conduct more research to understand the full spectrum of the disease and raise awareness so parents, coaches, medical staff and athletic officials know how to respond when athletes, including children, sustain head injuries. If we apply this knowledge we believe we can successfully prevent future cases."

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The Sports Legacy Institute is dedicated to studying the effects of concussions and other sports related brain injuries. Through its efforts, SLI aims to maximize the safety and vitality of all athletes who participate in contact and collision sports around the globe. The designation of the Sports Legacy Institute as a 501(c)3 nonprofit corporation is in the process of being submitted. The Sports Legacy Institute relies on donations from concerned parties to fund its work.

SUMMARY OF FINDINGS

CB's brain was processed and examined microscopically using a battery of standard histochemical and specialized immunochemistry stains. Specifically, techniques were utilized to identify tau protein. Tau becomes phosphorylated and visible when the person has had prior traumatic brain injury, irrespective if there were clinical expressions or identification that a concussion had occurred.

Large amounts of abnormal tau proteins in the form of neurofibrillary tangles (NFT's) and neuritic threads were found, along with loss of nerve cells (neurons). These extensive changes throughout CB's brain, identified in the neocortex, basal ganglia, substantia nigra and brainstem consisted of accumulation of tau protein in the neurons and their fibers which project to other parts of the brain. We believe that these are most likely post-traumatic expressions of prior recognized or unrecognized (subclinical) concussions.

Electronic copies of the brain images displayed at the press conference can be downloaded at

http://www.widmeyer.com/sportslegacy.

Dr. Cantu Speech
September 5, 2007

Thank you Dr. Bailes. These findings have immense significance both scientifically and historically, but they do not come as a surprise to the researchers of the Sports Legacy Institute. So everyone has a better understanding of who we are and the Chris Benoit findings within the larger context of prior research, I am going to give a short summary of our previous work.

We have confirmed 4 cases of CTE in former NFL players that all died by the age of 50 and exhibited similar neuropathological findings and clinical symptoms as Chris Benoit. These findings have been the subject of two papers by Dr. Omalu and colleagues[iii] and an editorial that I recently wrote in the August issue of the medical journal Neurosurgery.[iii] I have published guidelines for defining concussion severity and return to play after injury for over two decades[iv] and more recently Dr. Bailes, I, and others have also been studying the correlations between concussions and depression, dementia, and other neurological sequelae.[v] [vi]Prior to this case our founding members had been operating as a loose collaboration, but on the eve of taking our fourth case public, our President Christopher Nowinski realized our mission, to better understand the effects of head injuries in sports and to apply that research to help improve the lives of athletes, and specifically what we now call the Sports Legacy Project was too important to not be formalized. Thus SLI was incorporated in mid-June as a charitable corporation.

Chris Benoit was the sixth case in the ongoing Sports Legacy Project, our research program to identify cases of CTE in athletes by post-mortem examination, and the fifth positive diagnosis. This work was pioneered by SLI founding member Dr. Bennet Omalu, who, while working in the Allegheny County Medical Examiner's office, identified CTE in 50 year-old former Pittsburgh Steelers Mike Webster, who had died of a heart attack, and Terry Long, who committed suicide at age 45 by drinking antifreeze. Both men exhibited cognitive impairment, major depression, paranoia, and aggressive behavior. SLI founding member Bob Fitzsimmons battled victoriously on behalf of Mike Webster against the NFL disability plan for 7 years, during which Mike passed away.

The third case was discovered in 44 year-old former NFL safety Andre Waters, who committed suicide in November of 2006 while suffering from major depression and paranoia. That is when SLI President Chris Nowinski, a former Harvard football player and professional athlete who was forced to retire from concussions, pioneered our current practice of contacting families for permission. Dr. Bailes inspired our investigation into the fourth case, 36 year-old former Pittsburgh Steeler Justin Strzelczyk. Reportedly, Justin had been hearing voices from "the evil ones" and experiencing a religious rebirth,

then led police on a 40 mile high-speed chase through central New York at speeds up to 100 mph on the wrong side of the highway, which ended with him running into tanker truck and dying.

CTE was first identified in a former boxer in 1928, and since then has been associated in the published medical literature among boxers, steeplechase jockeys, rugby players, professional soccer players, and even a professional wrestler; and now due to the Sports Legacy Project, professional football players and a second pro wrestler. "We will be forever grateful to Michael Benoit and his family for placing their trust in the Sports Legacy Institute in an effort to better understand this disease and prevent future cases."

