

Department of Physical Medicine and Rehabilitation
New Jersey Medical School

July 2011



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Dept. of PM&R

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Chair's Corner

*Greetings NJMS Alumni, Friends,
and Colleagues,*

This completes my 24th year as the Founding Chair of the Department of Physical Medicine and Rehabilitation at the UMDNJ-New Jersey Medical School. I will complete my 25th year at our medical school in May 2012, and soon after will retire from my position with fond memories of a wonderful professional career. You are the first to know, as I have not officially submitted my resignation. As Frank Sinatra proudly sang, "I did it my way with few regrets."

As I look back on my career in New Jersey, my legacy is my textbook (now in the 5th edition) and the careers of 200 individuals I helped to train. Many have accepted leadership positions and will be instrumental in shaping our specialty in the future.

Trainee graduation was held on June 1st once again at the Richfield Regency. The 22nd Annual Resident, Fellow, and Postdoctoral Fellow Research Day was also held on June 1st where 16 platform presentations and 20 posters were presented. All seven of our graduating seniors will begin fellowships. Starting July 1, 2011, our department will have 28 residents, 5 clinical fellows, and 7 postdoctoral fellows. My final graduation ceremony is scheduled for June 6, 2012.

The department held its 23rd Annual Board Review Course on March 17-25, 2011, with 161 participants coming from 18 states (New York was the largest contingent with 60 attending) as well as from Canada, Puerto Rico and Hong Kong. This course will be offered again in March 2012. Others will decide its future beyond that date.

Our department remains actively involved in teaching within all four years of the medical school curriculum. For first-year medical students, we have taught clinical correlations within the anatomy course (including correlations with musculoskeletal ultrasound). During the second-year, we teach both within the lectures and the hands-on workshops for the musculoskeletal physical exam skill as part of the CORE-2 course. This involves having nine to ten PM&R physicians per afternoon directing the musculoskeletal workshops. Third-year medical students do elective rotations within our department as well as obtain exposure to our department during their rotations within other clinical rotations such as medicine and surgery.

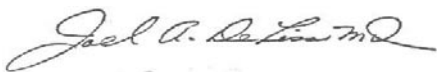
For fourth-year medical students, our department has a mandatory two-week clerkship. Last year, we also had 102 elective clerkships (two to four weeks) such as Pediatric, Ambulatory Care, Alternative Medicine, Research, Sports Medicine, Neuromuscular Disease, etc. We have continued our implementation of a checklist that documents each medical student's competencies in musculoskeletal physical exam skills.

The NJMS PM&R Interest Group is very active and has more than 40 members throughout the four years. This medical school is now second in the number of students who enter into physiatrist residencies. Our residency program remains strong. We are, however, having problems getting the required 200 EMG procedures for each resident prior to graduation. The PM&R floor at the East Orange VA hospital is currently being completely renovated to help meet our nation's demands for wounded veterans returning home from the Mid-East wars. Our specialty has now become even more important in the entire nation's Veterans Administration Medical Centers. The Kessler Foundation has completed its renovation at Essex Green to house the Kessler Research Center and has bids for the remodeling of the former research space at the Kessler West facility. Construction is to begin in September and is projected to take six months.

I am hoping to update the PM&R department's history before I leave. It would be helpful to have a committee add more historical knowledge and personality to the document. If you would like to be part of this project, please let me know.

The state has an advisory committee that is supposed to give its report prior to September 1st as to whether UMDNJ should be divided with RWJ Medical School and the Public Health School going to Rutgers University and SOM possibly merging with the new Camden Medical School and with Rowan University. If these changes occur, then there are questions regarding what happens in Newark with all our health sciences which include the medical school, dental school, graduate school and the allied health school and what will be our relationship with NJIT and with Rutgers-Newark. The future of the University Hospital is part of these discussions. Currently, St. Barnabas system is doing due diligence concerning taking over the management. Hence, this is a period of stress and uncertainty. Our medical school currently has interim chairs in the following departments: Anesthesiology, Internal Medicine, Family Medicine, Psychiatry, Neurosurgery, Emergency Medicine, Surgery, and Cellular Biology. Five departments have chairs close to and over retirement age (Neurosurgery, Radiology, Pathology, Ob-Gyn, and PM&R) which raises some serious issues for our school. Hopefully, many of these issues will be addressed by the administration and NJ state government, and you will know the status of the school's future.

As always, my best wishes to all,



Joel A. DeLisa, M.D., M.S.
Professor and Chair

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We are putting together a directory of those of you who practice in and around the tri-state area for when we get requests for referrals. Kindly send your practice contact information to truppvc@umdnj.edu, so we can include you in our directory.

*f*rom the residency director...

Greetings! Hope all of you are well. This month marks the beginning of my sixth year here as Program Director! I am proud to see another class graduate and go out into the world.

Our seniors yet again got amazingly competitive fellowships, and showed once more the variety of settings we have interests in as a program. All seven graduating seniors are doing a fellowship this year; one at UC Davis in Neuromuscular Medicine, one here at Children's Specialized Hospital in Pediatric Rehabilitation, and five in musculoskeletal/pain/sports/spine (one with Dr. Chou in Haverstown, PA, one with Dr. Bodor in Napa Valley, CA, one here at UMDNJ in the DOC, one at Hospital for Special Surgery in NYC, and one at U. Pittsburgh). The incoming residents are a great group, and will add to the excellence of our program (more about them on the following page).

This year we had a wonderful event: two babies born right around graduation. Congratulations and welcome to the world babies Chen and Esrick (Lipa)!! We anticipate that they will be starting their PM&R residencies in 2039. ;)

We have recently made some changes in the program based on resident feedback, which hopefully will improve the experiences residents have in the program. We have a new portal on the UMDNJ Gateway, which allows us to share documents, post pictures, and maintain everything in an electronic version that can easily be updated. We changed orientation to involve more practical skills, including on-call emergency stations, and a four-hour workshop on tracheostomies. We tapped into the knowledge of our experts, the R2s and R3s, to help teach the new R1s, and so far the feedback has been great! We are updating journals clubs by including "key" articles, and having suggested reading lists for every module in the didactics. And we are revamping our 6 week research course which starts in September, to include more practical things such as how to complete IRB forms, and how to use EndNote for writing

papers. We pride ourselves on always striving to improve our program, and welcome feedback from anyone to make positive changes!

Please visit our website at: http://njms.umdnj.edu/departments/physical_medicine_rehabilitation/residency. We are always interested in your feedback and suggestions for improving our residency; please feel free to contact me at susan.garstang@va.gov with any ideas for things we need to do better.

