

JAMES M. JOHNSTON, JR., M.D.



EDUCATION

---

1998-2002	<b>Washington University School of Medicine</b>	St. Louis, MO
	Doctor of Medicine	
1995-1996	<b>University of Colorado</b>	Denver, CO
	Post-baccalaureate studies in biochemistry, physics, organic chemistry	
1993-1994	<b>Institut d'Etudes Politiques</b>	Paris, France
	Auditeur libre, Geopolitical Studies	
1991-1995	<b>Washington and Lee University</b>	Lexington, VA
	Bachelor of Arts, Summa cum laude, French	

PROFESSIONAL EXPERIENCE

---

2010-present	<b>University of Alabama-Birmingham</b> <b>Department of Neurosurgery</b> <b>Children's of Alabama</b>	Birmingham, AL
	Assistant Professor, Pediatric Neurosurgery Medical Director, ThinkFirst Alabama Research Chairman, Alabama State Concussion Task Force Co-Director, Children's of Alabama Sports Concussion Clinic Co-Founder, Alabama Medical Device Forum Certified, Pediatric Gamma Knife Radiosurgery	
2009-2010	<b>Saint Louis Children's Hospital</b> <b>Washington University Department of Neurosurgery</b>	St Louis, MO
	Fellow, Pediatric Neurosurgery and Spinal Deformity	
2008-2009	<b>Washington University Department of Neurosurgery</b>	St. Louis, MO
	Chief Resident, Neurosurgery	
2006-2008	<b>Washington University School of Medicine</b> <b>Mallinckrodt Institute of Radiology</b> <b>Neuro-Imaging Laboratories</b> <b>PIs Marcus Raichle, MD/Joshua Shimony MD, PhD</b>	St. Louis, MO
	Postdoctoral research fellow	
July-Dec 2007	<b>Beaumont Hospital Department of Neurosurgery</b>	Dublin, Ireland
	Neurosurgical Registrar	

2003-2006	<b>Washington University Department of Neurosurgery</b> Resident, Neurosurgery	St. Louis, MO
2002-2003	<b>Washington University Department of Surgery</b> Intern, General Surgery	St Louis, MO
Summer 1999	<b>CDC/Arctic Investigations Program</b> Research Biologist	Anchorage, AK
1997	<b>Hôpital Aristide le Dantec/Université de Dakar</b> Laboratory technician/protocol translator	Dakar, Senegal
1996-1998	<b>Fox Chase Cancer Center</b> Database programmer/research liaison Molecular epidemiology of hepatitis B	Philadelphia, PA/Dakar, Senegal

#### AWARDS RECEIVED

---

Clinical Research Award, Washington University Department of Neurosurgery Research Symposium, 2008

Robert L. Grubb, Jr., M.D Award in Clinical Excellence, Washington University Department of Neurosurgery, 2006

Resident Teaching Award, Washington University Department of Neurosurgery, 2006

Dr. Richard Brookings Medical School Prize, 2001

Alpha Omega Alpha, Washington University School of Medicine, 2001

Distinguished Alumni Scholarship, Washington University School of Medicine, 1998-2002

Departmental Award in Organic Chemistry, University of Colorado-Denver, 1996

Phi Beta Kappa, Washington and Lee University, 1995

Full tuition academic scholarship, Washington and Lee University, 1991-1995

#### PUBLICATIONS

---

**Johnston JM**, Ning H, Cooper L, Vaidya U, Kim JE, Kim YH, Reynolds R, Leonard D, Soni B, Andrews JB. Simulation, fabrication and impact testing of a novel football helmet padding system that decreases rotational acceleration, *manuscript in revision*

Patel D, Tubbs RS, **Johnston JM**, Shannon C, Blount J. Fast sequence MRI studies for surveillance imaging in pediatric hydrocephalus, **J Neurosurg Pediatr**, *in press*

Zandian A, Haffner M, **Johnston J**, Rozzelle CJ, Tubbs RS, Loukas M. Endoscopic third ventriculostomy with/without choroid plexus cauterization for hydrocephalus due to hemorrhage, infection, Dandy-Walker malformation, and neural tube defect: a meta-analysis. **Childs Nerv Syst.** 2013 Dec 28.

Brown ST, Wilkins SA, Falola MI, Crowther MJ, Gran KA, Shannon CN, **Johnston JM**. Establishment of a multidisciplinary concussion program: impact of standardization on patient care and resource utilization, **J Neurosurg Pediatr**, 2013 Nov 15.

