



*The Montlake Cut*

## *ESPN and the NFL Team up on Story of the Lystedt Law*

High school athlete Zack Lystedt suffered a life-changing injury playing football. But as a result his family helped organize to pass a law that will protect other young athletes from the cumulative damage that can result from serial concussions. The Lystedt Law, first passed in Washington State with support from Rich Ellenbogen, has now been passed in 30 states. Watch on ESPN:

<http://espn.go.com/videohub/video/clip?id=7525526&categoryid=559539>

The law is named for Zackery Lystedt who, in 2006, suffered a brain injury following his premature return to play in a middle school football game after sustaining a concussion. He was airlifted to Harborview Medical Center and successfully treated by Drs Randy Chesnut, Richard Ellenbogen and the HMC Trauma Center and Neuro ICU Teams. As a result of advocacy efforts by Zachery's family and attorney Richard Adler, a broad range of medical, business and community partners, including the Seattle Seahawks, lobbied the Washington state legislature for a law to protect young athletes in all sports from returning to play too soon after suffering a head injury. Prominent among the members of this coalition were Dr. Richard Ellenbogen, Chair of Neurological Surgery and Co-Chair of the NFL Head, Neck and Spine Committee, and Dr. Stanley Herring, UW Medicine Director of Spine, Sports and Musculoskeletal Medicine and Joint Clinical Professor of Neurological Surgery. Ellenbogen has been a longstanding spokesman for focusing attention on



*Victor Lystedt (father), Zachary Lystedt, and Roger Goodell, NFL Commissioner*

## *In This Issue:*

- \* *Lystedt Law*
- \* *ECG Changes During Training on Brain Computer Interfaces*
- \* *Western Neurosurgical Society*
- \* *Department Gains 3rd Resident*
- \* *Puzzler*
- \* *Upcoming Hydrocephalus Conference*
- \* *Open Clinical Trials*

*Continued on next page 'Lystedt Law'*

## *Lystedt Law* Continued

concussion. He and Herring co-direct the Seattle Sports Concussion Program, a collaboration between UW Medicine and Seattle Children's that plays a key role in understanding and advancing treatment for concussion.

The Lystedt law act was passed unanimously by the legislature and signed into law by Governor Gregoire in 2009. It requires that youth athletes suspected of a concussion be removed from play and can only return following clearance by a healthcare professional who has been trained in the evaluation and management of concussion. Ellenbogen and Herring also helped encourage the NFL's nationwide efforts to reduce youth athlete concussion risk through education and legislation. One of the most active NFL public outreach activities, "Programs and Partnerships" involves education for concussion awareness. The NFL also works to advocate for adoption of the Lystedt Law with a mission of passage in every state: through these efforts, over 30 states have adopted some form of the law. NFL Commissioner Roger Goodell has been recognized by the Sports Legacy Institute for his personal efforts in this campaign. The result of these combined educational and legislative efforts is substantially improved concussion awareness and a reduction in the number of youth athletes at risk. Neurological Surgery is proud to have played a role in successfully treating Zackery Lystedt's injury as well as in championing the Lystedt Law and ongoing national educational efforts.

Several websites contain detailed information about the Lystead Law and the University of Washington and NFL response to its provisions. These include:

The NFL Programs and Partnerships site: <http://nflhealthandsafety.com/commitment/programs/#lystedt>

"Heads Up" online concussion training, <http://www.preventingconcussions.org/> developed with assistance from Drs Ellenbogen and Herring and jointly sponsored by the NFL and the CDC.

See interviews with Drs Ellenbogen and Herring at [http://preventingconcussions.org/index.php/from\\_the\\_experts](http://preventingconcussions.org/index.php/from_the_experts)

UW Medicine Consult – "Next step in combating concussion: Recognition". <http://uwconsult.netreturns.biz/LocalStories/Story.aspx?StoryId=5701f2fb-afb4-4347-906e-e8213ac9564a>

UW Medicine "Changing the Warrior Culture", an in-depth story about the Lystead Law, the Seattle Sports Concussion Program and Neurological Surgery and other UW faculty efforts to research and treat concussion.