Best wishes,
Susan Garstang, M.D.

Note: For those of you alumni out there who may be seeking a job change, please be aware that I keep every job offer that comes into our office (several per month) from all over the country. I'd be happy to share these with you at your request. Just e-mail me with your preferred location or job type and I'll send you the information.



Pediatric Rehabilitation Medicine Fellowship

We have submitted our application for accreditation for our two-year Pediatric Rehabilitation Medicine fellowship at Children's Specialized Hospital. It will go to the committee at the August 25th RRC meeting for review and we optimistically await their approval. We should hear the status of the decision within a week of that meeting. Within 60 days of that decision, we should receive a detailed letter with any findings.



Alumni Donations

Thanks to the following individual for his contribution to the PM&R Residency Training Program Fund.

Boqing Chen, M.D., Ph.D.



FACULTY & ALUMNI NEWS

Congratulations to Dr. Bruce Diamond who has been promoted to Full Professor in the Department of Psychology at William Paterson University in New Jersey

Congratulations to Dr. Susan Johnson who has been promoted to Full Professor in the Department of Department of Psychology at the University of North Carolina at Charlotte.

Congratulations to **Ben Levy, M.D.** and his wife, Elizabeth on the birth of their daughter, **Sarah Elizabeth Levy**. Little Sarah was born on December 3, 2010, weighing 7 lb. 4 oz.



Alon Terry, M.D. shares that the family's newest addition, **Kiran Julia Terry** graced them with her presence on January, 29, 2011. Little Kiran also joins her sister.

Congratulations to **Bethany Lipa, M.D.** and husband, Mike on the birth of their first child, **Ethan James Esrick**. Little Ethan was born on June 8, 2011, at 8:40 p.m., weighing 7 lb. 9 oz. and measuring 18 in. We wish the family well as they make their way cross country to Sacramento.



Congratulations to **SuAnn Chen, M.D.** and her husband, Jim on the birth of their first child, **Annabella HuiRu Yang**. Little Annabella was born on May 31, 2011, weighing 7 lb. 7 oz. and measuring 20.5 in.

Little Ethan (4 weeks old) and little Annabella (3 weeks old) had their first "play date" on Father's Day, and thanks to Aunt Anupama (Anupama Ganga, M.D., Class of '11), they were dressed in matching shirts!



PM&R Department Welcomes Incoming Residents...

The faculty and trainees welcome the following members of the PM&R residency class of 2014, who entered our program on July 1, 2011.

Adam Bartlett, M.D.

University of Colorado Health Sciences Center School of Medicine, CO

PGY-1: University of Colorado, CO

Gwen Nicole Lacerda, M.D.

University of California, Davis, School of Medicine, CA

PGY-1: University of Maryland Medical Center, MD

Alice Hon, M.D.

UMDNJ-New Jersey Medical School, NJ

PGY-1: UMDNJ- New Jersey Medical School, NJ

Pooja Mundrati, D.O.

UMDNJ-School of Osteopathic Medicine, NJ

PGY-1: Advocate Illinois Masonic, IL

Steven Neuman, M.D.

UMDNJ-Robert Wood Johnson Medical School, NJ

PGY-1: Jersey Shore University Medical Center, NJ

Rana Rand, D.O.

UMDNJ-School of Osteopathic Medicine, NJ

PGY-1: Lankenau Hospital, PA

Miranda Smith, M.D.

New York Medical College, NY

PGY-1: Sound Shore Medical Center, NY

Justin Waltrous, M.D.

University of Maryland School of Medicine, MD

PGY-1: Franklin Square Hospital Center, PA

...and Bids Farewell to the Class of 2011!

Graduating Residents

Katherine Bentley, M.D. – Pediatric Rehab Fellowship, UMDNJ/Children's Spec, NJ

Santiago Campos, M.D. – Fellowship, Hospital for Special Surgery, NY

Anupama Ganga, M.D. – Musculoskeletal/Pain/Sports/Spine Fellowship, Napa Valley, CA

Kelly Scollon-Grieve, M.D. – Interventional Spine/Pain Fellowship, York, PA

Benjamin Levy, M.D. – Musculoskeletal Fellowship, UMDNJ/DOC, NJ

Bethany Lipa, M.D. – Neuromuscular Medicine Fellowship, UC Davis, CA

Amrish Patel, M.D., PT – Fellowship, University of Pittsburgh, PA

Graduating Clinical Fellows

James Chang, M.D. (MSK/Pain) – Private Practice, NJ

Miguel Coba, M.D. (SCI) – TBI, Kessler, NJ

Maya Evans, M.D. (Peds) – Pediatric, Medical College of Wisconsin

Fernando Gonzalez, M.D. (MSK/Pain) – Private Practice, NY

Michael Rhee, M.D. (TBI) – Penn Institute for Rehab Med, PA

Janel Solano, D.O. (MSK/Pain) – Private Practice, NJ

PM&R Department Welcomes Incoming Clinical Fellows

Katherine Bentley, M.D. – Pediatric Rehabilitation Residency: UMDNJ-New Jersey Medical School, NJ

Wesley Chae, M.D. – Spinal Cord Injury Medicine Residency: University of Florida, FL

Mohammad Dorri, M.D. – MSK/Pain/Spine Residency: Shahid Beheshti University of Medical Sciences, Tehran, Iran

Benjamin Levy, M.D. – MSK/Pain/Spine Residency: UMDNJ-New Jersey Medical School, NJ

Salvador Portugal, D.O. – MSK/Pain/Spine Residency: University of Pikeville Kentucky College of Osteopathic Medicine, KY

2011 Postdoctoral Fellowship Graduates

Where are they?

Elizabeth Galletta, Ph.D. – Hunter College/CUNY School of Public Health and Visiting Scientist at Kessler Foundation

Denise Krch, Ph.D. – Kessler Foundation in the Neuropsychology and Neuroscience Laboratory

Victoria Leavitt, Ph.D., – Kessler Foundation in the Neuropsychology and Neuroscience Laboratory



Faculty Appointments

We are pleased to welcome Dr. Jordan Grafman as Professor of Physical Medicine and Rehabilitation. Dr. Grafman received his B.A. degree from Sonoma State University in California and his Ph.D. from the University of Wisconsin-Madison in 1981. Immediately following his graduation, Dr. Grafman entered the US Air Force and became the

Neuropsychology Chief on the Vietnam Head Injury Study, a multidisciplinary study conducted at Walter Reed Army Medical Center in Washington, D.C. In 1986, he joined the NINDS as a Senior Staff Fellow in the Clinical Neuropsychology Section. In 1989, Dr. Grafman became Chief of the Cognitive Neuroscience Section in the NINDS. In January of 2011, Dr. Grafman joined the Kessler Foundation Research Center as the Director of the Traumatic Brain Injury Research Laboratory. He is an elected fellow of the American Psychological Association and has received the Defense Meritorious Service Award, the National Institutes of Health Award of Merit, and most recently the NIH Director's Award for his work on Traumatic Brain Injury. Dr. Grafman's Laboratory is attempting to identify the nature of representational knowledge stored in the human prefrontal cortex including social and executive functions, the types of cognitive neuroplasticity that occur during learning and recovery from brain damage, the relationship between genetic predisposition and outcomes after traumatic brain injury.