Watson CC, Griessenauer CJ, Tubbs RS, **Johnston JM**. Lambdoidal synostosis in dizygotic twins with a family history of undiagnosed connective tissue disorder, **Childs Nerv Syst.** 2013 Nov 6.

Naftel RP, Safiano NA, Falola M, Shannon CN, Wellons JC, **Johnston JM**. Technology preferences and socioeconomic disparities among caregivers of children with hydrocephalus, **J Neurosurg Pediatr**, 2013 Jan;11(1):26-36.

Chern JJ, Miller JH, Tubbs RS, Whisenhunt TR, **Johnston JM**, Wellons JC, Rozzelle CJ, Blount JP, Oakes WJ. Massive pediatric neurosurgical injuries and lessons learned following recent tornado disaster in Alabama. **J Neurosurg Pediatr**, 2011 Dec;8(6):588-592.

Dorward IG, Titus JB, Limbrick DD, **Johnston JM**, Bertrand ME, Smyth MD. Extratemporal, non-lesional epilepsy in children: postsurgical clinical and neurocognitive outcomes. **J Neurosurg Pediatr**, 2011 Feb;7(2):179-188

Limbrick DD, Mathur A, **Johnston JM**, Munro R, Sagar J, Inder T, Park TS, Leonard JR, Smyth MD. Neurosurgical treatment of progressive post-hemorrhagic ventricular dilatation in preterm infants: a 10-year single-institution study. **J Neurosurg Pediatr**, 2010 Sep; 6(3):224-30

Jalilian L, **Johnston JM**, Limbrick DD, Steger-May K, Powers A, Smyth MD. Complete Versus Anterior Two-Thirds Corpus Callosotomy in Children: Analysis of Outcome. **J Neurosurg Pediatr**, 2010 Sep;6(3):257-66

Roland J, Brunner P, **Johnston JM**, Schalk G, Leuthardt EC. Passive real-time identification of speech and motor cortex during awake craniotomy. **Epilepsy Behav**, 2010 May;18(1-2):123-128

Zhang D, **Johnston JM**, Fox MD, Leuthardt EC, Smyth MD, Snyder AZ, Raichle ME, Shimony JS. Resting functional connectivity magnetic resonance imaging for preoperative motor mapping in tumor resection. **Neurosurgery** 2009 Dec; 65(6 Suppl):226-236

**Johnston JM**, Limbrick DD, Shimony JS, Park TS. Cerebellar Rosai-Dorfman Granuloma Mimicking Lhermitte-DuClois: Case Illustration. **J Neurosurg Pediatr**. 2009 Aug; 4(2):118-120

Shimony J, Zhang D, **Johnston JM**, Fox MD, Roy A, Leuthardt EC. Resting state spontaneous fluctuations in brain activity: a new paradigm for presurgical planning using fMRI. **Acad Radiology** 2009 May; 16(5): 578-83

**Johnston JM**, Vaishnavi SN, Smyth MD, He BJ, Zhang D, Zempel JM, Shimony JS, Snyder AZ, Raichle ME. Loss of resting interhemispheric functional connectivity after complete section of the corpus callosum **J Neurosci** 2008 Jun 18;28(25):6453-8

**Johnston JM**, Chicoine MR, Dacey RG, Zipfel G. Aneurysmal subarachnoid hemorrhage with hydrocephalus presenting with acute paraparesis: report of six cases and review of the literature. **Neurosurgery** 2008 Dec; 63(6):1119-24

**Johnston JM**, Vyas NA, Kane AA, Molter DW, Smyth MD. Giant intracranial teratoma with epignathus in a neonate: case report and review of literature. **J Neurosurg** (3 Suppl Pediatrics) 2007 Mar; 106: 232-236

**Johnston JM**, Ojemann JG, Park TS, Trevathan E, Arnold S, Zempel JM, Thio LL, Wong M, Gurnett CA, Ess K, Mangano FT, Smyth MD. Complications of invasive subdural electrode monitoring at Saint Louis Children's Hospital, 1994-2005. **J Neurosurg** (5 Suppl Pediatrics) 2006 Nov; 105:343-37, 2006

Park TS, **Johnston JM**. Surgical Techniques of Selective Dorsal Rhizotomy for Spastic Cerebral Palsy: Technical Note. **Neurosurgical Focus**, 2006 Aug; 21 (2): E7, 2006

### **Book Chapters**

Brown M, **Johnston JM**. Intracranial Vascular Malformations. **Comprehensive Review in Pediatric Critical Care**. Society of critical care medicine, September 2012

**Johnston JM**, Wellons JC. The Chiari Malformations and Hydrocephalus. **The Chiari Malformations**. Springer, Oakes and Tubbs, Springer 2012