<http://depts.washington.edu/meddev/uwmedmagazine/archives/vol33-no2/changing-the-warrior-culture.php>

*"If I could tell youth athletes one thing, it would be to take care of your health. If you're suspected of having a concussion, don't go back into the game, no matter how you feel when the adrenaline is flowing.*

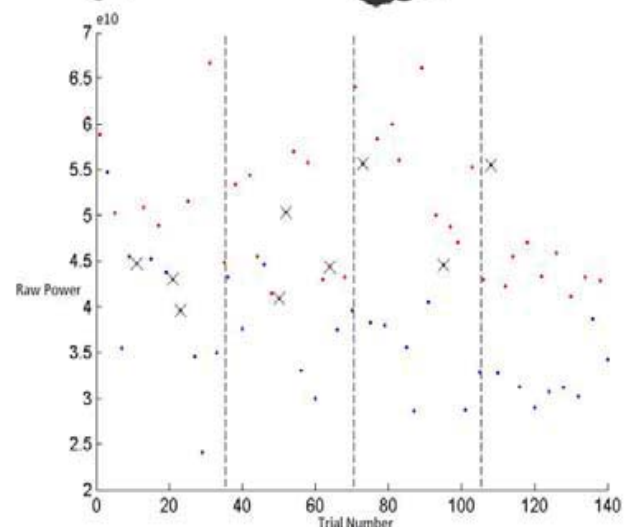
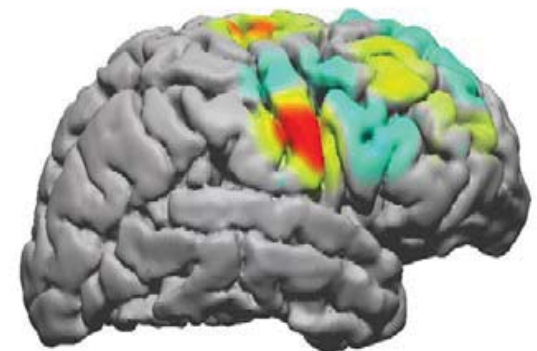
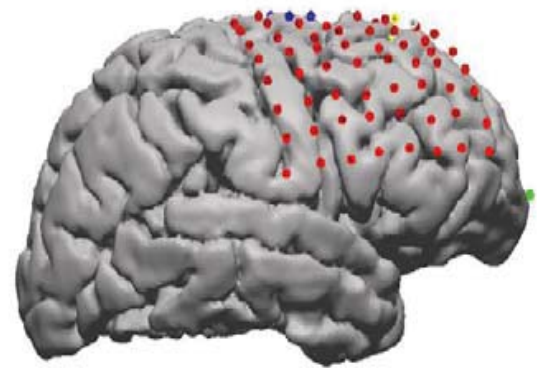
*It makes me feel proud when I hear about Lystedt Laws being passed in other states. Sharing my story is important—I don't want anyone else to live through what I've had to live through every day.*

*I take it one day at a time and feel better most days. I'm motivated by the friends and family who believe in me." - ZACKERY LYSTEDT*

# *Electrocortical Changes During Training on Brain-Computer Interfaces*

Recent advancements in Electroencephalography (EEG) have shown it to be a reliable method for providing control signals from human cerebral cortex to power brain-computer interfaces (BCI). Jeff Ojemann, Kristen Miller and Tsurusaki Blakely have successfully demonstrated significant one dimensional overt and imagery cursor control in multiple patients using features located in primary motor cortex. These features used changes in the chi range of the power spectra (80-100Hz) to drive a cursor towards a target.

All subjects that gained significant control in these trials showed a period of “learning” during which both accuracy and precision increased with training. Three distinct periods of learning were observed in all patients: identification, amplification, and refinement. These periods demonstrated common changes in power in the area of cortex used for control. Identification periods demonstrated no statistically significant difference in spectral power between active and rest targets, but increased significantly for active targets than for passive. After identification, an amplification period showed significantly higher cortical power for active targets, characterized by increases in both the mean power and the standard deviation, as well as in more successfully reached targets. During refinement, subjects exhibited a decrease in cortical power variance for active targets and further refinements to target accuracy. However, a continuing power increase does not occur and can be lower than that in the amplification stage, though high enough to remain above the classification threshold. This narrowing of the standard deviation and lowering of cortical power during learning implies that increases in separability of the BCI control feature do not stem from a raw increase in power but rather from identification of the classification threshold and a refinement of cortical activity around it.



# Western Neurosurgical Society

The Western Neurosurgical Society held last year's well-attended annual meeting at the Grand Hyatt Kauai Resort and Spa on September 10-13, 2011. Please mark your calendars and plan to register for the next annual meeting, September 7-10, 2012, at the historic Broadmoor Hotel in Colorado Springs, Colorado. An abstract form with on-line submission link to the program chair, Dr. Michael Lemole, can be found at:

[http://www.westnsurg.org/forms\\_documents.asp](http://www.westnsurg.org/forms_documents.asp)

The submission deadline is April 30.