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CHRONIC TRAUMATIC ENCEPHALOPATHY (CTE)

FACT SHEET

Definition, Causes and Consequences of CTE

- Chronic Traumatic Encephalopathy (CTE) is a form of chronic brain damage, which results from repetitive head trauma like concussions sustained from contact sports. The most studied type of CTE is found in boxers and is called *Dementia Pugilistica* or *Punch-Drunk Syndrome*. [1]

- CTE can occur in other athletes who play football, ice hockey, rugby, soccer, or any sport associated with impacts to the head.[2]

- Symptoms of CTE may include dementia, major depression and movement disorders. In boxers, symptoms begin anywhere between six and 40 years after the start of their boxing careers, with an average onset of about 16 years.[3]

- Affected individuals may also develop poor coordination, slurred speech, loss of balance and intellect, altered memory, and may develop tremors which are commonly associated with Parkinson's disease. [4]

- Other symptoms vary depending on which part of the brain was damaged by the injury.

Magnitude of CTE

- CTE can not be definitively diagnosed except through post mortem examination of the brain. However, extensive medical studies and analysis of medical histories of boxers suggest that CTE has been described in these life-long athletes for more than 70 years.

- Approximately 20 percent of professional boxers demonstrate symptoms of CTE.[5] Some studies have suggested that amateur boxers sustain damage to their nervous system, but because their shorter bouts allow fewer blows to the head and because they must wear head safety equipment, the effects tend to be less severe.[6]

- While there are no general statistics available for CTE among other athletes, the Centers for Disease Control and Prevention (CDC) estimate that there are between1.6 and 3.8 million youth sports concussions a year.[1]

- Football may be responsible for over 1 million head injuries per year in the United States, although a precise number is difficult to determine because most players never report symptoms to a medical professional and simply continue playing. In any given season around 50 percent of high school and college players report sustaining concussion-like symptoms after sustaining a blow to the head.[4 5 6 7]

- Football players who have sustained a previous concussion are up to six times more likely to sustain additional brain injuries.[8]

- Direct medical costs and indirect costs such as lost productivity of TBI related injuries totaled an estimated $60 billion in the United States in 2000.[9]

** TBIs may include both concussions and contusions. The term "concussion" is used at times interchangeably with the term "mild TBI". From there, concussions are further broken down into Grade 1, 2, and 3.* [10]

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CONCUSSIONS: ADVICE FOR PARENTS

Why focus on concussions?

The Centers for Disease Control and Prevention (CDC) estimate that there are between 1.6 and 3.8 million youth sports concussions a year. The vast majority of concussions are never diagnosed, so athletes continue competing, thereby exposing themselves to further damage, a possible secondary injury, a greater risk of permanent problems and even death. Clearly there is a tremendous challenge facing parents, team physicians, and other medical staff responsible for the care of athletes.

How can I tell whether my child has suffered a concussion?

Concussion experts provide guidelines and advice to recognize symptoms and manage them properly.

Guidelines: How Parents Can Recognize a Concussion[1]

If your child has experienced a bump or blow to the head during a game or practice, look for any of the following signs and symptoms of a concussion:

Symptoms Reported by Athlete
- Headache or "pressure" in head
- Nausea or vomiting
- Balance problems or dizziness
- Double or blurry vision
- Sensitivity to light
- Sensitivity to noise
- Feeling sluggish, hazy, foggy, or groggy
- Concentration or memory problems
- Confusion
- Does not "feel right"

Signs Observed by Parent
- Appears dazed or stunned
- Is confused about assignment or position
- Forgets an instruction
- Is unsure of game, score, or opponent
- Moves clumsily
- Answers questions slowly
- Loses consciousness (even briefly)
- Shows behavior or personality changes
- Can't recall events prior to hit or fall
- Can't recall events after hit or fall

What should I do if I suspect my child has a concussion?

1. Seek medical attention right away. A health care professional will be able to decide how serious the concussion is and when it is safe for your child to return to sports.

2. Keep your child out of play. Concussions take time to heal. Don't let your child return to play until a health care professional says it's OK. Children who return to play too soon—while the brain is still healing—risk a greater chance of having a second concussion. Second or later concussions can be very serious. They can cause permanent brain damage, affecting your child for a lifetime.

3. Tell your child's coach about any recent concussion. Coaches should know if your child had a recent concussion in ANY sport. Your child's coach may not know about a concussion your child received in another sport or activity unless you tell the coach.