Faculty Publications

Stucki G, Reinhardt JD, Imamura M, Li J, **DeLisa JA**. Developing the International Society of Physical and Rehabilitation Medicine (ISPRM): Following Through. *J Rehab Med*. 2011;43:1-7.

DeLisa JA, Silverstein R, Thomas P. Commentary: More Implications of the 2008 Amendments to the Americans with Disabilities Act: Influencing Institutional Policies, Practices and Procedures. *Acad Med*. 2011;86:768-772.



DeLisa's Physical Medicine and Rehabilitation: Principles and Practice, 5th Edition. (DeLisa editor Emeritus) Editor in Chief: Walter R Frontera MD, PHD. Publisher: Lippincott Williams and Wilkins, WoltersKluwer Health, Copyright year: © 2011 Pages: 2278

Arnett, P.A. & **Strober, L.B.** (2011). Cognitive and neurobehavioral features in multiple sclerosis. *Expert Review of Neurotherapeutics*, 11(3), 411-424.

Alvarez, T.L., Vicci, V.R., Alkan, Y., Kim, E.H., Gohel, S., **Barrett, A.M.**, **Chiaravalloti, N.**, Biswal, B.B. (2011, e-pub ahead of print) Longitudinal Study of Vision Rehabilitation in Convergence Insufficiency. *Optometry and Vision Science*. 87(12):E985-E1002.

Anderson, K.D., Acuff, M.E., Arp, B.G., Backus, D., Chun, S., Fisher, K., Fjerstad, J.E., Graves, D.E., Greenwald, K.,

Groah, S.L., Harkema, S.J., Horton, J.A. 3rd, Huang, M.N., Jennings, M., Kelley, K.S., Kessler, S.M., **Kirshblum, S.**, Koltenuk, S., Linke, M., Ljungberg, I., Nagy, J., Nicolini, L., Roach, M.J., Salles, S., Scelza, W.M., Read, M.S., Reeves, R.K., Scott, M.D., Tansey, K.E., Theis, J.L., Tolfo, C.Z., Whitney, M., Williams, C.D., Winter, C.M., Zanca, J.M. (2011). United States (US) multi-center study to assess the validity and reliability of the Spinal Cord Independence Measure (SCIM III). *Spinal Cord*. Mar 29. [Epub ahead of print]

Barbey, A.K., and **Grafman, J.** (2011). An integrative cognitive neuroscience theory of social reasoning and moral judgment. *Wiley Interdisciplinary Reviews: Cognitive Science*, 2 (1), 55-67.

Barbey, A., Koenigs, M., & **Grafman, J.** (2011). Orbitofrontal contributions to human working memory. *Cerebral Cortex*, 21 (4), 789-795.

Bauman, W.A., **Kirshblum, S.**, Cirnigliaro, C., **Forrest, G.F.**, & Spungen, A.M. (2010). Underestimation of bone loss of the spine with anterior-posterior dual energy x-ray absorptiometry in persons with spinal cord injury. *Journal of Spinal Cord Medicine*, 33(3), 214-20.

Botticello, A.L., Chen, Y., Cao, Y., & Tulskey, D.S. (2011). Do communities matter after rehabilitation? The effect of socioeconomic and urban stratification on well-being after spinal cord injury. *Archives of Physical Medicine and Rehabilitation*, 92, 464 - 471.

Carlozzi, N.E. (2010). Kaufman Adult Intelligence Test. In J. S. Kreutzer, J. DeLuca, & B. Caplan (Eds.), *Encyclopedia of Clinical Neuropsychology* (pp. 1392-1394). New York: Springer.

Carlozzi, N.E. (2010). Porteus Maze. In J. S. Kreutzer, J. DeLuca, & B. Caplan (Eds.), *Encyclopedia of Clinical Neuropsychology* (pp. 1964-1966). New York: Springer.

Carlozzi, N.E. (2010). Shipley Institute of Living Scale. In J. S. Kreutzer, J. DeLuca, & B. Caplan (Eds.), *Encyclopedia of Clinical Neuropsychology* (pp. 2287-2289). New York: Springer.

Chen, P., Goedert, K.M., Murray, E., Kelly, K., Ahmeti, S., & **Barrett, A.M.** (2011). Spatial bias and right hemisphere function: Sex-specific changes with aging. *Journal of the International Neuropsychological Society*, 17, 1-8.

DeFina, P.A., Fellus, J., Thompson, J.W.G., Eller, M., Sclaro Moser, R., Frisina, P.G., Schatz, P., **DeLuca, J.**, Zigarelli-McNish, M. & Prestigiacomo, C.J. (2010). Improving outcomes of severe disorders of consciousness. *Restorative Neurology and Neuroscience*, 28,769-780.

DeLuca, J. & Chiaravalloti, N.D. (2011). Cognitive rehabilitation in subjects with multiple sclerosis. In M.P. Amato (Ed.), *Cognitive Impairment in Multiple Sclerosis* (pp. 87-98). Milano, Italy, Elsevier.

DeLuca, J., Rogers, H.L., & Arango Lasprilla, J.C. (2011). Fibromyalgia, chronic fatigue, and related "neuastenic" disorders. In G. Goldstein, T.M. Incagnoli, & A.E. Puente (Eds.), *Contemporary Neurobehavioral Syndromes* (pp. 237-265). New York & East Sussex, Great Britain: Psychology Press.

Duff, K., Paulsen, J.S., Beglinger, L.J., Langbehn, D.R., Wang, C., Stout, J.C., Ross, C.A., Aylward, E., **Carlozzi, N.E.**, Queller, S., & the Predict-HD Investigators of the Huntington Study Group. (2010). "Frontal" behaviors before the diagnosis Huntington's disease and their relationship to markers of disease progression. *The Journal of Neuropsychiatry and Clinical Neurosciences*, 22, 196-207.

