

TOURO COLLEGE THIRD ANNUAL RESEARCH DAY

ABSTRACTS

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COLLABORATIVE STUDY

C0L01 Authors: Nathan Boucher, PA-C, MS, MPA, CPHQ; Elizabeth Chiariello, PhD, OTR/L; Rivka Molinsky, PhD, OTR/L; Emil Euparadorn, DPT, DSc; Nadja Graff, PhD; Jill Horbacewicz, PT, PhD; Kristin Thomson, MHS, PA-C; Stephanie Dapice-Wong, DPT, OTR/L, CAPS; all from Touro College SHS

Title: Interprofessional Education Symposium on Quality Improvement: A Model for Collaborative Professional Education

Background: The SHS held an interprofessional educational symposium focused on healthcare quality improvement (QI). Students and faculty from Nursing, OT, OTA, PT, PA, and SLP discussed the multidisciplinary nature of collaborative health care and the roles and responsibilities of all members of the team. Objectives: Describe one's own professional role and responsibilities as well as those of other health care professionals. Engage in clinically-relevant collaboration with professionals/students to solve current health care challenges related to QI. Methods: Moderated panel of invited professionals from each discipline discussed health care QI - settings, roles, and audience Q&A. Multidisciplinary break-out groups followed a hypothetical patient through various practice settings with patient care and QI challenges. Groups were assigned ER admission, acute care, sub-acute rehabilitation, or home-care settings. Each group reported on the outcomes of their interdisciplinary discussions. Results: Post-event surveys (n=58). Five point scale ratings of moderator/panelists (4.32) and other event components (4.46) were noted. Qualitative feedback included: importance of team approach to quality care delivery; awareness of overlapping team functions; enhanced familiarity with other disciplines; importance of interdisciplinary communication to clients/patients. Implications: This interprofessional symposium facilitated communication among students, faculty, and practicing professionals regarding roles of healthcare professionals, QI challenges and strategies to address those challenges.

BIOLOGY

BI001 Author: Howard R. Feldman, Ph.D. Biology Department, The Anna Ruth and Mark Hasten School, A Division of Touro College

Title: Derivative Data from Fossil Articulate Brachiopods: Hard and Soft-Part Anatomy

Any meaningful study of brachiopods is predicated on accurate stratigraphic and taxonomic determination. Since brachiopods are such important fossils for studies in paleobiogeography, paleoecology and biostratigraphy it is critical that we obtain as much derivative data from them as possible. The preservation of high quality molds allows for an analysis of micro-ornamentation and muscle scars that are not readily discernible on serial sections. Observations of transverse and longitudinal serial sections enables us to

reconstruct the internal hard-part anatomy, such as the brachidium and crura, as well as distinguish different morphologies of the septalium. Computed tomography scans are a relatively new technique, but unless there is enough contrast between the shell and matrix, results will not be useful. The presence of beekite rings, evidence of weak silicification, indicates that the shell is unstable and hard-part structures are not well-preserved. Missing data makes it difficult to compare specimens from geographically disparate localities.

**BI002 Author: Dr. Milton Schiffenbauer Chairman of Biology NYSCAS
Coauthors: P. Farkas, (SCAS) N. Khaitov(SCAS), M. Sava(SCAS), S. Moshiri(SCAS), L. Amramova(SCAS), J. Konig, D. (LAS-Flatbush) Tiele, I(SCAS). Itzkowitz, Y(LAS-Flatbush) Y.Gross, (SCAS) A. Hussain(SCAS), C. Dickey(SCAS), O. Yefimenko(SCAS); Touro Coll. - New York City, New York, NY. Gleiberman (LAS-Flatbush)**

Background: Natural botanic extracts have an antiviral effect on phages of Gram-negative bacteria. The antiviral effect of the extracts, i.e., Lotus Peak white tea (commercial), Star anise, Pom-X pomegranate (commercial), and a mixture of concentrated fruit extracts is compared to the antiviral effect of purified polyphenol from *Camellia sinensis* tea (PCS). The antiviral effect of PCS is attributed to its high concentration of antioxidants. Method: The natural botanic extract concentrations ranging from 1% to 10% is added to the bacteriophages (i.e. T1, T2, T3, T4, T5, T6, T7, Φ x174, and *Pseudomonas* phage) at room temperature (25°C) for 10 minutes with intermittent mixing. The 0.1 ml of the phage / botanic extract is then added to 0.3 ml of the respective bacteria (i.e., *E. coli* B and C, *Pseudomonas aeruginosa*) in 5 ml of overlay agar and then poured over a TSA plate and allowed to solidify. The plaques formed are counted after 24 hours of incubation at 37°C. Experimental results are compared to a positive control of distilled water in place of the extracts. Results: The comparative study indicates that PCS inactivates bacteriophages more effectively than the other natural botanic extracts. A 9% White tea concentration exhibits 99.9% inactivation of all phages. An 8% concentration of Star anise is 99.9% effective against T1, T3, T4, T5, and T7 phages, whereas a 10% concentration of pomegranate shows 99.9% inactivation with T2, T3, T4, and T7, and partially inactivates the other phages. A 10% concentration of mixed fruit extract does not show a significant antiviral effect on any phages tested. Electron micrographs of PCS, which is the most active antiviral agent, indicated that the capsid layer of the phages is damaged, and in some cases, partially destroyed. Conclusion: In addition to pure polyphenol, white tea which contains polyphenol is also an effective antiviral agent. Star anise and Pom-X are also effective, however, to a lesser degree. Although, the inactivation of the viruses was conducted with bacteriophages (a model system), our results suggest that botanic extracts may have an antiviral effect on human pathogenic viruses. The inactivation of bacteriophage Φ x174 and P153, which is similar to tailless animal viruses, validates and justifies this belief.

BI003 Authors: Dr. Nirupama Narayanan, Biology Department, Touro College, Dr. Matthew Levy, Department of Biochemistry, Albert Einstein College of Medicine, Dr. John Grealley, Department of Genetics, Albert Einstein College of Medicine

Title: Examining Influence of DNA Methylation and Deamination on Genomic Evolution: Spotlight Thermus Thermophiles

The goal of this study was to examine the influence of DNA methylation and deamination on genomic evolution. Thermophiles are microorganisms that live in extreme temperatures. Under these conditions, it is likely that some of their DNA exists in a single-stranded form in certain genomic regions. It would be interesting to know if spontaneous deamination occurs in their DNA mediated by their own cytidine deaminases. Furthermore, we wanted to find out if these enzymes deaminated both single nucleotides and nucleotides in the context of single-stranded DNA. Cdd - a cytidine deaminase from the thermophilic bacterium *Thermus thermophilus* was cloned and characterized. We found that Cdd exhibits deamination activity only on single nucleotides and not on ssDNA. Therefore, it appears unlikely to influence the genomic evolution of these organisms.

BI004 Authors: Michael Papetti, Ph.D. Assistant Professor, Touro School of Osteopathic Medicine, New York, NY Adjunct Assistant Professor, Albert Einstein College of Medicine, Bronx, NY

Title: Regulation of Mybl2 and miRNAs in Differentiating Colon Epithelial Cells in Vitro and in Vivo

We have developed a technique to mechanically isolate intact, unamplified RNA from serial 10 ~~luminal axis of the human~~ ^{luminal axis of the human} colon in vivo. From these transcripts we have determined the expression of several miRNAs predicted to target the 3' UTR of Mybl2, a transcription factor which may play a critical role in the commitment to differentiation in colon epithelial cells. Expression of a subset of miRNAs (miR-365, 324-5p, 588, let-7a1, 331-3p, and 34a) is similar in both differentiating Caco2 cells in vitro and cells isolated from the human crypt-luminal axis in vivo. On the other hand, miR-145 is significantly upregulated in maturing Caco2 cells in vitro but is downregulated in differentiated cells in vivo. Importantly, these results demonstrate that miR-365 likely plays an important part in Mybl2 regulation in differentiating human colon epithelial cells in vivo as we have shown in vitro.

BI005 Authors: Bernheim, Adam; Reisman, Samuel; student at the Lander College of Arts and Sciences - Flatbush Campus, Lowry, Conor; Goyal, Nikhil

Title: When Strange Bugs Invade: A Pictorial Review of Uncommonly Encountered Lung Infections

PURPOSE: The purpose of this exhibit is to review the clinical importance and epidemiology of uncommonly encountered lung infections. The etiology, pathophysiology, radiologic manifestations, and differential diagnoses of several uncommon lung infections will be examined. Discussion will be centered on several example cases on radiography and chest computed tomography. **PRINCIPAL INFORMATION:** Etiology, relevant epidemiology, clinical presentation, pathophysiology, radiologic manifestations, differential diagnosis, and synopsis of treatment options for several uncommon lung infections will be reviewed. Examples of infections to be included are strongyloidiasis, mucormycosis, nocardiosis, Rhodococcus infection, H1N1 infection, Legionnaires' disease, leptospirosis, and babesiosis. **CONCLUSIONS:** The key teaching points of this exhibit are that uncommon pathogens are an important cause of pulmonary infection, particularly in specific patient populations or in those who have traveled to particular endemic areas. Each type of infection exhibits imaging features on radiography and computed tomography that allow for certain diagnostic considerations to be regarded as more or less likely based on those imaging findings. Early and accurate diagnosis may be crucial in determining treatment decisions and prognosis.

BI006 Author: Estie Schick (student), Lander College of Arts and Sciences - Flatbush Campus

Title: The Viability of Organ Printing

Neural plasticity refers to the ability of one's brain to change its structure and/or function in response to changes in behavior, environment, and neural processes. When a person suffers an ischemic brain injury, it often leads to hemisindrome with motor and sensory deficits in the arm, leg, and face of one side. This paper discusses the various ways that the existing network can be restructured and neuronal connections can be remodeled after the injury to enable partial or complete recovery of motor function. Spontaneous functional recovery after stroke develops through the overlapping sequence of events including a phase of axonal growth, spine remodeling and spine activation, and a phase of establishing and consolidating new neuronal networks.