How are concussions "graded?"

Many medical professionals still "grade" a concussion at the time of injury by the severity of the symptoms, as in "That player was knocked unconscious, so he had a grade 3 concussion, the most severe kind. He can return to play in two weeks." Over the last few decades, it has been standard practice to grade concussions as Grade 1, 2, or 3.

The most current medical advice is to **NEVER GRADE A CONCUSSION AT THE TIME OF INJURY**. According to the 1st International Conference on Concussion in Sport in Vienna in 2001, and confirmed at the 2nd International Conference in Prague in 2004, the top experts recommend that practice be abandoned, and replaced with the understanding that it is impossible to know how severe a concussion was until the athlete has healed.[2]
They noted:

> "...concussion severity could only be determined in retrospect after all concussion symptoms have cleared, the neurologic examination is normal, and cognitive function has returned to baseline. There is limited published evidence that concussion injury severity correlates with the number and duration of acute concussion signs and symptoms and/or degree of impairment on neuropsychological testing."

In other words, there is **little to no correlation between on-field symptoms and length of recovery.** A "ding" may be severe, and in some cases getting knocked unconscious may be less severe than "seeing stars".

So by grading concussions at the time of injury we often label severe concussions with minimal immediate symptoms as 'mild,' returning the athlete to play too soon. Also, when we set expectations at the time of injury, as in "you can go back in one week," without adding the caveat "if your symptoms have cleared," we can expect the competitive athlete to meet those expectations regardless of how they feel.

When can a concussed athlete safely return to play?

Even while there is no universal agreement on the precise definition and grading of concussions, there is unanimous agreement among experts that an athlete still suffering post- concussive signs or symptoms at rest and with exertion should not be allowed to return to contact or collision sports.

According to Robert C. Cantu, MD, Chief of Neurosurgery Service and Director of Sports Medicine at Emerson Hospital, the confusion and frustration with the current scales have resulted in many sports medicine professionals not using any of the grading scales for evaluations purposes.

What can parents do to protect their child-athlete?

Parents need to take an active role on the subject of concussions in sports. Most youth athletes do not have access to medical professionals through their sports programs, and most youth coaches receive little to no formal education on concussions.

For many athletes, the only opportunity they will have to learn about how to minimize the dangers of playing through concussions and returning too soon is through the media or from their parents. Education begins at home.

Here are some things parents can do to improve their athlete's chances of having a healthy and successful athletic career.

• Educate yourself and your child about the signs and symptoms of a concussion and the dangers of returning to sports too soon after a concussion, especially SIS. The number one reason athletes don't report a concussion is because they don't realize the symptoms they are suffering (dizziness, seeing stars) are defined as a 'concussion.'[3]

• If your child plays a collision sport like football or hockey, be prepared for your child to have a concussion next season. Around 50% of high school and college football players report suffering concussion-like symptoms each season.[4 5 6 7]

• Remember: an individual does not have to suffer a loss of consciousness (LOC) to have suffered a concussion. In fact, the vast majority of concussions (more than 90%) do not involve LOC.

• Athletes feel significant pressure to play through injuries and "tough it out." Emphasize to your child the dangers of failing to immediately report symptoms, and that doing so places them at risk for a catastrophic injury. Highlight that it is better to miss a game than to miss a season.

• Demand that all coaches and certified athletic trainers (ATCs) involved in your child's sports program are trained to recognize and manage concussions.

• Order the Centers for Disease Control's (CDC) new Heads Up: Concussion in Youth Sports tool kit. It includes fact sheets for parents, athletes, coaches, and other useful items. It's free, and it's great! http://www.cdc.gov/concussioninyouthsports/

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CHRIS BENOIT AND BRAIN INJURY

Press Conference Agenda
10:45AM-12:00PM
September 5, 2007

10:45-10:50AM	Opening Remarks/Introductions Julian Bailes, MD, Moderator Chief of Neurosurgery, West Virginia University School of Medicine Founding Member, Sports Legacy Institute
10:50AM	Summary of Study Findings Dr. Bailes
11:05M	Statement Robert Cantu, MD Chief of Neurosurgery Service and Director of Sports Medicine, Emerson Hospital, Concord, Mass. Founding Member, Sports Legacy Institute
11:15AM	Cary Ichter, Legal Representative Thompson Hine, LLP
11:20AM-11:50AM	Q&A Session
11:50AM	Closing Remarks Dr. Bailes

MISSION STATEMENT

The mission of the Sports Legacy Institute is to advance the health and wellness of athletes and the overall safety of sports and athletic endeavors. We will promote medical and scientific research, education, prevention, and advocacy of topical sports injury issues. SLI will pursue the development of programs designed to benefit our knowledge and understanding of the lifelong psycho-social and health effects of sports and athletics.