Emmons, R.R., Garber, C.E., Ciriigliaro, C.M., **Kirshblum, S.C.**, Spungen, A.M., Bauman, W.A. (2011) Assessment of measures for abdominal adiposity in persons with spinal cord injury. *Ultrasound Med Biol.* Mar 24. [Epub ahead of print]

Forchheimer, M.B., Richards, J.S., Chiodo, A.E., Bryce, T.N., & **Dyson-Hudson, T.A.** (2011). Cut point determination in the measurement of pain and its relationship to psychosocial and functional measures after traumatic spinal cord injury: A retrospective model spinal cord injury system analysis. *Archives of Physical Medicine and Rehabilitation*, 92, 419-424.

Fortis, P., Goedert, K.M., & **Barrett, A.M.** (2011). Prism adaptation differently affects motor-intentional and perceptual attentional biases in healthy individuals. Epub before print: doi:10.1016/j.neuropsychologia.2011.05.020. *Neuropsychologia*

Foye PM. Causality of Concomitant Coccyx Pain and Lumbar Pain. *J Bone Joint Surg [Br]*. Published online 12-20-10 at: <http://web.jbjs.org.uk/cgi/eletters/92-B/12/1622#5412>

Foye PM. Stigma Against Patients with Coccyx Pain. *Pain Med.* 2010 Dec;11(12):1872.

Foye PM. Ganglion Impar Pulsed Radiofrequency for Coccyx Pain. *Journal of Pain and Symptom Management.* April 2011. 41(4):e11-12.

Genova, H.G., Wylie, G.R. & DeLuca, J. (2011). Neuroimaging of fatigue. In R.C. Cohen and L. Sweet (Eds.), *Brain Imaging in Behavioral Medicine and Clinical Neuroscience* (pp. 369-381). New York: Springer.

Genova, H.M. (2010). Ischemic Penumbra. In Kreutzer JS, DeLuca J, & Caplan B (Eds), *Encyclopedia of Clinical Neuropsychology*, (p. 1360). New York: Springer.

Goverover, Y., **Chiaravalloti, N.D., DeLuca, J.** (2010). A pilot study to examine the use of self-generation to improve learning and memory in persons with traumatic brain injury. *American Journal of Occupational Therapy*, 64(4), 540-6.

Heinemann, A. W., **Tulsky, D.**, Dijkers, M., Brown, M., Magasi, S., Gordon, W., & DeMark, H. (2010). Issues in participation measurement in research and clinical applications. *Archives of Physical Medicine and Rehabilitation*. 91(9 Suppl), S72-6.

Henderson, C. E., Higginson, J. S., & **Barrance, P. J.** (2011). Comparison of MRI-based estimates of articular cartilage contact area in the tibiofemoral joint. *Journal of Biomechanical Engineering*, 133(1), 014502.

Kirshblum, S., & Nieves, J. (2010). Spinal cord injuries. In S. Cuccurullo (Ed.), *Physical Medicine and Rehabilitation Board Review*. (2nd edition, pp. 535-608). New York: Demos Medical Publishing.

Kirshblum, S., Shea, M., & McCarthy, S. (2010). Wheelchairs. In S. Cuccurullo (Ed.). *Physical Medicine and Rehabilitation Board Review*. (2nd edition, pp. 832-848). New York: Demos Medical Pub.

Kirshblum, S., Botticello, A., Lammertse, D.P., Marino, R.J., Chiodo, A.E., & Jha, A. (2011). The impact of sacral sensory sparing in motor complete spinal cord injury. *Archives of Physical Medicine and Rehabilitation*, 92, 376-383.

Kisala, P. A. & **Tulsky, D.S.** (2010). Opportunities for CAT applications in medical rehabilitation: development of targeted item banks. *Journal of Applied Measurement*, 11(3), 315-30.

Krch, D., Sumowski, J.F., DeLuca, J., Chiaravalloti, N. (2011). Subjective memory in multiple sclerosis is associated with initial-trial learning performance. *Journal of the International Neuropsychological Society*, 17, 557-561.

Krueger, F., Pardini, M., Huey, E.D., Raymont, V., Solomon, J., Lipsky, R.H., Hodgkinson, C.A., Goldman, D., & **Grafman, J.** (2011). The role of the met66 BDNF Allele in the recovery of executive functioning following combat-related traumatic brain injury. *Journal of Neuroscience*, 31 (2), 598-606.

La Fontaine, M.F., Wecht, J.M., Ciriigliaro, C. M., **Kirshblum, S. C.**, Spungen, A.M., & Bauman, W. A. (2011). QT/RR Coherence Is Associated with Testosterone Levels in Men with Chronic Spinal Cord Injury. *Neuroendocrinology*.

Jan 21. [Epub ahead of print]

Le, K., Coehlo, C., Mozeiko, J., & **Grafman, J.** (2011). Measuring goodness in story narratives. *Journal of Speech, Language, and Hearing Research*, 54 (1), 118-126.

Leavitt, V.M. (2010). Advanced Progressive Matrices. In J.S. Kreutzer, J. DeLuca, & B., Caplan (Eds), *Encyclopedia of Clinical Neuropsychology* (pp.43-44). New York: Springer.

Leavitt, V.M. & Perrine, K. (2010). Epilepsy. In J.S. Kreutzer, J. DeLuca, & B. Caplan (Eds), *Encyclopedia of Clinical Neuropsychology* (pp. 962-964). New York: Springer.

Leavitt, V.M. (2010). Colored Progressive Matrices. In J.S. Kreutzer, J. DeLuca, & B. Caplan (Eds), *Encyclopedia of Clinical Neuropsychology* (pp.643-644). New York: Springer.

Leavitt, V.M. (2010). Raven's Progressive Matrices. In J.S. Kreutzer, J. DeLuca, & B. Caplan (Eds), *Encyclopedia of Clinical Neuropsychology* (pp. 2114-2115). New York: Springer.

Marino, R.J., Burns, S., Graves, D.E., Leiby, B.E., **Kirshblum, S.**, & Lammertse, D.P. (2011). Upper- and lower-extremity motor recovery after traumatic cervical spinal cord injury: An update from the national spinal cord injury database. *Archives of Physical Medicine and Rehabilitation*, 92, 369-375.

Moll, J., Zahn, R., de Oliveira-Souza, R., Bramati, I.E., Krueger, F., Tura, B., Cavanagh, A., & **Grafman, J.** (2011). Impairment of prosocial sentiments is associated with frontopolar and septal damage in frontotemporal dementia. *Neuroimage*, 54, 1735-1742.