BI007 Author: Shira Brickman (student), Lander College of Arts and Sciences - Flatbush

Title: Neural Plasticity Following Ischemia

Neural plasticity refers to the ability of one's brain to change its structure and/or function in response to changes in behavior, environment, and neural processes. When a person suffers an ischemic brain injury, it often leads to hemisindrome with motor and sensory deficits in the arm, leg, and face of one side. This paper discusses the various ways that the existing network can be restructured and neuronal connections can be remodeled after the injury to enable partial or complete recovery of motor function. Spontaneous functional recovery after stroke develops through the overlapping sequence of events including a

phase of axonal growth, spine remodeling and spine activation, and a phase of establishing and consolidating new neuronal networks.

BI007 Author: Pearl Hersh, B.S. ('14 Lander College of Arts and Sciences - Flatbush, Entering Freshman, New York Medical College)

Title: Hutchinson-Gilford Progeria Syndrome - Pathophysiology and Possible Treatments

Named after the two scientists who independently described the condition, Hutchinson-Gilford Progeria Syndrome (HGPS) occurs due to a mutation in the LMNA gene that codes for Lamin A, a filament protein that acts to form the nuclear lamina in the cell nucleus. This mutation is a single C-to-T substitution at nucleotide 1824 of the LMNA gene. As a result of this mutation, an abnormal protein named 'progerin' is synthesized instead of Lamin A, causing the nuclear membrane to be malformed. Since protein farnesylation is needed to target progerin to the nuclear rim, farnesyltransferase inhibitor has been proposed as a form of treatment that could reduce the occurrence of misshapen nuclei and alleviate HGPS symptoms.

BI008 Authors: Barbara Klaritch-Vrana and Dale Drueckhammer, PhD (Stony Brook University)

Title: Computational Study of Erythromycin and Azithromycin and their Structurally Modified Analogs

Resistance to antibiotics poses a significant problem in the treatment and eradication of diseases caused by Gram positive and Gram negative bacteria. The macrolides, both natural and semi-synthetic, account for more than forty percent of clinically useful antibiotics. Computer simulations, using AMBER, of a cored 50S ribosomal subunit from *Thermus thermophilus* with unmodified macrolide(erythromycin or azithromycin) and structurally modified analogs were conducted. The macrolides were modified by successive deletion of methyl groups on the macrolactone ring or by deletion of one of the sugar moieties using the “Structural edit” feature and “DOCK prep” in Chimera. RMSD data for bound and unbound macrolide and free energy of binding values obtained from MMGBSA analysis clearly demonstrate the superior binding of azithromycin and its modified analogs to the 50S subunit. The importance of the desosamine sugar to binding is also evident. Studies to evaluate the effect of inverted chirality are in progress.

ECONOMICS

ECO01 Author Michael Szenberg, Ph.D. Distinguished Professor of Economics and Chair, Business and Economics Touro College and University System Brooklyn, NY 11230

Title: The Role of Collaboration in the Future of Research: Reality and Challenges

There is a tendency to over-glamorize the lone wolf scientists working with limited resources and arriving at astounding results. There are those who argue that eminent scholars are so individualistic that they are “by temperament, wholly unsuited for work in any research group.”

There is a tendency to over-glamorize the lone wolf scientists working with limited resources and arriving at astounding results. There are those who argue that eminent scholars are so individualistic that they are “by temperament, wholly unsuited for work in any research group.” Einstein used to say, “I am a horse for a single harness”... I touch upon two examples. The first involves the intellectual partnership of Samuelson and Solow that is considered among the most fruitful of such relationships in the history of economics. As the story goes, Solow was appointed Assistant Professor of Statistics in 1950 at MIT. His room was located between that of Harold Freeman, Professor of Statistics and that of Paul Samuelson, Professor of Economics. Under Samuelson’s influence his interest, however, began to shift to economics. In 1954 he was promoted to Associate Professor of Statistics, in 1958 to Professor of Economics, and in 1973, Institute Professor. “From MIT’s point of view, nothing so powerfully held each of them to the Institute as the presence of the other.” Samuelson, who frequently mentioned the beautiful music he made with Solow also asserted that when he ascends to heaven, he will boast, “I collaborated with Bob Solow.”

Summing up one’s scholarly worth the way Samuelson does would lead one to assume that their coauthored works cover many pages, perusal of their bibliographies and the volumes of collected papers, however, reveal only four articles and one book with a third coauthor. This is intriguing. Clearly, even though each provided a testing ground for the ideas of the other, from the creative standpoint, there is a need for further research regarding the collaborators’ division of labor on and, more importantly, off the publication stage. Moreover, the scholars’ conversations that encompass the thought sequences of their coauthored research projects are almost never recorded and thus our understanding of the creative process by which new knowledge is gained is impaired. The economics discipline is no different from other professions in focusing solely on the results, not the processes. It was James Watson who first indicated how most of the steps toward DNA’s structure discovery were communicated informally among the team of research members. [4] E. R. Weintraub went one step further. He published his conversations with coauthor, D. A. Graham which were held prior to reaching their conclusions that first appeared in the Review of Economic Studies. The second example of comradeship centers around Arrow who coauthored books and articles with fifty different individuals.”

Root-Bernstein, R.S. (1989), *Discovering*, Harvard University Press, 382-397. The author, a biochemist and a recipient of the prestigious MacArthur Prize Fellowship (1981-1986)

attempts to unearth the blueprint for scientific discovery. He cites approvingly what several other scientists consider one of the truths of scientific progress. It is that the most important breakthroughs come in ill-equipped laboratories, with limited funds and simple techniques. As an example, he tells of Otto Hanh who, in 1938, used “apparatus that fit on a desktop” to split the atom.

In the forthcoming book, *Intellectual Collaborative Experiences*, Lall Ramrattan and I will show the growth in co-authorship, examine how the patterns of co-authorship vary with age, and how they differ between two cohorts of scholars – those 10-20 years past Ph.D., and distinguished senior scholars – those 40-50 years past Ph.D. It will be important also to examine why co-authorship has grown, and how credit should be assigned for joint work.

MATHEMATICS

Math01 Author: Leonid Srubshchik Department of Mathematics, Touro College 27-33 West 23rd Street, New York, NY, 10010, U.S.A.

Title: Eversion and Dynamic Snap-Through of Thin Elastic Shells Subjected to Impulsive Load

Abstract The problem on the dynamic snap-through under impulsive load for an elastic geometrically nonlinear shell and more general nonlinear elastic continuous conservative system with a potential energy of the kind “square of the norm plus a weakly continuous functional in the energetic space” was investigated by Srubshchik and Yudovich . The problem is studied in an exact infinite-dimensional formulation by using a potential theory analysis, definition of a dynamic stability of the system, and an astatic critical impulsive load. The latter is determined from the stationary problem and yields the lower bound for those impulsive loads for which the dynamic snap-through (instability “in large”) occurs. It was established that a necessary condition for the dynamic snap-through of a system subjected to the impulsive load is the existence of a saddle point for the same load-free system at the boundary of well of a stable zero equilibrium and this condition is satisfied for sufficiently thin strictly convex elastic shell of revolution with movable and fixed hinge support. Actually it means that a geometrically nonlinear shell without load has along with the trivial solution another nontrivial stable solution which describes an everted state. In this paper new theoretical and numerical results of the existence of stable everted state for the thin geometrically nonlinear elastic truncated conical and spherical shells with one edge free and the other attached to a fixed or movable hinge are presented. For these shells we obtain asymptotic representation of the everted state and also compute geometrical parameters for which snap-through under impulsive load is possible. The reasoning associated with estimating the height of the energetic barrier was used earlier in finite dimensional models of the Galerkin method for the equation of the vibration of an arch. The considerations presented here understandably also include the case of the systems with the finite number of degrees of freedom.

NURSING

NUR01 Author: Mary Ellen Luczun, MSN, PMHCNS-BC, Assistant Professor

**Touro College School of Health Sciences Department of Nursing, 902
Quentin Road Brooklyn, NY 11223**

**Title: A Case for Mistaken Identity: Similar drug labeling and the
potential for medication errors.**

Background--The prevention Esther Berger, Kelsey Berman, Annette Grant, Mary Ellen Luczun, Rendy Kasowitz, Rosanna Martinelli, Rena Rosin, Yelena Smolyanskaya, Teresa Tan, Sara Yudlowitz

Medication errors are of paramount importance to the health and safety of the patient population. Health care professionals are responsible for the preparation, distribution and administration of medications and strive to avoid errors through various systems of checks and balances. There is, however, one error that is of utmost importance, and that is human error. Several variables contributing to errors in medication administration have been identified in the literature including poor professional practice, poor communication, incorrect preparation or distribution of medications, and similar drug labeling. One study focusing on similarity in drug packaging and labeling, indicated that such similarities are related to potential medication errors. The purpose of this study is to determine if similar drug labeling as a factor in potential medication errors yields results comparable to previous study findings.

Method-- A cross-sectional observational study is planned in which ten (10) photographs of paired medications will be presented to the following groups of independent observers: male and female nursing students, registered nurses, interns and residents. Photographs will be classified as: 1, very similar; 2, similar; 3, somewhat similar; and 4, not similar. Data will be compiled based on the interpretive scores of each observer.