The Institute will initially focus its efforts on the study of degenerative brain conditions including Chronic Traumatic Encephalopathy, or CTE, a condition caused by repetitive concussive and sub-concussive brain injuries.

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CHRISTOPHER NOWINSKI– President
Consultant, Trinity Partners LLC, Waltham, MA
Political Correspondent, WWE's Smackdown Your Vote! Campaign
Author, Head Games: Football's Concussion Crisis

Chris Nowinski is best known as a former professional wrestler with World Wrestling Entertainment. He debuted on WWE's flagship program Monday Night RAW in 2002, when he was named "Newcomer of the Year" by RAW Magazine, and was the youngest male Hardcore Champion in WWE history before his career was ended in 2003 by a concussion.

Diagnosed with post-concussion syndrome, Chris began a quest to better understand this condition. It wasn't until he visited his 8th doctor, the renowned neurosurgeon Robert Cantu, that Chris first learned the reason he wasn't bouncing back from his concussion was that he had been suffering undiagnosed concussions regularly throughout his football and wrestling careers, and the cumulative damage seemed to have finally caught up with him. Through his own efforts he also discovered research linking multiple concussions with serious long-term neurological disorders like Alzheimer's disease, memory impairment, and depression – information he felt should have been made known to him at some point during his 11 years of banging heads in contact sports. He found that throughout sports, there is a startling lack of awareness, diagnosis, and treatment of these injuries that threatens the health and well-being of athletes of all ages. This led Chris to write the book, **Head Games: Football's Concussion Crisis**, published in 2006, in an effort to educate parents, coaches, and children about this serious public health issue.

Through his continued advocacy and investigative work, Chris has raised this issue into the national consciousness. The increased awareness has already forced the NFL to upgrade their concussion management protocol. In January of 2007, he led the investigation that found the suicide of 44-year-old former NFL star Andre Waters was linked to his depression caused by multiple concussions by asking the Waters family to have Andre's brain examined by noted neuropathologist Dr. Bennet Omalu. He then helped a number of former NFL players, including Ted Johnson and Gene Atkins, come forward with their stories of struggles caused by concussions suffered on the playing field and get medical help.

Chris now speaks at medical conferences around the world, sharing presentations such as **"The NFL's Concussion Research: Fact, Fantasy, or Fabrication?"** and **"The Epidemiology of Concussion in Athletes - Lessons for a New Approach"** at 2007 Third International Meeting on Minor Traumatic Brain Injury in Sports, 2007 National Concussion Summit in Marina Bay, CA, and American College of Sports Medicine's 54th Annual Meeting in New Orleans, LA.

Chris' work in the field of concussion research and advocacy has made him a sought-after voice for awareness. He has written several articles for media such as SportsIllustrated.com and the New England Hockey Journal, and is a co-author on medical journal articles in review. He is frequently quoted in publications like the New York Times, Washington Post, USA Today, Chicago Tribune, ESPN the Magazine, and the Boston Globe. Chris' journey was featured in the May 2007 episode of HBO's Real Sports with Bryant Gumbel, and his partnership with Dr. Bennet Omalu was featured in August by ESPN's Outside the Lines. He is also a frequent guest on CNN, ESPN, CSTV, and National Public Radio.

Currently, Chris also serves as the political correspondent for the WWE's award-winning Smackdown Your Vote! Campaign, an effort to encourage Americans ages 18-30 to register and vote. He also hosts a podcast series, The Nowinski Perspective, in which he speaks with elected officials and representatives of youth voting organizations about the issues affecting young adults. The Youth Vote Coalition recently listed him on "30 Under 30," an award honoring 30 people under the age of 30 who are having a major impact on politics. Chris is also a long-time supporter of USO Metro-Washington.

Chris was a three-year letterman and two-year starter at defensive tackle for the Harvard University football team, where he graduated cum laude with a degree in sociology in 2000. A member of the 1997 Ivy League Championship team, he was named Honorable Mention All-Ivy after his junior season, and 2nd Team All-Ivy as a senior. He played four sports in high school, and captained the football and basketball teams his senior year.