Myaskovsky, L., Brukitt, K.H., Lichy, A.M., Ljungberg, I.H., **Fyffe, D.C.**, Ozawa, H., Switzer, G.E., Fine, M.J., & Boninger, M.L. (2011). The association of race, cultural factors, and health-related quality of life in persons with spinal cord injury. *Archives of Physical Medicine and Rehabilitation*, 92, 441-448.

Nash, M.S., Lewis, J.E., **Dyson-Hudson, T.A.**, Szlachcic, Y., Yee, F., Mendez, A.J., Spungen, A.M., & Bauman, W.A. (2011). Safety, tolerance, and efficacy of extended-release niacin monotherapy for treating dyslipidemia risks in persons with chronic tetraplegia: A randomized multi-center clinical trial. *Archives of Physical Medicine and Rehabilitation*, 92, 399-410.

Nash, M.S., Lewis, J.E., **Dyson-Hudson, T.A.**, Szlachcic, Y., Yee, F., Mendez, A.J., Spungen, A.M., & Bauman, W.A. (2011). Safety, tolerance, and efficacy of extended-release niacin monotherapy for treating dyslipidemia risks in persons

with chronic tetraplegia: A randomized multi-center clinical trial. *Archives of Physical Medicine and Rehabilitation*. Jan 28. [Epub ahead of print]

Nolan, K.J. & **Yarossi, M.** (2011). Weight transfer analysis in adults with hemiplegia using ankle foot orthotics. *Prosthetics and Orthotics International*, 35(1).

Nolan, K.J., Savalia, K.K., **Yarossi, M.**, & Elovic, E.P. (2010). Evaluation of a dynamic ankle foot orthosis in hemiplegic gait: A case report. *NeuroRehabilitation*, 27(4):343-350.

Pardini, M., Krueger, F., Hodgkinson, C., Raymont, V., Ferrier, C., Goldman, D., Strenziok, M., Guida, S., & **Grafman, J.** (2011). Prefrontal cortex lesions and MAO-A modulate aggression in penetrating brain injury. *Neurology*, 76(22 March), 1038-1045.

Petterson, S. C., **Barrance, P.**, Marmon, A. R., Handling, T., Buchanan, T. S., & Snyder-Mackler, L. (2011). Time course of quad strength, area, and activation after knee arthroplasty and strength training. *Med Sci Sports Exerc*, 43(2), 225-231.

Sumowski, J.F., Wood, H., **Chiaravalloti, N.**, **Wylie, G.R.**, **Lengenfelder, J.**, & **DeLuca, J.** (2010). Retrieval practice: A simple strategy for improving memory after traumatic brain injury. *Journal of the International Neuropsychology Society*, 16(6), 1147-50.

Voelbel, G.T., Goverover, Y., Gaudino, E.A., Moore, N.B., **Chiaravalloti, N.**, & **DeLuca, J.** (2011). The relationship between neurocognitive behavior of executive functions and the EFPT in individuals with Multiple Sclerosis. *Occupational Therapy Journal of Research: Occupation, Participation and Health*, 31(1) (suppl), S30-S37.

Walker, H. & **Kirshblum, S.** (2010) Spasticity due to disease of the spinal cord: Pathophysiology, epidemiology and treatment. In A. Brashear & E. Elovic (Eds.), *Spasticity: Diagnosis and Management*. New York: Demos Medical Publishing.

Waring, W., Biering-Sorensen, F., Burns, S., Donovan, W., Graves, D., Jha, A., Jones, L.A.T., **Kirshblum, S.**, et al. (2010). 2009 review and revisions of the International Standards for Neurological Classification of Spinal Cord Injury. *Journal of Spinal Cord Medicine*, 33(4), 346-52.

Wilde, E.A., Whiteneck, G.G., Bogner, J., Bushnik, T., Cifu, D.X., Dikmen, S., French, L., Giacino, J. T., Hart, T., Malec, J. F., Millis, S.R., Novack, T.A., Sherer, M., **Tulsky, D. S.**, Vanderploeg, R.D., & von Steinbuechel, N. (2010). Recommendations for the use of common outcome measures in traumatic brain injury research. *Archives of Physical Medicine and Rehabilitation*, 91(11), 1650-1660.

Wylie, G.R. (2010). Functional Magnetic Resonance Imaging (fMRI). In J.S Kreutzer, J. DeLuca, & B. Caplan (Eds), *Encyclopedia of Clinical Neuropsychology* (pp. 1115-1118). New York: Springer.



**Advanced Technology Improves Mobility for
Persons with Neurological Injuries**
Carol Ann Murphy
Communications Office, Kessler Foundation

Kessler is the first rehabilitation center in the nation to use new robotic gait training system.

Kessler Foundation and Kessler Institute for Rehabilitation are the first rehabilitation centers in the U.S. to implement the new LokomatPro V6, an advanced robotic training system designed to improve mobility in individuals with spinal cord injury, brain injury, stroke, multiple sclerosis or other neurological diseases. This new system, developed by Hocoma, a Swiss-based manufacturer, offers appropriate patients an intensive program of activity-based therapy that has been shown to improve overall function, movement and walking.

“Robotic therapy is a new frontier in the treatment of individuals with spinal cord injury, stroke and other conditions that result in motor deficits,” explained Steven Kirshblum, M.D., Medical Director and Director of Spinal Cord Injury Services at Kessler Institute for Rehabilitation. “The Lokomat is one device that is helping to take locomotor training to a new level. This new system will offer patients greater range of motion, variable speeds and augmented feedback, which allows users to visualize themselves walking in a variety of environments, all of which can contribute to greater functional gains. In addition, we will be studying its role in helping to prevent secondary complications of paralysis by improving strength, mobility, respiratory and bladder function, circulation and bone density.”

The LokomatPro will be used collaboratively by Kessler’s clinical and research teams. Gail Forrest, Ph.D., Interim Director of Human Performance and Movement Analysis Research at Kessler Foundation, said, “The real advantage of our unique collaboration with Kessler Institute is that our researchers can work with the clinicians to collect data while patients have access to innovative interventions. The feedback we get from patients, therapists and our research scientists will help us to further refine and tailor treatment and foster new areas of research.”

Researchers at Kessler will use the LokomatPro’s investigative tools to facilitate the collection of more quantifiable data about the recovery of function using this robotic device. They also plan to share the results of their

advanced research with Hocoma, which, according to Dr. Forrest, could “potentially lead to further modifications or developments of the system’s hardware and software, enable more rapid adaptations and enhance its applications in gait training research and rehabilitation.”

The LokomatPro integrates a treadmill, harness, robotic leg supports and augmented feedback to optimize the therapy experience. The patient is harnessed within the robotic exoskeleton over the treadmill and, once the machine is powered, leg supports move the individual’s legs in a walking motion. Augmented feedback enables users to visualize themselves walking in virtual environments, such as in a park or on a beach, a new feature designed to motivate and improve performance.