OCCUPATIONAL THERAPY

**OT01 Author: Julie F Kardachi, MA, OTR/L Assistant Professor, Touro
College Occupational Therapy Assistant Program**

Title: Modified Time Use Assessment for Study Schedule

Most of the Touro College OTA program students are non-traditional and do not come from a typical education background. It has become apparent that some of our students lack the study skills and strategies required for success in a college level program. Early in the program, we provide the students with study strategies to help them remain successful as the demands of coursework increase. However, some students reported “we didn’t take you seriously when you told us we would need to manage our time and use strategies”. In the fall semester 2012, we introduced a Time Use assignment (based on an OT assessment) to help students determine how to add the appropriate amount of study time to their

schedules. Preliminary results show that average grades in 2nd and 3rd semester course increased, attrition due to failure decreased, and that students report better stress management, study strategies and time use

OT02 Authors: Rivka Molinsky, PhD, OTR/L Contributing Authors: Emil Euaparadorn, DPT and Meira Orentlicher, PhD

Title: iPad for Allied Health Students – a Pilot Study

This poster will present the results of a Spring 2012 pilot study and the Fall 2013 study of the effectiveness of bringing iPads into the allied health professional programs at Touro College as an integral educational tool. Results indicated the significant value of the technology from both a pedagogy and satisfaction perspective. The pilot results were the foundation for the Touro College School of Health Sciences iPad Initiative. The plan was implemented so that by September 2014 all students in the School of Health Sciences now have iPads.

OT03 Author: Principal Investigator: Patricia Precin, PhD, PsyD, OTR/L, LP, NCPsyA, FAOTA Assistant Professor of Occupational Therapy. Co-Investigators: Nelli Bardanova, Svetlana Buencamino, Esther Heinberg, Rochel Muskat

Title: Time Perspective and Academic Achievement in Occupational Therapy Doctoral Students: Online versus Classical Programs

Time perspective is the method by which individuals subjectively conceptualize time by dividing their experiences into past, present, and future time categories. This study examines the relationship between time perspective and academic achievement. A quantitative, cross-sectional, non-experimental design was used to survey 56 students enrolled in OT doctoral programs in the US using the Swedish Zimbardo Time Perspective Inventory and the Transcendental Future Time Perspective Inventory.

Pearson correlation found a statistically significant ($p = .005$) negative correlation ($r = -.395$) that students who had stronger biases toward thinking negatively about their past and focused on the past instead of the present or future tended to be less successful academically than their peers. This may be due to their spending less time focused on learning in the present and an inattention to setting and obtaining future goals. Results can be used to guide intervention for at risk students.

OT04 Author: Liz Griffin Lannigan, PhD, OTR/L, FAOTA Occupational Therapy Program School of Health Sciences

Title: Perceptions of Individuals with Severe Mental Illness Regarding Supported Employment: A Qualitative Study

This study sought perceptions of individuals experiencing severe mental illness who participated in supported employment programs. Low employment rates prevent these individuals from experiencing recovery within their mental illness. Supported employment programs have demonstrated improved rates of gaining employment, yet sustaining employment remains limited. Seventeen adult clients were interviewed with a qualitative research method, revealing two themes. The first theme of positive feelings of worker satisfaction from employment included both physical gains and emotional benefits. The second theme identified that managing self and illness was crucial to individuals' ability to cope with obtaining and maintaining employment while living with severe mental illness. Managing self was dependent on the impact of agency supports and personal supports to these individuals. The study identified that professionals providing these services need to recognize the perceptions of clients regarding the importance of collaboration with as well as empowerment of those with severe mental illness.

OT05 Meira L. Orentlicher, PhD, OTR/L Associate Professor Coordinator of Research and Development Occupational Therapy Department

Title: Participatory Action Research on the Experiences of Students Receiving Consumer-Directed Budgets during Transition

This study used participatory action research (PAR) to learn about the experiences of young adults with disabilities who are receiving consumer directed budgets (CDB) to plan for their adult lives. CDB is an emerging program that provides individuals the opportunity to control their disability funding, which is used to purchase supports and services to assist the young adults to engage in meaningful occupations in their communities. This poster describes in-depth interviews with three families receiving CDB including three mothers, one father, one staff member and one young adult with disabilities. Three themes were identified: "Trailblazers" – participants described a sense of being the first – to receive CBD, and to figure out alternative ways of service provision; "It's given us a new future" – participants described a new way of living with CBD; and "Interdependence" – participants described that CBD allowed them to rely on their families and community for support rather than being dependent on the disability service system.

OT06 Authors Primary Investigators: Diana Daus, MS, OTR/L, Dr. Joseph Indelicato, PhD and Dr. Jonathan Herman, MD Co-Investigator: Ariella Sarf, OTS and Caitlin Tortora, OTS, Regina Abramova OTS, Deena Jacobs OTS, Marie Roy OTS, Alina Yusupova OTS

Title: A Long Island survey to assess patient knowledge of risk of development of breast cancer and preventative measures

OBJECTIVE: To examine patient knowledge of risk breast cancer risk among Long Island women and estimation of risk based on gender of doctor, ethnicity and religion.

METHOD: A 27 item, closed-ended survey was distributed to radiology sites across Long Island and filled out by women awaiting mammography. **RESULTS:** 11,414 women were

included in the analytic sample. When asked to estimate their risk of getting breast cancer within the next 5 years, the greatest percentage (21.2%) responded 0-1%. When asked to assess their risk of developing breast cancer by the age of 90, the greatest percentage of respondents (18.7%) selected 0-1%. More than half of the women (55%) consider themselves as being at a low risk of getting breast cancer. 44.8% of the women reported never having discussed their personal breast cancer risk with their gynecologist and 74.6% reported that their gynecologist had never discussed the list of breast cancer risk factors with them. This study shows a relationship between age, race, and religion and knowledge of breast cancer risks. Older women were more likely to underestimate their risks, while younger females were correct in their assumptions. The study found that African Americans and Asian Americans both underestimate their risks and White Americans overestimate their risks. Based on religion, the study found that all groups besides for Hindus were more likely to overestimate their breast cancer risks. The majority of the Hindu group was correct in their estimation. Data illustrates that there is no difference in over, under, or correct estimation of breast cancer risks based on gender of physician

CONCLUSION: The results demonstrate that there is a lack of patient-physician communication regarding breast cancer risk and that Long Island women are unaware of their risk of development of breast cancer. The information from this study can be used to prompt health care professionals to increase breast cancer awareness and to encourage women to take initiative for their own health.

PHYSICAL THERAPY

PT01 AUTHORS: Euaparadorn E; Garcia RK; Davidov S; Popovsky B; Wong J; Kim J.

Touro College, School of Health Sciences, Doctor of Physical Therapy Program, New York, NY.

Title: The Effects of High-Velocity Low-Amplitude Thrust (HVLAT) on Ankle Everter Muscle Strength

Purpose/Hypothesis: Muscle weakness is a common cause of instability following a lateral ankle sprain and may increase the risk of recurrent ankle sprain. Specifically, the peroneal muscles may be compromised and perpetuate this viscous cycle of reoccurring ankle sprains. Therefore it is imperative to improve the strength to this muscle to prevent further re-occurrence. Previous research has shown increase in extremity strength to the quadriceps and elbow flexors following a HVLAT to the spine. What is yet to be seen is if this strength in change can occur more distal down the extremity. Therefore the purpose of this study was to determine the short-term immediate effects of a HVLAT on ankle everter muscle strength in the normal population.

Number of Subjects: Fifty healthy subjects between the ages of 18 and 60 years were recruited for the study (27 male, 23 female).

Materials/Methods: Eligible subjects were randomly assigned to the experimental group (n=25) that received a specific HVLAT to L5-S1 or to a control group (n=25) that received

a placebo HVLAT (static contact). Ankle everter muscle strength was measured for all subjects both before and after the intervention using a dynamometer.

Results: Group equivalence for both right and left ankle everter strength between the groups was established by independent t-test of pre-test scores right $p = .769$ and left $p = .501$. The independent t-test also demonstrated a significant difference between the groups for post-test scores right $p = .02$, left $p = .01$. In addition to higher mean scores after the intervention, the experimental group had higher percent change scores for the right and left sides (right exp group: 14.8%; left exp group 6.6%) versus the right and left sides of the control group (right control -9.4 %; left control -9.0%). The changes noted in the experimental group were noted to be significant (Right $P=.028$ and Left $P=.018$).

Conclusions: The results of this study provide additional evidence that a specific HVLAT may produce short-term strength gains in select musculature similar to the studies in the reported literature. Further research should be conducted with larger sample sizes and subjects with ankle eversion weakness to add support to the findings of our study.

Clinical Relevance: Clinicians may wish to employ HVLAT in combination with other evidence-based interventions when treating patients with ankle sprains, weakness, or instability.

PT002 Authors: Garcia RK; Bertisch M; Harcsztark J; Husarsky N; Mittel E.

Touro College, School of Health Sciences, Doctor of Physical Therapy Program, New York, NY.

Title: The Effects of Posterior Pelvic Taping on Active Straight Leg Raise, Pain, and Function in Parous Women with Pregnancy-Related Pelvic Girdle Pain

Purpose/Hypothesis: Many women have pregnancy related low back pain (LBP), but there is limited evidence on the use of taping as an effective intervention to treat LBP. The purpose of this study was to determine the short-term and long-term effects of posterior pelvic taping on pain and function in parous women with LBP.

Number of Subjects: The subjects included nine parous women with pregnancy-related pelvic girdle pain between the ages of 21-41 years old. Seven women completed the study and two were excluded due to spinal instability.

Materials/Methods: This study utilized a repeated measure design with subjects randomized into either condition A or B, which determined the order of data collection with and without the taping. All subjects received the posterior pelvic tape intervention and served as their own control. All measurements were taken with and without the tape. All subjects went home wearing the tape and kept it on for forty-eight hours after the initial application and measurements. The outcome measures used to determine pain and function were the Active Straight Leg Raise (ASLR), Visual Analogue Scale (VAS) and the Oswestry Disability Index (ODI).

Results: Oswestry Disability Questionnaire showed that there was a significant difference ($p=.02$) when comparing function at baseline versus after wearing the tape for two days. The VAS pain values were not statistically significance ($p=.21$) between ASLR with tape versus without tape. There was no significant difference ($p=0.14$) in the ASLR difficulty

testing with tape. There was no significance ($p=.19$) in pain when comparing the VAS scores prior to intervention versus wearing tape for forty-eight hours. There was no significance in VAS pain scores immediately after taping versus wearing tape for forty-eight hours ($p=0.37$).