A consultant with Trinity Partners in Waltham, MA, Chris specializes in commercial strategy and licensing and acquisitions in the pharmaceutical and biotech industries.

JULIAN E. BAILES, MD
Professor and Chairman of the Department of Neurosurgery
West Virginia University School of Medicine

A specialist in the surgical management of complex aneurysms, Julian E. Bailes, MD notes that "the brain is a fascinating, complex organ, and we are learning more about its structure and function every day."

Dr. Bailes' research includes a study sponsored by the National Football League Players Association on head injuries among professional football players - team physicians frequently consult him for his expertise in this area. He has also researched the effects of hypothermia and shock, and has been honored for his work in telemedicine.

As chairman of the Department of Neurosurgery, Dr. Bailes is a highly sought-after expert commentator by the national media. He has been quoted in such national publications as *The New York Times, USA Today* and *The Washington Post* and appeared on NBC's The Today Show, CBS's The Early Show and CNN. Dr. Bailes co-authored the book, **When Winning Costs Too Much: Steroids, Supplements, and Scandal in Today's Sports**. He serves on the editorial board of several prominent publications.

Prior to joining the faculty of WVU, Dr. Bailes served as medical director for the EMS of Osceola County and the Greater Orlando Metropolitan Area in Florida from 1998-2000. He also led the cerebrovascular surgery program at Allegheny General Hospital in Pittsburgh from 1988 to 1997.

Dr. Bailes received his medical degree from Louisiana State University and completed his residency and advanced training at Northwestern University in Chicago and the Barrow Neurological Institute in Phoenix.

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ROBERT CANTU, MD
Chief of Neurosurgery Service and Director of Sports Medicine
Emerson Hospital, Concord, MA

Co-Director, Neurologic Sports Injury Center
Brigham and Women's Hospital, Boston, MA

Currently Dr. Cantu's professional responsibilities include those of Chief of Neurosurgery Service, Chairman Department of Surgery, and Director of Sports Medicine at Emerson Hospital in Concord, Massachusetts, adjunct professor Exercise and Sport Science, University North Carolina, Chapel Hill, Co-Director, Neurological Sports Injury Center, Brigham and Women's Hospital, Boston, Neurosurgical Consultant to the Boston Eagles football team, and Neurosurgical Consultant to the Boston Cannons professional lacrosse team.

He has authored over 300 scientific publications, including 21 books on neurosurgery and sports medicine, in addition to numerous book chapters, peer-reviewed papers, abstracts and free communications, and educational videos. He has served as associate editor of Medicine and Science in Sports and Exercise and Exercise and Sports Science Review, and on the editorial board of The Physician and Sports Medicine, Clinical Journal of Sports Medicine, and Journal of Athletic Training. In 2003 Dr. Cantu became the section head for the Sports Medicine Section of Neurosurgery.

In addition to his professional responsibilities, Dr. Cantu is medical director of the National Center for Catastrophic Sports Injury Research, an ongoing registry instituted in 1982 for data collection and analysis of spine and head injuries. From this data important contributions have been made in sport safety and accident reduction; most notably football rule changes concerning tackling and blocking with the head, the establishment of football helmet standards, improved on-the-field medical care, and coaching techniques. He also serves on the Board of Trustees as Vice President of NOCSAE (National Operating Committee on Standards for Athletic Equipment).

Dr. Cantu published the first ever return-to-play guidelines for sports concussions in 1986 based. Slightly revised in 2001 and still the most widely recognized guidelines by athletic trainers, he devised the first grading system for concussions based on symptoms at the time of injury (Grades 1, 2, 3) and provided medical professionals with concussion management guidelines where there existed none before.

Dr. Cantu served as President of the American College of Sports Medicine (ACSM), the oldest and largest sports medicine and exercise science organization in the world, from 1992 to 1993 and as treasurer from 1996 to 1999. He received their Citation Award in 1996. At the 2007 ACSM's annual meeting, Dr. Cantu was asked to give the prestigious J.B. Dill Lecture, and presented "The History of Concussions."

Dr. Cantu has participated in nationally televised sports programs speaking on diverse sports issues, sometimes as a spokesperson for the ACSM, and often as an independent expert; he has appeared on NFL Today with Bryant Gumbel and Terry Bradshaw discussing the effect of artificial turf on cervical spine injuries, World News Tonight with Peter Jennings regarding NASCAR safety issues and the death of driver Dale Earnhardt, and on ABC World News Tonight with Bob Jamison and ESPN's Outside the Lines to speak about heat stroke and NFL player Korey Stringer's tragic death. In 2007, he was interviewed on HBO's Real Sports with Bryant Gumbel, ESPN's Outside the Lines, and is frequently quoted in the New York Times.