All of the components of the LokomatPro are adjustable, including the height, walking speed and loading on the feet. Sensory feedback enables the system to adjust to the degree of assistance required by each individual. While the Lokomat brand has been on the market since 2001, the LokomatPro is the first to offer touch screen controls and upgradable hardware and software that will increase the system’s capabilities.



Kessler Foundation Research Center Renovation

The renovation project at 1199 Pleasant Valley Way will impact all 20,000 square feet of leased space, some of which remains as it was after the original construction in 1990. The existing space was not developed using a comprehensive space plan. As space needs were identified assignments were made based on the best possible fit. Consequently much of the space is not designed for its current usage. Over the years space has been assigned based on availability. This has left the Stroke lab staff scattered over two floors and TBI spread throughout the second floor. As you can imagine this is not optimal from a lab perspective. The plan as it exists today addresses this issue by providing each lab with a concentration of staff workspaces contiguous to the Director’s office and their research lab spaces.

The proposed project is a difficult one since renovations will be ongoing while we are continuing current operations. It will require special measures to protect areas surrounding the renovations and a phasing plan to minimize the impact on research projects. These additional measures have a significant effect on the budget. The first step will be to move the Education Office to 300 Executive Drive and the Medical Library into new quarters in KIR. This will create the swing space that will be used to move staff in and out while their space is being renovated. While the greater part of the first floor will be demolished to allow for a major redesign; a

significant amount of the existing walls will be retained on the second floor as a cost saving measure.

In addition to a new, bright, conditioned work environment and lab space concentrations, the following improvements will be incorporated in the proposed project:

- Space to meet the staffing requirements of the new TBI Director
- Lab and Office for a new Director (SCI or HPEL)
- Office space for an Assistant Director of the Stroke Lab
- New ABI Mobility Lab
- Expanded Gait and Body Weight Support Labs
- Enhanced data capture as a result of additional force plates, imbedding the force plates in the floor, and redesign of the HVAC ductwork to gain additional ceiling height
- Additional exam/testing rooms
- “Beaconette” at the 1199 PVW site

In summary we believe that the proposed plan provides for the most effective and efficient use of the Pleasant Valley Way space.



Chimps, Bonobos, and Humans: Food for Thought *John Bach, M.D. & Erika Birdsall, MS4*

Last year we presented the mathematical chances for a human to acquire a sexually transmitted fatal condition, that is, life. Homo sapiens, having evolved from woodland apes and existing as a distinct ape species for the last 160,000 years, has not been around very long when you consider that frogs have been here for 240 million years and earlier ape species for 54 million. Our great ape genus includes chimpanzees, bonobos, gorillas, orangutans, and gibbons, the latter being the only other monogamous ape species. Anyone questioning our membership in the ape community has only to consider that we have only 50 different genes than chimps. For those of you like the OJ Simpson jury who are not impressed with DNA, put “People of Walmart” into your search engines.

It is widely felt that our brand of intelligence may have developed from the need for coping with the demands of an increasingly complex social environment in the larger and larger human groupings that were necessitated for protection from predators for bipedal animals and latter by work specialization. Chimps live in groups of 20 to 120 and humans in groups of 150 for foragers like the Achè people of the Amazon. Even today, despite living in countries, humans maintain interpersonal relationships with only 125 to 200 people on the average.

It should be understood that non-homo sapiens apes as well, that is, chimpanzees, bonobos, orangutans, and even gorillas are capable of symbolic thought, self-concept as with self-recognition in mirrors, learning complex motor patterns for preparing food, political structure, and both political and social deception for self-interest. Other apes as well pout, become annoyed when tricked or deceived, demonstrate empathy, and, for the most part, manifest higher moral standards than humans.

Humans, chimps, and bonobos live in communities of 20 to 120 and females get dispersed while males stay with kin. All three argue and politic, cooperative hunt, share tools, and do warfare. All three can also learn symbolic communication like sign language, respond appropriately to human commands, understand intent, cause and effect, and recognize themselves in a mirror. The Broca area of our brains permit speech. The Wernicke area permits non-verbal communication by facial muscles, tongue, and larynx. Non-human primates have both areas. The learning achieved by apes imitating other apes and humans is identical to learning language by repeating words. All three practice cooperative hunting more so for political capital and for impressing prospective mates than for need for sustenance. Chimpanzees, bonobos, and humans need little if any meat for good nutrition. High ranking chimps, bonobos, and humans who capture animals for food share or dispense the food to others as political capital.

Neither chimpanzees, bonobos, nor monogamous gibbons or humans practice fidelity. According to Karen B. Strier, fidelity is a phenomenon that seems to occur only when males can impose it on females, either directly through their greater social power or brute force, or indirectly through controlling the resources that females and their offspring require. The offspring of monogamous gibbon couples and couples in other monogamous species generally often have about half of offspring fathered by males external to the couple. The males are equally unfaithful.

All young male chimps stay in their groups, defend their communities’ territory, and attack and often kill any chimp, male or unreceptive female that comes near. Like humans, some groups may raid others’ territories and kill isolated strangers. Multiple chimps hold down the stranger while others bite him or her to death. Virtually no other primates, with an exception of mountain gorillas, defend their territories in groups like chimps and humans. The males’ hierarchy depends on their relationships with other males. Apes and other species including our own often share the kill for the social advantages of political advancement and future assistance. Social, Machiavellian intelligence is currently the explanation for human brain evolution with the most support. Newly pubescent females around age 10 often mate with most if not all of the males of their community. Chimpanzees, bonobos, and many humans mate hundreds of times before

conception. Chimp mating, however, lasts 7 seconds and they mate 6 to up to 50 times a day. Receptive females with their red butts are of interest to males 13 days per month. The highest ranking males tend to dominate and act possessive to females in their most fertile few days. Females mate with as many males as possible, including after the delivery, so that many males think that the offspring might be theirs and so not kill the child. Females benefit from male protection and involvement with their infants only from males with whom they have mated. Females don't, however, mate with their kin even when aggressively pursued by them to do so!