Conclusions: Posterior pelvic taping seemed to be an effective method for improving function over forty-eight hours. It did not seem to be effective in decreasing pain in the short- or long-term, though our subjects began with a low level of pain.

Clinical Relevance: Taping may be an effective intervention to increase long-term function and decrease short-term pain when treating pregnancy-related pelvic girdle pain.

PT03 Authors: Hayes JG; Guglielmino C; Kennedy J; Levchuck J; Oyelami K; Weissman S. Touro College School of Health Sciences, Department of Physical Therapy, Bay Shore, NY.

Title: Assessment of the Comprehension of Validity Measures in Physical Therapy Tests and Measures by Third Year DPT Students; A Pilot Study

Purpose/Hypothesis: The purpose of the current pilot study was to determine if third year Doctor of Physical Therapy (DPT) students were able to correctly define measures of validity and accurately apply these measures to a clinical scenario. The research hypothesis was that senior DPT students would not be able to accurately define measures of clinical validity but would be able to correctly apply these same measures to a practical scenario in patient diagnosis, due to the emphasis of mnemonic based teaching in the structured classroom program.

Number of Subjects: Fifty-six third year DPT students were recruited from Touro College's two campuses. Twenty-eight from the Bay Shore campus and twenty-eight from the Manhattan campus.

Materials/Methods: A seven question (Q1-7), Likert-type, multiple choice questionnaire was given to fifty-six students. Q1 asked the students to identify sensitivity and specificity as measures of validity. Q2-5 required students to correctly define sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV), respectively. Q6-Q7 required the students to apply these four validity measures to a clinical scenario. The questionnaires were collected and summated (total %) scores for correct responses were calculated.

Results: Central measures of tendency for both campuses combined were as follows: median score for both campuses was 57%, with a range of 14-86; the mean \pm standard deviation was $55.23\% \pm 13.5\%$. Individual questions were analyzed to identify patterns of correct and incorrect responses with respect to type of question (didactic based vs. clinically applied). Didactic questions correctly answered were: 39% (Q1), 13% (Q2), 7% (Q3), 93% (Q4) and 82% (Q5). In contrast, clinically applied questions correctly answered were: 82% (Q6) and 80% (Q7). The difference between didactic and clinical scores were significant ($p<0.05$, t-test, indep, 2-tailed).*

Conclusions: Third year DPT students at Touro College were able to correctly define PPV (Q4) and NPV (Q5) and accurately apply sensitivity, specificity, PPV and NPV to a clinical scenario (Q6 & 7). However, they were not able to define sensitivity and

specificity (Q2 & 3). Importantly, these students did not have a clear understanding of the definitions of sensitivity and specificity, yet were able to correctly apply these concepts to a clinical scenario. The use of standard mnemonics (e.g. “Specificity” being equated with, “SpPin” to suggest a positive test ruling in a diagnosis; whereas “Sensitivity” being equated with, “SnNout” for negative tests ruling out a diagnosis) have been previously suggested to assist clinicians in the decision making process. Our pilot study supports the idea of necessitating such teaching aids, given the poor conceptual understanding of these key diagnostic concepts for validity.

Clinical Relevance: When choosing clinical tests for patient diagnosis, it is critical that they be based upon known measures of validity as well as their results accurately interpreted for correct application. Appropriately applying the definitions of sensitivity, specificity, PPV and NPV will assist clinicians in choosing appropriate tests and measures and interpreting the results.

PT04 AUTHORS: Horbacewicz J; Barach Y; Dicker A; Van Kempen B.

Touro College, School of Health Sciences, Doctor of Physical Therapy Program, New York, NY.

Title: Influence of Demographic Factors on Embodiment of the APTA Core Values by Physical Therapists

Purpose/Hypothesis: Though expected to do so, it is unknown whether all physical therapists uphold the core values of the APTA and/or whether certain demographic factors influence the embodiment of those values. This study set out to measure the influence of the following demographic factors; age, gender, ethnicity, level of education, practice ownership, and years of experience on the degree of embodiment of the core values by PT’s.

Number of Subjects: 668 PTs (215 M, 415 F) practicing in the United States, who were members of the APTA.

Materials/Methods: Permission was obtained from the APTA to create a modified version of the Core Values Self-Assessment. The modified survey contained 5 sample behaviors pertaining to each core value totaling 35 items in random order. Titles and descriptions of the core values were not included. The survey was mailed out to a random sample of 1500 PTs using a mailing list obtained from the APTA Respondents ranked the frequency with which they demonstrated each sample behavior.

Results: Mann Whitney U tests were conducted on the variables of gender and practice ownership. Gender was associated with significant differences ($p < 0.05$) of Group on Value for 2 of the Core Values; Compassion and Integrity. Practice ownership was associated with significant differences ($p < 0.05$) of Group on Value for 5 of the Values; Altruism, Integrity, Professional Duty, and Social Responsibility. The Kruskal-Wallis One-Way ANOVA by Ranks test was conducted to evaluate differences in distribution, for the remaining categories. Post Hoc Mann Whitney U tests were utilized to evaluate pairwise comparisons where significant differences were found. Age was associated with a significant effect of Group on Value ($p < 0.05$) for 5 of the Core Values; Accountability, Social Responsibility, Altruism, Professional Duty, and Integrity. Years of practice was

associated with significant differences of Group on Value ($p < 0.05$) for 5 Values; Altruism, Accountability, Integrity, Professional Duty, and Social Responsibility. Educational level was associated with significant differences of Group on Value ($p < 0.05$) for 6 Values; Accountability, Altruism, Excellence, Integrity, Professional Duty, and Social Responsibility. Ethnicity was unable to be analyzed due to insufficient numbers of subjects in certain categories

Conclusions: The findings indicate that embodiment of the core values can be influenced by demographic factors such as age, gender, practice ownership, years of practice, and educational level.

Clinical Relevance: Differing values among PTs may lead to conflict in the workplace and the more that is known, the more that can be done to ease conflict. Emphasis can also be made at the educational level in the design of instructional objectives to help ensure PTs of various demographic groups embody all the Core Values. This method of measurement may also be useful for determining if educational programs are effective at teaching students/future PT's to embody the core values.

PT05 Authors: Kume-Kick J1; Magel J1; Bollinger L2; DiCandia E1; Hoffman J1; Issing R1; Little J1; Roden T1. 1Touro College, School of Health Sciences, Doctor of Physical Therapy Program, Bay Shore, NY.

2Department of Physical Therapy, United Cerebral Palsy of Suffolk, Central Islip, NY.

Title: Efficacy of a Carbon Fiber Orthotic Toe-Off Brace in Adults with Cerebral Palsy

Purpose/Hypothesis: This pilot study evaluated the effects of a unique carbon fiber ankle/foot orthosis for individuals diagnosed with foot drop ("Toe-Off" design, Allard USA, Inc). We hypothesized that use of this brace would be useful for adults with cerebral palsy (CP) as evidenced by improved gait characteristics including gait endurance and balance.

Number of Subjects: A convenience sample of 4 patients, between the ages of 29 and 55, with diagnoses of cerebral palsy, was successfully recruited from United Cerebral Palsy (UCP) of Suffolk (Central Islip, NY). All individuals received regular physical therapy at UCP prior to and throughout the study.

Materials/Methods: Patients were assessed wearing their standard plastic orthotics (Pretest) and then fitted for their new carbon fiber bracing. Patients returned for testing at Day 1, Week 4, and Week 8 post-initiation wearing the new brace. At each testing session, patients were evaluated with the Berg Balance test, the GaitRite walkway system for gait analysis, a Six Minute Walk test for endurance, and an orthotic questionnaire incorporating quality of life measures including domains for: a) ease of wearing; b) ease of functional movement, and c) quality of life responses. At week 20, patients were re-evaluated with the Six Minute Walk test and questionnaire. All data was assessed using non-parametric statistical comparisons using SPSS software.

Results: No significant differences between the use of standard plastic and carbon fiber composite bracings were noted in any of the parameters measured which can be partially

explained by the small sample size and the greater than normal variability in the dataset. However, overall Berg Balance scores increased for all test intervals following Pretest measures. In addition, patients reported a general increase in satisfaction in the new orthotics whether discussing ease of use, ability to negotiate the environment, or with respect to quality of life.

Conclusions: In this pilot trial assessing the use of a carbon fiber “Toe-off” brace for adults with CP, this bracing appears comparable in efficacy to that of conventional plastic orthotics. However, given the variation in response to testing and the encouraging self-reported satisfaction with the new brace in this patient population, future trials of this paradigm are recommended with an increased sample size.

Clinical Relevance: Technological advances of orthotic bracing has recently lead to the use of carbon fiber composites due to the increased tensile properties of this material compared to those of conventional plastic bracing. Little has been established in the efficacy for using this type of bracing in adults with CP with foot drop. Future studies with larger sample size are necessary in order to increase the strength of statistical analysis given the variability typical of this patient population.

PT06 AUTHORS: Neumann CE; Parikh R; Patel J; Sammons E; Allen A; Lema Y; Morales M; Zintl C.Touro College, School of Health Sciences, Doctor of Physical Therapy Program, Bay Shore, NY.

Title: How do Clinical Instructors in Pediatric School-Based Settings View Their Role in the Professional Development of Entry-Level Physical Therapists?

Purpose/Hypothesis: Little data exists regarding Clinical Instructors’ (CIs) views about their roles in students' affiliations. The purpose of this qualitative retrospective study was to examine pediatric school-based CIs’ perspectives and how these views were translated into action. The hypotheses were that, through analysis of interviews, common themes would be identified, that the themes would be influenced by the specific practice setting and that they would parallel APTA documents.

Number of Subjects: Eight female CIs in school-based pediatric sites.