Dr. Cantu is frequently invited to participate in symposia addressing sports medicine topics ranging from anabolic steroid use, eating disorders in female athletes, and the special health and exercise concerns of senior citizens to acute and chronic brain injury in boxing, and on-the-field evaluation, medical management, and return to play guidelines following head and spine sports injuries. In June, 2007, he was one of only four non-NFL experts asked by NFL Commissioner Roger Goodell to participate in the NFL's historic concussion summit in Chicago, where he gave two presentations.

Dr. Cantu grew up in the northern California community of Santa Rosa. In 1960, he received his B.A. degree from the University of California Berkley where he pitched on the varsity baseball team. Jointly, in medical school and graduate school, he received his M.A. degree in endocrinology in 1962, and in 1963, his M.D. from the University of California Medical School in San Francisco. Following a surgical internship at Columbia-Presbyterian Hospital in New York City in 1963-1964, he began a neurosurgery residency at Massachusetts General Hospital in Boston, and simultaneous position of research fellow in physiology at Harvard Medical School. Upon completion of his residency in 1968, he joined the neurosurgery staff at MGH, where his practice and laboratory were located, while assuming the position of acting assistant director of neurosurgery and director of pediatric neurosurgery at Boston City Hospital. After five yeas of academic neurosurgery with Harvard Hospitals, Dr. Cantu entered private neurosurgery practice at the suburban Emerson Hospital in Concord, Massachusetts where he currently practices.

ROBERT PATRICK FITZSIMMONS
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Robert P. Fitzsimmons' practice principally involves litigation relating to serious personal injuries, disabilities and death arising from construction, workplace, and vehicular accidents. He also has extensive experience in insurance claims involving wrongful denials and coverage disputes.

Mr. Fitzsimmons has actively practiced in the sports industry and has represented numerous professional athletes and Division I coaches in contractual matters and disability claims. His clients have included a professional indoor football team and a mixed martial arts league. He represented the estate of Mike Webster, the Pittsburgh Steelers Hall of Fame center, in his successful disability claim and lawsuit against the National Football League.

A member of the West Virginia State Bar's Board of Governors from 1983 to 1986, Mr. Fitzsimmons is a current member of the Investigative Panel for the State Bar's Disciplinary Board. He served as a Commissioner

BENNET OMALU, MD, MPH
Chief Medical Examiner, San Joaquin County, CA
Principal Partner, NeoForenxis, LLC

Recently appointed the Chief Medical Examiner of San Joaquin County, California, Dr. Bennet Omalu holds four board certifications in Neuropathology, Anatomic Pathology, Clinical Pathology, and Forensic Pathology, as well as a Masters degree in Public Health in Epidemiology. He is currently completing an MBA.

Dr. Omalu first discovered the neuropathologic tissue substrates of Football-Induced Chronic Traumatic Encephalopathy in NFL players in 2002. He has examined the brains of former NFL players Mike Webster, Terry Long, Andre Waters, Justin Strzelczyk, and Damien Nash. Dr. Omalu is a member of 17 professional organizations, has published more than 30 papers, and has presented over 30 research papers and abstracts at international professional meetings.

After completing his fellowship in 2004, Dr. Omalu worked as a forensic pathologist and neuropathologist at the Allegheny County Coroner's Office in Pittsburgh, Pennsylvania, under Dr. Cyril H. Wecht. Dr. Omalu has been a consulting forensic pathologist and neuropathologist to Cyril H. Wecht Pathology Associates, Pittsburgh, Pennsylvania; the Conemaugh Memorial Hospital, Johnstown, Pennsylvania; and the Medical Examiner's Office in Fairfax, Virginia. He is the principal partner of NeoForenxis, LLC, a medico-legal consulting and research firm, as well as BOGE, LP, a public health management company.

Dr. Omalu was born in Nigeria and emigrated to the United States in 1994 for most of his post-graduate medical education. He has studied at the University of Washington Graduate School of Public Health in Seattle, Washington; the College of Physicians and Surgeons of Columbia University at Harlem Hospital Center in New York City; the University of Pittsburgh Medical School; the University of Pittsburgh Graduate School of Public Health; and the Tepper School of Business at Carnegie Mellon University in Pittsburgh, Pennsylvania.