**Johnston JM**, Smyth MD. Corpus Callosotomy. **Essential Techniques in Operative Neurosurgery**. Jandial, McCormick, Black (eds), 2010

Park TS, **Johnston JM**. Surgical Techniques of Selective Dorsal Rhizotomy for Spastic Cerebral Palsy. **Neurosurgical Operative Atlas: Pediatric Neurosurgery**, Second Edition, 2008

**Johnston JM**, Smyth MD, McKinstry R. Overview of Imaging in Pediatric Epilepsy. **Pediatric Epilepsy: Diagnosis and Therapy**, Third Edition; Pellock, Dodson, Bourgeois, Nordli, Sankar (eds), 2008

Refai D, **Johnston JM**, Chicoine M. Neurosurgical Emergencies **Washington Manual of Surgery**, 5<sup>th</sup> Edition; Lippincott Williams &

Wilkins, 2007

### **Abstracts/Presentations**

Lebensberger J, Griessenauer C, **Johnston JM**. Encephaloduro-arteriosynangiosis for patients with sickle cell disease. Meeting of the American Society of Hematology, December 2013

Gill C, Miller JH, Niemann J, Brown S, Crowther M, Ferguson D, **Johnston JM**. Predictors of prolonged recovery following sports related concussion: a single center retrospective study. Meeting of AANS/CNS Section on Pediatric Neurological Surgery, Toronto, December 2013

Gill C, Ray P, Grant J, Blount J, Rozzelle C, **Johnston JM**. Incidence of delayed intracranial hypertension in children with non-syndromic sagittal synostosis following open calvarial vault reconstruction. Meeting of AANS/CNS Section on Pediatric Neurological Surgery, Toronto, December 2013

Gordon AS, Agee BS, Rizk E, Rozzelle CJ, **Johnston JM**. Reliability of Marshall CT score in pediatric patients with suspected traumatic brain injury. Meeting of AANS/CNS Section on Pediatric Neurological Surgery, Toronto, December 2013

Patel D, **Johnston JM**, Blount J. Fast sequence MRI (fsMRI) studies for surveillance imaging in pediatric hydrocephalus. Meeting of AANS/CNS Section on Pediatric Neurological Surgery, Toronto, December 2013

Hankinson TC, Foreman NK, **Johnston JM**, Handler M, Gump J. Advancing Treatment for Pediatric Craniopharyngioma: Pilot Study Identifying Biological Targets for Medical Therapy. American Academy of Neurological Surgery, Newport Beach, California, September 2013

**Johnston JM**, Ning H, Vaidya U, Andrews B, Soni B, Kim JE, Cooper L., Multidisciplinary Collaboration to Improve Football Helmet Design: Simulation, Materials Development and Impact Testing. Alabama Composites Conference, Birmingham, June 2013

**Johnston JM**, Ning H, Vaidya U, Andrews B, Soni B, Kim JE, Cooper L. Simulation, Fabrication and Impact Testing of a Novel Helmet Padding System that Decreases Rotational Acceleration from Side Impacts, Neurosurgical Society of Alabama, Pensacola, Florida, May 2013

**Johnston JM**, Ning H, Vaidya U, Andrews B, Soni B, Kim JE, Cooper L. Simulation, Fabrication and Impact Testing of a Novel Helmet Padding System that Decreases Rotational Acceleration from Side Impacts. American Society of Pediatric Neurosurgeons, Kauai, February 2013.

**Johnston JM**, Ning H, Cooper L, Vaidya L, Kim JE, Kim YH, Reynolds R, Leonard D, Soni B, Andrews JB. Simulation, Fabrication and Validation of a Novel Football Helmet Padding System that Significantly Decreases

Rotational Acceleration. ASTM Symposium on the Mechanism of Concussion in Sports, Atlanta, November 2012

Brown ST, Wilkins SA, Falola MI, Crowther MJ, Gran KA, Shannon CN, **Johnston JM**. Establishment of a multidisciplinary concussion program: impact of standardization on patient care and resource utilization. Annual Meeting of AANS/CNS Section on Pediatric Neurological Surgery, St Louis, November 2012

Rizk EB, Tubbs RS, Oakes J, Rozzelle C, Blount J, Wellons J, Menendez J, Johnston JM. The Cervical Spine in Klippel-Feil Syndrome: A Natural History Study. Annual Meeting of AANS/CNS Section on Pediatric Neurological Surgery, St Louis, November 2012