Materials/Methods: In-person, tape-recorded, semi-structured interviews were conducted by a team with each CI. There were nine open-ended questions and one close-ended question encompassing five major categories. The questions stemmed from the culminating question, based on reflection upon previous answers: “What are your most important roles as a CI?” The typed, de-identified transcripts were thematically analyzed by another team, using operational definitions established in previous phases of the study in different practice settings. In order to increase reliability of the coding process, a separate team of investigators re-analyzed each transcript to confirm consensus of thematic codes assigned. A Demographic Form completed by each CI was quantitatively analyzed.

Results: These researchers concurred with themes assigned previously. Using the established Operational Definitions, five key themes emerged based on the high frequency of response, as well as being discussed by all CIs. The most common themes were Clinical Competence (28%), Instruction/Supervision (15%), Intrapersonal Skills/Attributes (14%), Communication/Interpersonal Skills (11%) and Patient Characteristics & Response (9%). Additionally, a new theme, Resourcefulness, emerged, reflecting the need for intuitive

flexibility in this setting. Six of the 8 CIs believed that their setting (pediatric school-based) influenced how they answered the interview questions. Three of eight CIs were APTA members; 4:8 were CI credentialed.

Conclusions: The leading theme addressed by CIs in the school-based setting is clinical competence, operationally defined as 'the ability to apply one's knowledge efficiently and effectively and to consistently convey the desire to expand one's knowledge'. The top five themes that emerged in the study stressed team communication throughout a wide variety of school settings, and understanding the many perspectives of interacting with children and families. The key themes were consistent with all Core Values, notably 'Excellence' and 'Accountability' and correlated to 4 of the 5 of the CPI's Red Flag criteria; Safety was not a key theme. In addition, the CPI criteria of "Professional Development" was frequently addressed.

Clinical Relevance: The study highlights the need for academic and clinical collaboration in delineating performance objectives for a specific setting. Students entering pediatrics and CIs new to their role can benefit by evaluating the study's CIs' perspectives and expectations.

PT07 AUTHORS: Sofer R; Cuzzo D; Kliphus J; Naumenko A; Thompson R; Zisser D.

Touro College, School of Health Sciences, Doctor of Physical Therapy Program, Bay Shore, NY.

Title: Comparison of Performing and Teaching a Motor Task Using Live Expert Feedback versus Videotaped Feedback

Purpose/Hypothesis: The first purpose of this study is to determine if teaching a motor task using a live demonstration with expert feedback is more effective than teaching a motor task through videotape demonstration and feedback via watching the videotape continuously. The second purpose of the study is to determine if there is a correlation between scores on performing a motor task and teaching a motor task.

Number of Subjects: A total of 37 subjects were recruited from Touro College School of Health Sciences. 16 subjects were in the live demonstration group and 21 subjects were in the videotape demonstration group. After being randomly divided into student therapist and patient, there was a total of 9 subjects who were scored on demonstrating and teaching the motor task. Of these, 4 were in the live demonstration group and 5 were in the videotape group.

Materials/Methods: All subjects had no prior knowledge of the motor task to be learned. All subjects were taught the scapula proprioceptive neuromuscular facilitation (PNF) pattern of anterior depression/posterior elevation. In part one of the study, subjects who were randomly assigned to the live feedback group were taught the skill by a live expert. This group practiced for 10 minutes during which time they received feedback and had questions answered by the live expert. Subjects in the videotape group viewed a video demonstration of the same task. They practiced the task for 10 minutes. During this time, they were able to repeat the video as often as they chose. For each group, when practice time was finished, each subject was videotaped performing the PNF pattern on a new

subject. In part two of the study each of the “student PT’s” was videotaped teaching another subject how to perform the scapula pattern on a third subject. Rubrics were developed and used to score subjects performing and teaching the PNF scapula pattern.

Results: Rubric scores were analyzed using the Mann-Whitney U test, using SPSS. There were no statistically significant differences in either performance or teaching between groups using live expert or videotaped demonstration and feedback. It is of interest to note that the group that received live expert feedback tended to score higher in their ability to teach the motor task compared to the videotape feedback group.

Conclusions: Learning a motor skill using demonstration and feedback from a live expert was equally as effective as using videotape demonstration and feedback.

Clinical Relevance: Physical therapy students must learn many motor skills during their professional education. It is incumbent upon the schools to seek out the most effective and efficient methods of teaching these skills. Physical therapy student as well as physical therapists must teach patients motor skills in clinical practice. It is very important that physical therapy professions seek out the most effective way to be excellent teachers.

PT08 AUTHORS: Troiano R; Corio F; Kreuter P; Feldstein A; Malizia J; Shlyapintokh T; Sinatra A; Cheriyan J; Lin C; Olla A; Shek R. Touro College, School of Health Sciences, Doctor of Physical Therapy Program, Bay Shore, NY.

Title: The Effects of the Wii Fit System on Balance in Individuals with Lower Limb Loss: A Pilot Study

Purpose/Hypothesis: Static and dynamic balance are functional objectives typical for individuals during clinical rehabilitation. The purpose of this study was to test whether individuals with lower limb loss using adjunct virtual reality gaming systems such as the Wii-Fit can improve balance ability to a greater degree than those individuals using traditional physical therapy alone or without any structured program.

Number of Subjects: Individuals between the ages of 32-73 were selected from a convenience sample of patients from A Step Ahead Prosthetics (Hicksville, NY). Inclusion criteria included individuals who have used their current prosthesis for at least 6 months but no more than 5 years, minimal prosthetic adjustments 30 days prior to testing, nor any debilitating complications. Subjects were randomly assigned to three groups: individuals in a traditional balance program; those who combined traditional therapy with Wii Fit participation; and a control group that received no structured intervention.

Materials/Methods: Pretest, baseline measures for all groups were obtained using the Neurocom Balance Master. Following the 8 week experimental trial session, all subjects were retested with the Balance Master for post-test data. Parametric assessment of Limits of Stability (LOS) and Rhythmic Weight Shift (RWS) data were performed SPSS statistical package, using a probability of 95% ($p < 0.05$) for significance criteria.

Results: No significant differences were noted for Pretest measures of LOS, including reaction time (time to respond to external stimuli), max excursion (maximum “lean” distance without balance loss), or directional control (ability to direct movement without extraneous action). At post-test, no significant findings were noted for LOS. However,

post-test assessment for RWS indicated statistical significance between groups for L-R on-axis velocity (the average speed of lateral rhythmic movement) at both moderate and fast speeds (ANOVA, $p < 0.05$). Post hoc Bonferroni comparison suggested improved responses for those receiving structured physical therapy (whether traditional balance alone or in concert with Wii-Fit training) when compared to control groups at moderate speeds ($p = 0.011$ and $p = 0.009$, respectively).

Conclusions: Lateral weightshifting, whether at moderate or fast speeds, can be significantly improved when subjects with lower limb loss participate in structured physical therapy programs (conventional balance training session alone or combined with a Wii-Fit intervention).

Clinical Relevance: Individuals with lower limb loss must address several rehabilitative goals for full functional mobility. This pilot study suggests that prolonged structured balance training for patients with lower limb loss is important for long term benefit, and the use of Wii-Fit is not contraindicated to assist in reaching these goals. Future studies will clarify whether the Wii-Fit can serve as an alternative to traditional balance progra

PSYCHOLOGY

PSY02 Author: Solange Charas, Ph.D.

Title: Does Upper Echelons Team Dynamic Matter? The Criticality of Executive Team Behavior in Economic Value Creation

For 150 years, scholars and practitioners have been studying the relationship between the leaders of an organization and the performance of their firm, but despite this extensive research, there are few sure prescriptions for success. A recent survey revealed that 90% of board directors believe their personal performance is exemplary, but only 30% of directors feel the performance of their board as a whole is exemplary (Heidrick & Struggles, 2010). Equally disturbing is that 85% of directors believe the biggest weakness of their CEO is the ability to effectively lead teams and generate results (Larcker & Miles, 2013). My research explored this gap between individual and team performance at the board and C-Suite levels and further explored the impact of team dynamic quality on financial performance. We focused on the upper echelons of the organization as this level is has been shown to have a significant impact on firm outcomes (Hambrick, 2007).

PSY03 Authors: Rosemary Flanagan & Giuliana Losapio Bracher, Touro College, & Rachel Greenfeld, New York City Department of Education

Title: Brief Intervention Rating Profile: Measuring Parent and Teacher Acceptability

Abstract: A ten-item abbreviated form of the Intervention Rating Profile (Witt & Martens, 1983) was developed for use in two investigations of treatment acceptability. One investigation used parent ratings, the other used teacher ratings. The abbreviated form

appears suitable for both parent and teacher ratings. Internal consistency is acceptable; the items load on one factor.