The second species in our group, bonobos, are similar in some ways to chimps and to humans but they prefer to "make love and not war." Whereas chimps and gibbons mate only during fertile periods, bonobo females mate all of the time. The society is female-dominated and peaceful with no observed intergroup raiding, infanticide, or cannibalism as with chimpanzees. When bonobos fight, they literally kiss and make-up, hold-hands, groom, and mount and often become closer companions in the future. When a bonobo male approaches the group with food, the males develop erections and community has sex before, immediately after, and minutes after eating the food. Mating is both heterosexual and homosexual, oral, genital massages, and tongue kissing. Bonobos also use sex to relieve stressful encounters, for reconciliation, and to overcome aggression, a little like Aristophanes' *Lysistrata* in which the Athenian wives withheld sex from their husbands to force them to negotiate peace with Sparta. Bonobo females use sex to dominate males. The sons of the alpha-females are advantaged by the highly ranking females to high male status. Thus, bonobo society is matriarchial and matrilineal since there is no inkling to a bonobo male who the father of any child might be. There are no intergroup raids or violence, only sex anytime of the cycle. Although chimpanzee females may have sex up to 50 times per day, bonobos do it 10 times more on the average. Sex serves to bond all bonobos together, particularly the females. Since bonobos feed on fruit, meat, and ubiquitous foliage like leaves, food is plentiful and females are always receptive so there is no need for male bonding or dominance. What is the point of guarding a highly desirable but occupied female, or wait for her to become receptive, when all females everywhere are always ready for action. In addition, where paternity is impossible for a male to decipher, there is no impetus for infanticide.

Gibbons, being monogamous like us, have smaller testicles and produce fewer sperm (to have to combat with other male's sperm in the females) since monogamy better assures to males with smaller testicles that their offspring will succeed, avoid infanticide, and be protected into adulthood and has similar advantages for protection and provisioning the females. As pointed out, despite monogamy, almost half of all offspring raised by gibbon males don't have the male's genes. This is different for us for whom only 10% of males

are raising offspring of other males without knowing it, about 1-3% in upper middle-class society but over 30% in Africa for example. Thus, with all the qualities thought to have made humans the elite species, *Homo sapiens* are not so different from its brother species, only far more destructive and immoral. References for all of this material are available on request.



PM&R Fights Pandemic Influenzas ***Eric Altschuler, M.D., Ph.D.***

One of the most interesting things about PM&R is that we see patients for rehabilitation from all specialties in medicine and with any and all diseases and medical conditions that can lead to loss of function. While it is well-known that the 1918 influenza killed more people than any other infectious disease event in the history of our species, it is not often appreciated that those disabled was also high. Thus, my interest in the 1918 influenza stems not only from a general interest in the history of medicine, but also in an event specifically relevant to our field.

As prevention is the ultimate rehabilitation finding methods to prevent or treat the 1918 pandemic influenza virus, should it recur, is most important from a PM&R as well as a general medical perspective.

Indeed, as noted previously in these pages a couple of years ago I was one of the principal authors on a study published in *Nature* (1, 2) in which we were able to isolate antibodies to the 1918 influenza from aged (nonagenarian) survivors. In addition to isolating monoclonal antibodies from the aged survivors of the pandemic we did standard ELISA studies to look for antibodies against the pandemic strain. We found that about 85% of individuals born before 1918 had antibodies to the 1918 virus (which had been reconstructed, indeed "resurrected" from a body of a flu victim dug up from the Arctic some years previously and samples from the Armed Forces Institute of Pathology) confirming the near universal rate of infection during pandemic. As well, in one of those "side experiments" that referees, especially for top journals, often require from authors--and that many complain about but that I have recently noted (3) authors should be grateful for the suggestions--we found that about 10% of people born after 1918 also had antibodies against the pandemic strain.

It turns out that the antibodies in individuals born after 1918 that reacted to the 1918 pandemic flu strain were not "non-specific."

There is some cross reactivity of "regular" seasonal influenza viruses circulating up until the middle 1940s and the 1918 pandemic strain. This apparently "minor" and "side" result we

found turns out to have saved potentially millions of lives and many more from grave disabilities.

Readers are probably aware that during the 2009 H1N1 ("swine") influenza pandemic there was a serious shortage of vaccine and that sufficient vaccine was never produced during the pandemic. The way this shortfall was dealt with was by rationing the precious vaccine that was available. Now, for seasonal flu the first groups to be vaccinated are the elderly--those over 65. Seasonal influenza very, very rarely causes serious disease or mortality in healthy young adults and only the most elderly get priority for vaccine. The rationing for the 2009 H1N1 vaccine was the opposite! The elderly were the last to get the vaccine and young adults--first pregnant women, then young individuals with medical comorbidities then healthy young adults were to get the vaccine first. Why? Amazingly, not only was there cross-reactivity between the 1918 pandemic virus and seasonal strains up to the 1940s, but there was also cross-reactivity of these strains from the 1940s (and the 1918 virus) with the 2009 H1N1 pandemic strain! Using an antibody from one subject I had enrolled in the 1918 study (2) (I enrolled all the subjects) my colleagues were able to show with sequence and mutation analysis, animal studies and ultimately crystal structures (4) that the cross reactivity of the 1918 pandemic strain, seasonal strains up to the middle 1940s and the 2009 pandemic strain was due to lack of glycosylation at a site on one of flu's surface proteins where there is glycosylation in later seasonal flus--including the current circulating flu strain. So individuals who were exposed to flus from the early 1940s and earlier had antibodies to the 2009 H1N1 pandemic flu and didn't need a vaccine! Furthermore, either by having had the 2009 H1N1 flu or getting the now readily available vaccine against the 2009 flu may also protect individuals and indeed the entire population against the 1918 pandemic strain should it recur.

I am working now on identifying the strains of influenza that caused the pandemic of 1889-90 and earlier pandemics in the Nineteenth Century (5). The great physicist Neils Bohr (son of the physiologist after whom the Bohr effect of hemoglobin's response to pH is named after) noted, "prediction is difficult, especially about the future." Thus, to prevent death and disability from future flu pandemics it is incumbent upon us to learn as much as possible about past ones as lessons for the future. I was thus most happy when one NJMS fourth year medical student, Aesha Jobanputra (now Aesha Jobanputra, MD), who had done lab research with myself and colleagues on influenza the summer after her first year in medical school, and who also had an interest in the history of medicine (5) ask me earlier this year to be her preceptor for a Fourth Year elective on the history of medicine. Kenneth Swan, MD, a surgeon and faculty member at NJMS established this course and is still the course director. Dr. Swan is a retired United States Army officer and accomplishes things without talking about his accomplishments not surprisingly come naturally to Dr. Swan.