Rizk EB, Tubbs RS, Oakes J, Dias M, Johnston JM, Blount J, Wellons J, Rozzelle C. Tectal Gliomas: Natural History and Progression of the Disease. Annual Meeting of AANS/CNS Section on Pediatric Neurological Surgery, St Louis, November 2012

Rizk EB, Tubbs RS, Oakes J, Wellons J, Chern J, **Johnston JM**, Rozzelle C, Blount J. Endoscopic Fenestrations for Suprasellar Arachnoid Cysts. Annual Meeting of AANS/CNS Section on Pediatric Neurological Surgery, St Louis, November 2012

Rizk EB, Tubbs RS, Oakes J, Rozzelle C, **Johnston JM**, Blount J, Wellons J. Arnold Chiari Type I Malformation Presenting with Sleep Disordered Breathing in Well Children. Annual Meeting of AANS/CNS Section on Pediatric Neurological Surgery, St Louis, November 2012

**Johnston JM**. Update on Sports Concussion. Annual Meeting of the Neurosurgical Society of Alabama, Gulf Shores, Alabama, May 2012

Wilkins SA, Shannon C, Falola M, Reed G, Jones H, King A, Davis D, **Johnston JM**. Defining variation in management of children with sports-related concussion: first step to standardization. Annual Meeting of AANS/CNS Section on Pediatric Neurological Surgery, Austin, December 2011

**Johnston JM**, Cooper L, Soni B, Andrews JB, Vaidya U, Kim YH, Kim JE, Ning H. UAB HelmetWerx: Preliminary results from a multidisciplinary team to improve helmet design. UAB Center for Clinical and Translational Science Scientific Symposium, Birmingham, November 2011

**Johnston JM**, Smyth MD, Sagar J, Park TS, Leonard JR, Munro R, Limbrick DD. Comparison of ventricular reservoirs and ventriculosubgaleal shunts in the management of post-hemorrhagic hydrocephalus. Annual Meeting of AANS/CNS Section on Pediatric Neurological Surgery, Boston, December 2009

**Johnston JM**, Pizoli CD, Shimony J, Limbrick DD, Smyth MD. Preoperative motor mapping with resting state functional connectivity magnetic resonance imaging. Annual Meeting of AANS/CNS Section on

Pediatric Neurological Surgery, Boston, December 2009

Jalilian L, Limbrick DD, Steger-May K, **Johnston JM**, Powers A, Smyth MD. Complete versus anterior 2/3<sup>rd</sup> corpus callosotomy in children: analysis of outcome. Annual Meeting of AANS/CNS Section on Pediatric Neurological Surgery, Boston, December 2009

Limbrick, DD, **Johnston, JM**, Ojemann, JG, Park, TS, and Smyth, MD. Functional hemispherotomy: rates of seizure-freedom and analysis of seizure recurrence. Neurosurgery in the Rockies. Beaver Creek, Colorado, February, 2008

Limbrick, DD, Narayan, P, **Johnston, JM**, Ojemann, JG, Park, TS, and Smyth, MD. Outcomes following hemispherotomy: the St. Louis Children's Hospital experience. Annual Meeting for the International Society for Pediatric Neurosurgery, Liverpool, UK, September 2007.

**Johnston JM**, Vaishnavi SN, Smyth MD, Zhang D, He BJ, Zempel JM, Shimony JS, Snyder AZ, Raichle ME. Loss of resting interhemispheric functional connectivity after complete corpus callosotomy in a six year old child with intractable epilepsy. Society for Neuroscience, San Diego, California, November 2007

Ray WZ, Ashley W, Blackburn S, **Johnston JM**, Wright N. Complications associated with use of rhBMP-2 with  $\beta$ -triphosphate calcium in a polyetherketone spacer in anterior cervical fusion. Neurosurgery in the Rockies, Vail, Colorado, March 2007

**Johnston JM**, Smyth MD. CT/MR Image Fusion for Neuronavigation in Subdural Grid-Based Epilepsy Surgery. Annual Meeting of AANS/CNS Section on Pediatric Neurological Surgery, Denver, November 2006

**Johnston JM**, Wright NM, Leonard JR. Complications, Fusion Rate and Neurologic Outcome after Surgical Stabilization of Thoracolumbar Fractures in Children. Annual Meeting of AANS/CNS Section on Pediatric Neurological Surgery, Denver, November 2006

**Johnston JM**, Chicoine M, Rich KM, Dacey RG, Zipfel G. Subarachnoid Hemorrhage, Hydrocephalus and Paraparesis: Report of Five Cases and Review of the Literature. Congress of Neurological Surgeons Annual Meeting, Chicago, October 2006