PSY04 Authors: Rosemary Flanagan, Touro College, Korrie Allen, Eastern Virginia Medical School, Giuliana Losapio Bracher, Touro College

Title: Cognitive and Behavioral Intervention over Anxiety about High Stakes Testing

Abstract: In this work in progress, third grade children were provided with ten sessions of one of two interventions: relaxation training or relaxation training plus cognitive-behavioral lessons. Anxiety levels were assessed pre- and post-intervention. Following the administration of the NY State ELA exam, youngsters were given a follow-up questionnaire to determine whether the interventions were used when testing. Additional data analysis will include comparing the mean ELA scores of the two treatment group to one another as well as to district-wide scores. High stakes testing generates considerable anxiety among public school students (Segool, 2009). Anxiety about evaluation can be disruptive to cognitive processes, and may negatively impact one's performance, but is a notable part of the high stakes testing experience (Pearson, 2010). This work examines whether cognitive and behavioral interventions can assist third graders in managing the anxiety related to high stakes testing. This is the earliest grade at which such tests are taken, possibly making this first intervention opportunity largely preventive. Following IRB approval, permission was obtained from a public school district in the New York City suburbs. The youngsters are generally considered middle to upper-middle class (there are some lower SES students); the overall sample of regular education students is racially and ethnically diverse. Consistent with the wishes of the school principal, the entire third grade (3 classrooms) was invited to participate. Following parental consent and student assent, there were 44 participants from a total possible sample of 66. After the study began, NY state permitted students to opt-out of taking the third grade test; some youngsters who received the intervention did not take the high stakes tests. The pre-testing, post-testing, follow-up testing and intervention took place over 13 weeks in the winter of 2013. Youngsters completed the Revised Children's Manifest Anxiety Scale, 2nd Edition (Reynolds & Richmond, 2008) prior to and subsequent to the intervention. Two interventions were compared: progressive muscle relaxation (Koeppen, 1974) and progressive muscle relaxation plus selected lessons for third graders from the Passport Program (Vernon, 1998). The progressive muscle relaxation uses age-appropriate language to communicate to youngsters how they might relax the hands, arms, shoulders, jaw, face, nose, stomach, legs and feet. Lessons selected from the Passport Program addressed: managing tendencies to perfection, how to accurately label feelings, recognizing how one feels at the moment, learning ways to fix feelings, experiencing anxiety, and the experiences of feeling fine or not so fine (10 weeks for the interventions). After the youngsters took the high stakes tests, they completed an experimenter-designed self-report form that queried whether the intervention(s) were used while testing and their perception of its helpfulness (13th session). Data collected indicates some improvement in anxiety levels from pre-test to post-test. Some students reported that they made use of the intervention strategies while taking the high stakes test. The data from the high stakes tests

will be analyzed to determine whether the interventions are associated with an improvement in scores.

Data analysis will include: 1) comparing the children's self-reported anxiety before and after the intervention, 2) comparing the effects of both treatments on post-test anxiety, 3) comparing the mean test scores of the participants groupings of non-participants in their respective districts (for each intervention), 4) examining the follow-up data to determine the children's perception of the interventions.

SOCIAL WORK

SW01 Authors: Jennifer Zelnick, MSW, ScD, Abigail Chua, MD, Max O'Donnell, MD, Jeanne Sullivan Meissner, MPH.

Title: Healthcare provider perspectives on barriers to tuberculosis care and treatment among foreign-born populations in New York City

Affiliations:

1. Touro College Graduate School of Social Work, 2. Albert Einstein College of Medicine, 3. New York City Department of Health and Mental Hygiene, Bureau of Tuberculosis Control

Abstract

In 2011, tuberculosis (TB) incidence among foreign-born residents of New York City was seven times greater than the rate among United States-born residents. To identify barriers to TB diagnosis, treatment and care among the foreign-born, the NYC Department of Health and Mental Health Bureau of TB Control conducted a qualitative needs assessment among health providers in public hospitals, community clinics, and private practices. A multidisciplinary team analyzed the results. Barriers identified included patient-related barriers to health care access and TB treatment acceptance/adherence and provider-related barriers to delivering services. Patient-related barriers included work schedules, lack of health insurance, and language barriers. Providers also reported on social/behavioral issues, including fear of deportation among undocumented immigrants, which hindered health care access, and alcoholism, which hindered TBI treatment. Addressing the disproportionate burden of TB among the foreign-born in NYC requires attention to patient-based and provider-based barriers and the multifaceted needs of foreign born patients.

SPEECH AND LANGUAGE

SPC01 Authors: Authors: Randi Sherman and Augustine Moscatello

Title: Voice and Communication Characteristics in Voicemails: A Comparison between Males and Females

The purpose was to determine whether there are differences in communication and voice characteristics between males and females when leaving voicemails. Methods: 23 voicemails, 11 males' voicemails and 12 females' voicemails, were analyzed to determine whether perceptual and acoustic differences in vocal quality, pitch, loudness, articulation, fluency, prosody, message length, rate, and language. Results: Voicemails left by males and females are very similar regarding most acoustic and perceptual parameters. Perceptual analysis showed that women speak faster ($p=0.006$) and have a more precise articulation ($p=0.007$) and richer intonation ($p=0.007$). This findings were confirmed by the acoustic analysis that showed differences in F0 frequency variability ($p=0.010$) and pauses ($p=0.014$). Women showed more number of pauses, but similar message length and words per minute. Conclusions: In general, women and men's voicemails are similar regarding selected voice and communication characteristics; however women speak faster, articulate more precisely and modulate more when leaving voicemails.

SPC02 Authors: Brianna Brockman, Jeanette Lam, Lana Lazourenko, Jessica Saslow, Marina Yakobov and Gisele Oliveira

Title: A Comparison of the Perception of Language Proficiency Between Bilinguals/Multilinguals and Monolinguals

The purpose was to investigate bilinguals'/multilinguals' perception of their language proficiency compared to that of monolinguals. Participants were 65 bilinguals/multilinguals (24 males, 41 females) and 42 monolinguals (10 males, 32 females), age range: 18 to 75, who reside in the United States. Bilingual/multilingual participants answered a 21-question online survey; monolingual participants answered a 13-question online survey. The survey for bilinguals/multilinguals included questions about when/how they learned the language they know best. Both surveys included questions about participants' age, level of education, languages they know and questions that used a rating scale (from one to five, with five being greatest) to determine how proficient they considered themselves to be in terms of the following language skills: Speaking, reading, writing and comprehending the language they know or know best. Results: The bilinguals/multilinguals surveyed prefer to speak English (and together know 19 other languages including Russian [18%], Chinese [17%] and Hebrew [5%]); learned their preferred language at different ages (97% from birth to age 12), and in a variety of ways (like living or having lived where that language is spoken [56%], in school [52%] or from parents [29%]), and that there are various reasons why they prefer one language over another (it is their native language [48%], language used where they live [38%] or language used at their workplace [23%]). Bilinguals/multilinguals had lower scores for their language skills than monolinguals (Bilinguals/multilinguals: Speaking=4.64,

reading=4.64, writing=4.47 and comprehending=4.58; and monolinguals: Speaking=4.9, reading=4.95, writing=4.73, comprehending=4.78). Conclusion: Bilinguals/multilinguals consider themselves to be less proficient than monolinguals.

SPC03 Authors: Brianna Brockman, Jeanette Lam, Lana Lazourenko, Jessica Saslow, Marina Yakobov and Gisele Oliveira

Title: A Comparison of the Perception of Language Proficiency between Bilinguals/Multilinguals and Monolinguals

Abstract: The purpose was to investigate bilinguals'/multilinguals' perception of their language proficiency compared to that of monolinguals. Participants were 65 bilinguals/multilinguals (24 males, 41 females) and 42 monolinguals (10 males, 32 females), age range: 18 to 75, who reside in the United States. Bilingual/multilingual participants answered a 21-question online survey; monolingual participants answered a 13-question online survey. Results: The bilinguals/multilinguals surveyed prefer to speak English; learned their preferred language at different ages (97% from birth to age 12), in a variety of ways (like living/having lived where that language is spoken [56%], in school [52%] or from parents [29%]), and that there are various reasons why they prefer one language over another (native language [48%], language used where they live [38%], language used at their workplace [23%]). Bilinguals/multilinguals had lower scores for their language skills than monolinguals. Conclusion: Bilinguals/multilinguals consider themselves to be less proficient than monolinguals.

SPC04 Authors: Gaetano Fava, Gisele Oliveira

Title: The Use of Sound Pressure Level (SPL) Meter Apps in the Clinical Setting

Abstract:

The purpose was to compare sound pressure level (SPL) readings between a standard SPL meter and three SPL meter-iPhone-apps. The iPhone-apps were identified here as app1, app2, app3. This study was conducted in two parts: Measuring pure tones and human voices. Participants were 20 adults, mean age of 36.1 years. The speech task was a sustained vowel "ah" at three different intensities: Soft, habitual, and loud. Results: Pure tone readings revealed no significant differences for all sound pressures (app1, app2, app3 $p > 0.050$). The same happened with readings of human subjects (app1, app2, app3 $p > 0.050$), except for the significant difference with app 3 soft phonation ($p = 0.021$). Conclusion: The SPL meter iPhone apps yielded similar results as the standard SPL. SPL meter-apps may be used in the clinical setting. They have a potential benefit of clinical use because they are cost and time efficient, technologically advanced and stimulating for patients and clinicians.

SPC05 Authors: Anna Rubinshteyn, Chana Cohen, Ruchel Gruenstein, Perri Kobre, Chaya Eisenberg and Gisele Oliveira

Title: The Association between Musical Knowledge and Native Pronunciation of a Second Language

Abstract:

The purpose was to examine the relationship between musical knowledge and pronunciation of a second language. Participants included 25 Russian women, 15 musicians, 10 non-musicians, age range 16-35 years. Subjects were selected based on their musical ability and their ability to speak a second language learned after age twelve. Each participant was asked to read the Rainbow Passage. Recordings were digitalized and presented to three American listeners, who were asked to rate 5 parameters of the speaker's accent: Comfort speaking the language, stress/intonation, vowel and consonant production, and overall accent. The parameters were evaluated on a 5-point scale ranging from 1 to 5. Results showed that musical individuals scored higher on all parameters analyzed (Comfort speaking the language $p=0.007$, stress/intonation $p=0.032$, vowel production $p=0.045$, consonant production $p=0.001$, overall accent $p<0.001$). Musical individuals were able to speak English with an accent closer to natives as compared to non-musical individuals.

SPC06 Authors: Allegra Bello, Melanie Homsey, Dana Padovano, Carly Smith and Gisele Oliveira

Title: Student's Self-perception of Vocal Behaviors after Public Speaking

Abstract

This study investigated students' self-perception of their vocal behavior immediately after public speaking. Participants included 68 higher education students, 24 males, 44 females, with mean age of 23 years. The programs included Speech-Language Pathology (57.3%), Business (8%); Criminal justice (4.4 %); Art history/Biology/Law and English (2.9%); and History/Anthropology/Psychology/Business/Special Education/Mental Health/Liberal Arts/Accounting/Computer Science/Graphic Design/Exercise Science/Finance and Counseling (1.4%). The procedure administered was a self-assessment questionnaire that investigated several vocal and nonverbal behaviors. Results showed that the students perceived the following vocal features to be adequate: rate of speech (mean =3.2), speaking fluency (mean =3.25) pitch (mean =3.47) articulation control (mean=3.26), intonation (mean =3.4), volume (mean =3.66. They had similar perception when evaluating their nonverbal characteristics. Furthermore, students perceived their behavioral related responses as ($n=3.468$) being more adequate than vocal related behaviors ($n=3.39$) The results indicated that overall the participants found their vocal behaviors to be adequate after public speaking.