I didn't find out until long after Aesha's elective was over, and indeed until we presented at the Medical History Society of New Jersey May meeting, that until Aesha, Dr. Swan had also served as preceptor for every student taking the elective! It was an honor to be the second preceptor for that course and also most productive! We decided to study historically influenza pandemics from the early Nineteenth Century and also the Eighteenth Century. Aesha was tasked with looking for full text versions of known primary source accounts of early Nineteenth Century influenza pandemics. Remarkably, using Google Books she found a new previously unappreciated primary source for the 1831-32 flu pandemic (6). Regrettably, the author of the source was not only a physician, but slave owner, a combination which should never have existed in the past and never should in the future.

The source does provide a cogent description of that pandemic and one that has lessons for future pandemics: "At this very moment, I hear from every quarter of innumerable cases of influenza, and very many of a complicated and dangerous character. This ill-fated pestilence appears to assail all ages, sexes, and habits; the saint and the sinner alike; very few have escaped, and a larger number have been summoned into eternity, through its malignant agency." As well, during Aesha's rotation I noticed that an epidemic that hit the new colony in Savannah, Georgia in July of 1733 has not been appreciated or studied from a medical perspective.

References:

1. Altschuler EL. How to prepare now for a recurrence of the 1918 influenza epidemic: storing lymphocytes from 1918 survivors to use as antibody factories. *Med Hypotheses*. 2005;65(3):627-8.
2. Yu X, Tsibane T, McGraw PA, House FS, Keefer CJ, Hicar MD, Tumpey TM, Pappas C, Perrone LA, Martinez O, Stevens J, Wilson IA, Aguilar PV, Altschuler EL, Basler CF, Crowe JE Jr. Neutralizing antibodies derived from the B cells of 1918 influenza pandemic survivors. *Nature*. 2008 Sep 25;455(7212):532-6. Epub 2008 Aug 17.
3. Altschuler EL. Peer reviews: in praise of referees. *Nature*. 2011 May 26;473(7348):452.
4. Xu R, Ekiert DC, Krause JC, Hai R, Crowe JE Jr, Wilson IA. Structural basis of preexisting immunity to the 2009 H1N1 pandemic influenza virus. *Science*. 2010 Apr 16;328(5976):357-60. Epub 2010 Mar 25.
5. Altschuler EL, Kariuki YM, Jobanputra A. Extant blood samples to deduce the strains of the 1890 and possibly earlier pandemic influenzas. *Med Hypotheses*. 2009 Nov;73(5):846-8. Epub 2009 May 24.

6. Hazzard TF. Remarks on the Influenza (Catarrhus a Contagione) of 1831 and '32; with a simple mode of treatment. The Southern Agriculturist, 1832 (April) V: 184-88.



Philosophical Savings

Judge your success by what you had to give up in order to get it.

Spend some time alone every day.

Remember that silence is sometimes the best answer.

Once a year, go some place you've never been before.

Culinary Corner

Linguine with Tapenade, Tomatoes, and Arugula

Serves 4

- Coarse salt and ground pepper
- 1 pound linguine
- 1 tablespoon extra-virgin olive oil, plus more for serving
- 3/4 pound cherry tomatoes, halved
- 1/4 cup plus 2 tablespoons tapenade
- 2 cups baby arugula
- 2 tablespoons chopped fresh parsley
- 1 1/2 ounces feta, crumbled (1/4 cup)



In a large pot of boiling salted water, cook linguine according to package instructions. Drain pasta. In pot, heat oil over medium. Add tomatoes and cook, stirring occasionally, until slightly softened, about 3 minutes. Return pasta to pot, stir in tapenade, and cook until heated through. Add arugula and toss to combine. Season with salt and pepper. Divide among four bowls, drizzle with oil, and sprinkle with parsley and feta.

Per serv: 557 cal; 12 g fat (2 g sat fat); 19 g protein; 89 g carb; 5 g fiber

Everyday Food, a Martha Stewart magazine



red, white and blue berry trifle

Serves 8

Active time: 20 min

Total time: 30 min + chilling

- 1 1/2 pounds raspberries (5 cups)
- 3/4 cup confectioners' sugar
- 1/4 cup fresh orange juice (from 1 large orange)
- 10 ounces mascarpone cheese (1-1/3 cups)
- 1 1/4 cups cold heavy cream
- 1/2 teaspoon pure vanilla extract
- Fine salt
- 20 to 24 ladyfingers (from a 7-ounce package), broken into 1-inch pieces
- 3/4 pound blueberries (2 1/2 cups)

¹ In a medium bowl, combine raspberries with 1/4 cup confectioners' sugar and orange juice. With the back of a fork, lightly mash berries to release their juices and let sit 10 minutes. Meanwhile, in a large bowl, stir together mascarpone and 1/2 cup confectioners' sugar until smooth. Whisk in cream, vanilla, and pinch of salt and whisk until soft peaks form, about 4 minutes.

² Cut one or two pieces parchment 1 inch taller than side of an 8-inch springform pan and line inside of pan. Place half the ladyfingers in pan and top with half the raspberry mixture. With a small offset or rubber spatula, spread half the whipped cream over berries. Tap pan gently on counter to remove air bubbles. Repeat with remaining ladyfingers, raspberry mixture, and whipped cream. Top with blueberries and refrigerate until whipped cream is stiff and cookies have softened, about 3 hours (or, tightly covered with plastic, up to 3 days). To serve, unmold trifle and peel away parchment.

Per serv: 534 cal; 33 g fat (18 g sat fat); 8 g protein; 61 g carb; 2 g fiber

Everyday Food, a Martha Stewart magazine

For the pooch in your family



Beef Barley Bones

Baked with real beef, these cookies will have your dog barking and begging for more.



- 1/4 cup (60 ml) vegetable oil
- 1/4 pound (115 g) ground beef
- 1 cup (225 ml) beef broth
- 4 cups (500 g) whole wheat flour
- 2 cups (310 g) cooked barley
- 4 tablespoons dried oregano
- 2 tablespoons Worcestershire sauce

- ¹ Heat vegetable oil in skillet over medium-high heat. Add ground beef and cook, stirring frequently, until meat is brown, about 3 to 4 minutes.
- ² Place cooked beef, including oil, in blender with beef broth. Purée.
- ³ Place flour, cooked barley, beef purée, oregano, and Worcestershire sauce in large bowl. Mix thoroughly to combine.
- ⁴ Roll out dough on floured surface to about ¼-inch (6 mm) thick. Using a cookie cutter, cut into bone shapes. Continue dough scraps and continue to roll out and cut into shapes until all dough has been used.
- ⁵ Place cookies on ungreased foil-lined baking sheets, and bake in a preheated 325° (170° C) oven for 30 to 35 minutes. Turn off oven and let cookies dry in oven for 3 hours or overnight. Makes 5 to 6 dozen cookies.

*Taken from **The Good Food Cookbook for Dogs***