**Johnston JM Jr.**, Mangano FT, Arnold ST, Park TS, Ojemann JG, Thio LL, Trevathan E, Wong M, Zempel JM, Leonard JR, Smyth MD. Surgical Complications Associated with Subdural Electrode Monitoring in Pediatric Epilepsy: A Ten Year Experience at St. Louis Children's Hospital 1994-2004. American Association of Neurological Surgeons Annual Meeting, April 2005, New Orleans, LA

**Johnston JM**, Mangano F, Arnold S, Trevathan E, Ojemann JG, Park TS, Smyth MD. Complications of Invasive Electrode Monitoring at Saint Louis Children's Hospital: 1994-2004. Annual Meeting of the AANS/CNS

Section on Pediatric Neurological Surgery, San Francisco, December 2004

London, W. T., Evans, A. A., McGlynn, K. A., Ross, E., Shen, F-M., Chen, G-C., Chen, G., Gao, L-L., M'Boup, S., Dramé, B., Diallo, A., Niouky, G., Fall, C., **Johnston, J.** Differences in risk of hepatocellular carcinoma (HCC) between Senegal and Haimen City, P. R. China: The malaria-peanut hypotheses. *Cancer Epidemiol. Biomarkers Prev.* 7:177, 1998

London, W. T., Evans, A. A., Niouky, G., Fall, C., Gao, L-L., Chen, G., McGlynn, K. A., Ross, E., Balschem, A., Shen, F-M., Chen, G-C., Diallo, A., N'Dao, M., Ka, M., Dramé, B., **Johnston, J.**, M'Boup, S. Differences in risk of hepatocellular carcinoma between Senegal and Haimen, City, P.R. China. Conference on hepatitis B immunization and prevention of cirrhosis and hepatocellular carcinoma in Sub-Saharan Africa. Serrekunda, The Gambia, March 11-14, 1998

### **Invited Presentations/Faculty**

Principles of Surgical Neuro-Oncology. Radiation Oncology Resident Lecture Series, University of Alabama at Birmingham, February 2014

Faculty, Athletic Head Injuries: Return to Play Luncheon Seminar, Annual Meeting of the Congress of Neurological Surgeons, San Francisco, October 2013

Update on Sports Concussion. Brock Invited Lecturer, DCH Medical Center, Tuscaloosa, Alabama, January 2013

**Johnston JM.** Diagnosis and Management of Arteriovenous Malformations, Aneurysms and Moyamoya Syndrome in Children. Medical Grand Rounds, Huntsville Hospital for Women and Children, January 2013

### **Grant Funding**

11/2013-11/2015 UAB Health Services Foundation General Endowment Fund Award, Balance, Eye and Mild Traumatic Brain Injury Facility, \$175000 (PI – James Johnston, MD)

4/2013-4/2015 NIH R25 HD78327-01A1, Biomedical Engineering Training Grant, Co-PI (PI – Alan Eberhardt, PhD)

7/2006-6/2007 NIH/NRSA T32 NS 007205-25, Nervous System Development and Injury, Application of resting state functional connectivity MRI and diffusion tensor imaging in children with epilepsy (PI – David M. Holtzman, MD)

### **Patents**

PCT/US2012/36577: **Systems and Methods for Attenuating Rotational Acceleration of the Head**, filed May 4, 2012. Application pending.



### **Thesis Committee Membership**

Jilian Niemann, The Sports Concussion Assessment Tool-Second Edition (SCAT2) and its Relationship with Attention and Working Memory in a Pediatric Population. Clinical Psychology Doctoral Program, Department of Psychology, University of Alabama at Birmingham

Nicole Safiano, Evaluation of outcomes following decompressive craniectomy for traumatic brain injury in children, Department of Epidemiology, School of Public Health, University of Alabama at Birmingham

### **Professional Memberships**

American Association of Neurological Surgeons, 2003-present

Congress of Neurological Surgeons, 2003-present

Society for Neuroscience 2007-present

Pediatric Neurocritical Care Research Group 2010-present

### **Languages**

English, French

### **Research Interests**

Traumatic brain injury/Sports concussion

Helmet development (neuroscience founder of Helmet Werx, UAB School of Engineering)

Medical device development (co-founder, Alabama Medical Device Forum)

### **Subspecialty Interests**

Traumatic brain injury and sports concussion

Vascular neurosurgery including revascularization for moyamoya

Brain tumor surgery and gamma knife radiosurgery

Complex spinal surgery

Craniofacial reconstruction including minimally invasive endoscopic surgery