SPC07 Authors: Isabella Reichel¹, Ken St. Louis², Susanne Cook³

1 Touro College, NY; 2 West Virginia University; 3 Stuttering Therapy Evans, GA.

Title: Drawing on Allied Fields in Improving Attitudes of Graduate Students toward Stuttering

Most of the curricula in fluency disorders courses are based on knowledge in the field of speech-language pathology, and do not draw on the resources of allied fields. In order to improve students' emotional and cultural competencies and reduce their negative attitudes toward people who stutter (PWS), the authors explore additional curricula from the allied fields, such as emotional intelligence, neuroscience, and social sciences that were integrated into traditional courses in fluency disorders at different times and in different classes. 49 graduate students completed curriculum 1, 20 graduate students completed curriculum 2 and 17 graduate students completed curriculum 3 (Reichel & St. Louis, 2004, 2007, 2011). There were 86 respondents in total. The students' enthusiastic responses on open-ended qualitative questionnaires demonstrated that additional curricula improved their cultural and emotional competencies and reduced their negative attitudes toward PWS. An analysis of the students' responses to the quantitative questionnaires showed very modest changes.

SPC08 Authors: Yvonne van Zaalen¹, and Isabella K. Reichel²

1 Fontys University of Applied Sciences, The Netherlands 2 Touro College, New York

Title: Prevalence of Cluttering in Three European Countries: A Pilot Study

This study examined the prevalence of cluttering in populations of normally developing pre-adolescents in the Netherlands and Germany, and young adults in England, who did not have other communication disorders. Three hundred and four adolescents (Netherlands, n=219; Germany, n= 85) and 33 British young adults were screened with the PCI-r (Daly and Cantrell, 2006). When cluttering characteristics were identified in 13 participants, they were tested for cluttering, using the Fluency Assessment Battery (Van Zaalen & Reichel, in press). Four adolescents met all the diagnostic criteria for cluttering. The prevalence of pure cluttering in the Dutch study was computed to be 1.1%. The prevalence of pure cluttering in the German study was computed to be 1.2%. Only one of the British participants met the criteria for cluttering. Because the power in the British research project was not sufficient, prevalence numbers were not established for the British group.

SPC09 Author: Yvonne van Zaalen¹, and Isabella Reichel² ¹Fontys University of Applied Sciences, The Netherlands ²Touro College, New York

Title: Audio-visual feedback training in cluttering

People with Cluttering (PWC) are unaware of their speech problems as they occur. In Audio-Visual feedback (AVF) training, speech is analyzed by using Praat software. Twelve male adolescents and adults (10.8 – 45.6 yrs of age) participated, of whom 6 subjects had phonological cluttering (PC) and 6 had syntactic cluttering (SC). They all received weekly AVF training for 12 weeks, with a 3-month follow up. Data were gathered on a baseline (T0), week 6 (T1), week 12 (T2) and after follow up (T3). Two independent fluency specialists determined the articulatory rate in syllables per second, pause duration, intelligibility (percent of correct syllables) and disfluency (percent of NDF). In AVF training, different speech aspects were practiced (prosody), such as rate, fluency, pauses, melody and loudness. Overall results indicate that the combination of reduced rate and improved fluency were accountable for the improved perceived intelligibility.

SPC10 Authors: Diana Cohen, Samantha Dickstein, Madiha Sheikh, Erin Sullivan, Gisele Oliveira and Isabella Reichel

Title: Public's Perception of Social and Communicative Skills of People Who Stutter

The purpose of this study is to investigate public perceptions about specific characteristics of people with stuttering (PWS). The participants were 80 individuals -- 40 females and 40 males (ages ranged from 25 to 65). The participants watched two 60-second videos of PWS and answered a 10-item questionnaire. The items were rated on a 5-point scale. The results showed that the participants judged the PWS to be shy and timid (mean=2.25), unsocial (mean=2.79), unable to hold meaningful conversations (mean=2.82), and unmotivated to advance in their professional occupations (mean=2.65). The listeners considered socializing with PWS to be uncomfortable (mean=2.56), regarded PWS to have a difficult time speaking in public (mean=2.82) and felt uncomfortable when viewing the body language conveyed by PWS (mean=3.33). Based on the results of this study, the public holds a wide range of negative attitudes toward PWS and, especially as to PWS' interpersonal and communicative skills.

SP11 Authors: Gisele Oliveira, Camila Sauda Sentieiro, Gaetano Fava, Mara Behlau

Title: Does dysphonia affect the identification of age and gender by the voice?

Abstract:

Purpose: To assess the identification of gender and age of individuals with and without dysphonia. **Methods:** Participants were 96 individuals, 48 with dysphonia, 48 without dysphonia, mean age of 40.8 years. Listeners had to identify gender and age by listening to the voice. **Results:** Dysphonic and non-dysphonic individuals had their gender and age identified similarly (gender $p=0.561$ /age $p=0.937$). The same thing happened when genders were compared. Gender of individuals with dysphonia was identified with 93.8% accuracy, while their age with 38.5%. Gender of individuals without dysphonia was identified with 95.8% accuracy, while their age with 38.5%. The only statistical difference was in the group of women aged from 51-80 ($p=0.048$); women with dysphonia had their age identified with less accuracy. **Conclusion:** Dysphonia does not influence gender and age identification. Women aged 51-80 years had their age identified with less accuracy. Gender was more easily identifiable than age. . Hearing loss in the extended high frequencies may indicate a subtle abnormality in the central auditory pathways. It may be that hearing in the extended high frequencies is important for speech-language development and/or hearing in noise.

This study focused on school age children (6-13 years old) who were referred for APD testing due to learning difficulty in school. Twenty children referred for APD testing were compared to a control group of twenty children having no obvious problems in school and no remarkable otological history. In the control group, only 4 had hearing loss in the extended high frequencies. In the Referred group, 13 had hearing loss in the extended high frequencies. Statistical analysis yielded an odds ratio of 7.43. This means that children with hearing loss in the extended high frequency range had 7.43 times the risk of being referred for auditory processing testing than those children without hearing loss in the extended high frequency range. As the sample size was fairly small and to make sure that this odds ratio wasn't just due to sampling variability, the 95% confidence interval was calculated for the odds ratio. This confidence interval was 1.78-31.04. As the null value is not included in the confidence interval, the result cannot be compatible with the null hypothesis. We conclude that extended high frequency audiometry should be added to the audiological test battery especially when there is concern about learning difficulty in school and/or when the child exhibits behaviors characteristic of children with auditory processing disorders.

SP12 Speech01 Authors: Randi Sherman, Ph.D. David Merer, M.D. Lander College for Women

Title: Extended Hi-Frequency Hearing Loss in Children Referred For Auditory Processing Disorder Evaluation

ABSTRACT: A controversy remains in deciding which diagnostic tests should be utilized to determine the presence of an auditory processing disorder (APD) in children 6-13 years of age. In recent years, the currently accepted diagnostic battery that is used to work up APD has not included testing for extended high frequency (9000 – 20,000 Hz) hearing deficits. This case controlled study demonstrates the prevalence of extended high frequency hearing loss in those children initially suspected of having an auditory processing disorder inferred by learning difficulties noted in school. This study is clinically relevant in that a complete audiological evaluation for children suspected of having an auditory processing disorder should include extended high frequency thresholds.

SP13 Authors: Randi Sherman and David Merer, Lander College for Women - The Anna Ruth and Mark Hasten School, New York Medical College

Title: Complete Recovery of Hearing Following Electric Shock - A Case Study.

ABSTRACT: Various otological complications related to lightning have been described in the literature including tympanic membrane perforation, fistula of the oval window, burns to the auricle and external auditory canal, tinnitus, as well as conductive, mixed and sensorineural hearing loss. Less information is available on the effects of electrical injury on the auditory system. Significant differences exist in the pathophysiology and injury patterns between lightning strikes and electrical injuries. Individuals are injured every year just using landline telephones. The pathophysiology of electrical injury to the ear may vary depending on the incident of electrocution. This is a case study of a 24 year old female who suffered an electrical shock while talking on the phone at work with the receiver to her left ear. Her loss of hearing and eventual recovery is documented by serial audiograms. Her complete recovery of hearing may be attributed to the use of prednisone.

SP14 Authors: Rochelle Ledereich and Randi Sherman Lander College for Women – The Anna Ruth and Mark Hasten School

Title: The Ability to Perform the Modified Epley Maneuver in Young Normal Adults Using Written and/or YouTube Instructions.

ABSTRACT: The Epley maneuver is the safe, effective, and recommended treatment for benign paroxysmal positional vertigo or BPPV (Fife, et al., 2008). Recently, interest has been expressed in self-treatment of BPPV using the Epley maneuver, which is traditionally a clinician-guided technique that is performed by doctors and physiotherapists (Radtke, Neuhauser, von Brevern, and Lempert, 1999). There are controversial findings regarding the degree of effectiveness of self-treatment using the modified Epley procedure (MEP)(Cohen & Sangi-Haghpeykar, 2010; Tanimoto, Doi, Katata, and Nibu, 2005). The real-life effectiveness of the MEP and the ability of individuals to accurately complete this procedure must be examined. Results of this study demonstrated that normal young adults experienced difficulties learning and accurately implementing this self-guided procedure, irrespective of the method of instruction. Further research is necessary to determine the extent of this difficulty and the necessity of maintaining the current model of clinician-guided treatment of BPPV.