Questions may be addressed to [Charles.Nussbaum@vmmc.org](mailto:Charles.Nussbaum@vmmc.org)

A link for room reservations and preliminary meeting information is available at: [http://www.westnsurg.org/Colorado\\_Meeting12.asp](http://www.westnsurg.org/Colorado_Meeting12.asp)

## 2011-2012 Western Neurosurgical Society Officers

John Bonner, M.D.,  
President

Jeff Rush, M.D.,  
President-Elect

Richard Wohns, M.D.,  
Vice-President

Charles Nussbaum, M.D.,  
Secretary-Treasurer

Randy Smith, M.D.,  
Historian

## News Flash: Three Residents/Year

At the 01/20/2012 meeting of the Residency Review Committee for Neurological Surgery, the University of Washington training program was approved for three residents per year as of 2012. With this action, the ACGME recognizes the outstanding nature of the UW residency under the leadership of Chairman Rich Ellenbogen and Tony Avellino, who was the residency program director and now heads the UW Neuroscience Institute.

## Birth Announcement

Kate Kassab continued the girl child tradition in our department. Kate, one of our eight (6.8FTE) magnificent hospital based midlevel practitioners, and her husband Jacob, celebrated the birth of their first child Lilah on December 29 at 3 AM. She was 7 pounds, 9 oz and 19 inches long.

### Gender Tally

(2009 to Present)

<u>BOYS</u>	vs	<u>GIRLS</u>
3		9



Lilah Grace Kassab

# Hydrocephalus Research Conference in Seattle this Summer

A research meeting titled “Opportunities in Hydrocephalus Research: Pathways to Better Outcomes” will be held in Seattle, Washington, July 9-11, 2012.

This conference builds upon the impressive success of the NIH-sponsored workshops “Hydrocephalus Myths, New Facts and Clear Directions” held in 2005 and “Improving Outcomes in Hydrocephalus: Bridging the Gap between Basic Science and Clinical Management” in 2009. Assistant Professor Sam Browd, one of the conference organizers, notes that the 2012 conference is unique in several important ways.

The focus of the next conference is on the patients. Evaluating hydrocephalus research from the patient perspective and seeking research areas that hold early promise for improving patient care and outcomes are major goals. Unlike most meetings, this one will not have individual investigators comment solely on their own work. Instead, recognized experts will summarize the current state of their field of expertise and provide information about those areas of research that hold the most promise for early achievements in improving patient care. Because organizers recognize that some advancements will take more time, intent is to identify long-term goals that may lead to better treatment options or potential cures for hydrocephalus.

For further information and to register, please visit:

<http://www.hydroassoc.org/hydrocephalus-research/research-conference/>



## Last Puzzler

The correct answer to the last Puzzler, in whose Yale lab did Art Ward work as an undergraduate, and what did he study, was instantly supplied by (you guessed it) Minku Chowdhary. Rosemary Kimmel, longtime Program Operations Specialist in Department of Neurological Surgery at UWMC, and Dave Pitkethly had the correct answer almost as quickly. Professor John Loeser was nearly as fast, but less accurate, stating that their studies were of frontal lobe function (see below).

Yale in the 1930s was a center of neurophysiologic research, with John Fulton perhaps the best remembered of the neurophysiology faculty. As an undergraduate, Arthur Ward worked in the laboratory of another prominent neurophysiologist, J. G. Dusser de Barenne. Dr. Ward's first publication, on reflex inhibition of the knee-jerk from distention of several intestinal organs, resulted from this experience.

Dusser de Barenne J, Ward A Jr. Reflex inhibition of the knee-jerk from intestinal organs. *Am J Physiol* 1937;120:340-4.

It was during this experience that Ward met Fulton, as well as Dr. Percival Bailey, then on sabbatical from the University of Chicago, and one of the first M.D., Ph.D.'s in neurosurgery. It was Dr. Bailey who encouraged the young undergrad Arthur Ward to go to medical school, and eventually to complete a neurosurgical residency at the Montreal Neurological Institute with Wilder Penfield.



# New Puzzler



As a reward for his tenacious attention to the Googelization of every one of the Puzzlers for the past several issues, I have invited the permanently disqualified from winning the \$75 million Grand Prize Dr. Chowdhary to be the Guest Puzzler Editor for this issue. Minku wonders if any of you can answer this question:

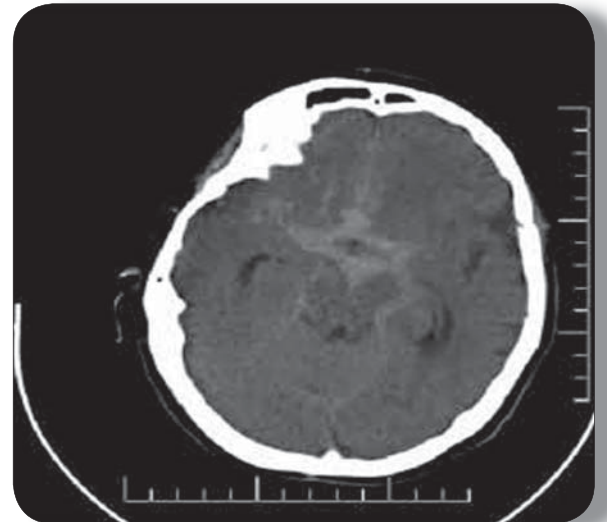
The effects of mixing a killer of the Muppets with a substance discovered by a pharmacist in Padua, Italy were shown to be an effective cancer treatment (if you believe the author of the article!) Why would you not believe the author, and what does this all have to do with a prominent death around Thanksgiving of this past year, and Marie Curie?

## Open Clinical Trials in the Department of Neurological Surgery

### *The Effects of Tiopronin on 3-Aminopropanal Level & Neurologic Outcomes after Subarachnoid Hemorrhage*

Tiopronin is approved by the US Food and Drug Administration for use in patients at risk for one type of kidney stone and it is approved for other uses in Europe. Use of Tiopronin in humans for this study is considered experimental. We have permission from the FDA to use this medication in this specific study of subarachnoid hemorrhage.

Because animal studies have shown that tiopronin reduces the level of the neurotoxin 3AP as well as reducing infarct size, we aim to show in this study that tiopronin is safe in aSAH patients, that it actually gets into the fluid surrounding the brain (cerebrospinal fluid) after ingestion by mouth, and that it reduces the levels of the neurotoxin 3AP. Patients who have recently had an aneurysmal subarachnoid hemorrhage may qualify as possible participants in this study. It is anticipated that 60 patients will be enrolled in the trial.



*Subarachnoid Hemorrhage*

For more information, or to participate in this study, please contact the Principal Investigator or Research Coordinator:

**Principal Investigator:**

Dr. Louis Kim  
Assistant Professor  
Department of Neurological Surgery  
University of Washington  
Phone: (206) 744-9302

**Research Coordinator:**

Alana Clark, BA  
Department of Neurological Surgery  
University of Washington  
Phone: (206) 744-9364

*Continued on next page 'A Clinical Trial'*

Continued from previous page.

## *A Clinical Trial of Unruptured Brain Arteriovenous Malformations*

The purpose of this study is to determine if doing an interventional procedure (for example surgery) or medical management is better for patients who are found to have an intracranial cranial arteriovenous malformation. The main risk of an AVM in the brain is sudden rupture, although some AVMs may cause neurological symptoms (such as seizures and headaches) without bleeding. Patients who have a brain AVM that has never bled and can be treated with one of the available interventions, (i.e. surgery or medical management) may be eligible to participate in the study. The purpose of this trial is to determine which is better: interventional techniques (surgery) to eradicate the AVM, or following the AVM medically.

For more information, or to participate in this study, please contact the Principal Investigator or Sub-Investigators:

### **Principal Investigator:**

**Laligam Sekhar, MD**

Professor

Department of Neurological Surgery

University of Washington

Phone: (206) 744-9330

### **Sub-Investigators:**

**Louis Kim, MD**

Assistant Professor Department of Neurological Surgery

University of Washington

Phone: (206) 744-9302

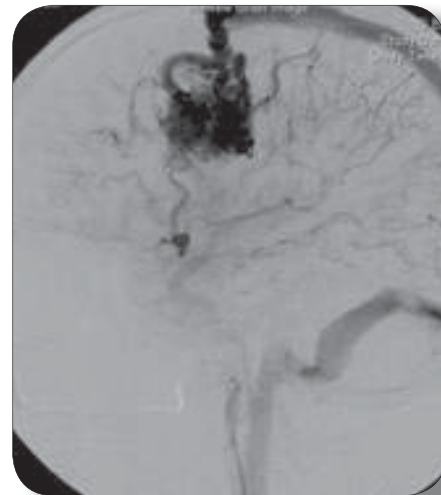
**Basavaraj V. Ghodke, MD**

Associate Professor

Neuroradiology

University of Washington

Phone: (206) 543-3520



*Arteriovenous Malformation*



*Arteriovenous Malformation*

I remain anxious to publish stories, photos, and ideas about what all of us do in caring for sick people. Please let me know the memories of your time here, what you are up to now, and ways in which you think we might find further common ground. Please contact us at these email addresses:

Editor: Richard Rapport  
rappor@uw.edu

Associate Editors: James Pridgeon  
pridgeon@uw.edu

Mary Gilbert  
mmg@uw.edu