SP15 Authors: Zahavit Paz and Isabella Reichel LD Resources Foundation. Co-founder and Chair Graduate Program in Speech-Language Pathology, Touro CollegeSpecial

Title: Training for Students with LD Transitioning to College

In order to reduce the high drop-out rate of LD students upon their transition to post-secondary education, the LD Resources Foundation designed a 3-year program to provide special training for 12th grade students with IEP for learning disabilities. Thirty-six students participated. This recently-completed program was designed to serve as a pilot study and then to be replicated in other schools in New York City. The students' ability to use cutting edge assistive technology, anti-stigma, emotional intelligence and self-advocacy skills training were addressed. Surveys were conducted before and after the program to assess its effectiveness. Analysis of the results led to the recommendation that preparation for the college setting, should commence several years before the 12th grade.

SP16 Authors: Stijn R. J. M. Deckers, M.Sc., Yvonne van Zaalen, Ph.D., & Isabella Reichel, Ed.D. Fontys University of Applied Sciences, Eindhoven, the Netherlands

Touro College, New York

Title: Using the ICF-CY to Identify Individual Strengths and Weaknesses in Communicative Competence in Children with Down Syndrome

A significant challenge in assessing children with Down Syndrome (DS) is differentiating between various underlying neurolinguistic processes and functions contributing to communication development. Successful assessment can be based on the conceptual framework and taxonomy of the International Classification of Functioning, Disability and Health-Children and Youth version (ICF-CY; Simeonsson, Bjorck-akesson&Lollar, 2009).Six children with DS and a mean chronological age of 3.9 were described – three boys and three girls. Results indicate that gaining insight to the strengths and weaknesses of the children with DS is important for planning intervention. ICF-CY is a useful framework to identify individual strength in Body Functions, Activities and Participation.

**SP17 Authors: Elena A. Khlevnaya and Isabella K. Reichel Plekhanov
Russian University of Economics International Center “Creative
Technologies of Consulting,” Moscow, Russia Graduate Program in
Speech-Language Pathology, Touro College, New York, USA**

Title: Emotional Intelligence and Effectiveness of Professional Activity

When working with innovative models of economic development in the Russian Federation, the main task of the instructor is not so much the transfer of knowledge, skills and experience, but the creation of educational and cognitive processes, which are achieved through the unity of thought and emotion – which has come to be known as emotional intelligence. This study explores the correlation of emotional intelligence (EI) (MSCEIT V2, 2000) of 166 senior executives to their ability to achieve a designated score on the Key Performance Index (KPI). The age of the participants ranged from 32 to 47. The participants were 109 men and 57 women. Regression models show that the EI construct allows evaluators to accurately predict the various components of the KPI effectiveness of participants, explaining 22-38% of the variance in different cases.

MEDICAL COLLEGE

Authors: Bhavik Padmani¹, Anyela Duque*², Christina Gomez*², Gayatri Malhotra-Gupta², Nesrine Baturay¹ and Kurt Degenhardt²

1College of Pharmacy, St. John’s University, Queens, NY 2 Department of Basic Biomedical Sciences, Touro College of Osteopathic Medicine 230 West 125th Street New York, NY 10027

Title: Inhibition of Carcinogen-Mediated Transformation by the Bowman-Birk protease inhibitor

Cancer rates vary from country to country and have been attributed, at least in part to difference in dietary intake (Adlercreutz, 1990; Messina and Barnes, 1991; Parkin et al., 1997). In fact the lower rate of breast, colon and prostate cancer in countries like China and Japan has been ascribed to their dietary intake of Soy products (Tominaga, 1985; Kennedy et al., 1993; Messina et al., 1995). Soybeans are a major source of anticarcinogenic agents

that includes saponins and isoflavones (Messina and Barnes, 1991). These compounds have been shown to exert anti-carcinogenic effect on hormone-dependent cancer (Onozawa et al., 1998; Danks et al., 2009). Important to the research presented here is the presence of the serine protease inhibitor Bowman-Birk. The Bowman -Birk protease inhibitor demonstrates an important role in suppressing in-vitro transformation and in-vivo carcinogenesis mediated by UV radiation as well as chemical carcinogens(Kennedy and Little, 1981; Kennedy et al., 1998). Much remains unknown about this protease inhibitor, for example which proteases are inhibited by Bowman-Birk and more importantly which proteases are important for transformation. It is known that intracellular proteases play a very important role in maintaining cellular homeostasis. Protein half-life is controlled by transcription and translation of new genes as well as protein degradation by proteolysis. The proper removal of protein is required for cell viability and function. Indeed loss of a single protease function is the genesis of lysosomal storage disorders. Patients accumulate compounds which are normally degraded in the lysosome leading to severe symptoms and premature death.

Cellular functions which includes lysosomal degradation, proteosomal degradation and intracellular signaling cascades are mediated by proteolysis(). Although not completely understood misregulation of these proteolytic functions results in carcinogenic activity. One of the overt differences between the normal cell and the transformed cell is the enhance activity of the proteolytic activity (Quigley et al., 1976). In fact, Quigley observed 10-100 fold increase activity of specific protease, plasminogen activator, in cell cultures originating from tumor compare to related normal cells. Another example is the oncogene ras targets BIM for ubiquitin-mediated proteolysis that results in an impaired apoptotic response. Proteases even play a vital role in malignant transformation in-vitro and carcinogenesis in-vivo although the mechanism is not well understood (Enomota et al., 1987; Veksler et al., 1987; Pietras et al., 1979). Importantly, protease inhibitors are capable of preventing carcinogenesis in wide variety of in-vivo and in-vitro model systems (Kennedy et al., 1981; Yavelow et al., 1983; Yavelow et al., 1985; Clair et al., 1990; Kennedy et al., 1993).

In total, chewing tobacco is a source of multiple chemical carcinogens that induce cellular transformation (see table one). Here we present that the anti-carcinogen present in soybean inhibits cellular transformation by tobacco specific nitrosamines, NNN and NNK found in chewing tobacco.

Authors: Brian Beaudoin, Chandreyee Mukherjee, Deirdre A. Nelson, Eileen White, Kurt Degenhardt

Title: Apoptosis, Autophagy, and Necrosis Influence Tumorigenesis

**Contributed equally to this work*

Summary:

Immortal baby mouse kidney epithelial (iBMK) cells with an apoptosis defect are tumorigenic, but how other forms of cell death impact tumorigenesis is shown here.

In apoptosis-deficient cells, activation of AKT, which inhibits autophagy, increases the rate of tumor growth. AKT activation also confers dramatic sensitivity to metabolic ischemic stress by inhibiting a temporary autophagy-dependent survival pathway.

While autophagy can act to buffer metabolic stress, the combined impairment of apoptosis and autophagy diverts cells into necrotic cell death. Tumor associated necrosis is a poor prognostic indicator and we show here necrosis is also associated with increased rate of tumor growth.

From these findings we suggest that the inflammatory response associated with necrosis may impact tumor growth. Not surprisingly, necrotic regions of tumors show an associated macrophage infiltration and increased Il-6 promoter activation.

We propose that necrosis may recruit a wound healing response that augments tumor growth.

Authors: Gregory McWhir, Westley Reinhart-McMillan, Kurt Degenhardt, Touro College of Osteopathic Medicine, New York, NY

Title: Analyzing Tumor Response in Mice Supplemented with a Ketogenic Diet and Concurrent Chloroquine Mediated Autophagy Inhibition

Autophagy is a critical survival pathway that cells use in an attempt to maintain homeostatic balance during times of nutrient deprivation. The cell undergoes many catabolic reactions involving packaging of organelles into autophagosomes and breakdown in lysosomes in order to recycle compounds that are crucial for cell survival. Tumor cells have been shown to use autophagy as a survival mechanism under times of stress, and as a result of the increased metabolic demands of uncontrolled cell proliferation.^[2,4] It is also well established that cancer cells obtain energy for their high metabolic demands predominantly through glycolysis followed by fermentation of lactic acid in the cytosol. Therefore, these cells heavily rely on a steady source of glucose. This is known as the Warburg Effect.^[1] Many studies have clinically shown the positive effects of treating malignant tumors with autophagy inhibitors or with providing patients with a high fat/low carbohydrate ketogenic diet.^[3,5,6] We hypothesize that the use of an autophagy inhibitor, chloroquine, combined with a ketogenic diet will place tumor cells in an unfavorable environment to survive and grow, resulting in either inhibition of tumor growth or even regression of the tumor.

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Title: Characterizing Cerebral Mitochondrial Dysfunction in Geriatric Bipolar Disorder

Context/Background: Bipolar disorder (BD) is a prevalent mental illness. There is a suggested association between BD and cerebral mitochondrial dysfunction. Disruptions in the glutamate-glutamine cycle can lead to increased excitation of neurons, resulting in an

exhaustion of aerobic metabolic pathways. A number of molecules in these processes can be observed in vivo using proton Magnetic Resonance Spectroscopy (1H MRS) measured by MRI.

Objectives: To quantify markers of cerebral mitochondrial dysfunction in geriatric BD utilizing 1H MRS.

Methods: Geriatric patients diagnosed with BD and aged-matched healthy controls underwent a Siemens 3-Tesla Trio MRI scan. Data were obtained from a single voxel in the perigenual anterior cingulate. Student's t-tests were used to examine differences in demographic and clinical data, as well as 1H MRS metabolite concentrations between subjects with bipolar disorder and healthy controls.

Design: Data utilized in this study were collected from two clinical trials approved by the McLean Hospital IRB.

Setting: Participants were recruited from the general community.

Subjects: Subjects were 55 or older and diagnosed with BD with a current episode of depression. Controls were age-matched and had no history of psychiatric illness. All participants were free of MRI contraindications.

Intervention: Subjects with BD were receiving open-label treatment with lamotrigine at the time of the MRI.

Main Outcome Measure: The primary outcome measure was the glutamine-glutamate (gln:glu) ratio in the anterior cingulate.

Results: There were significantly elevated gln:glu levels in BD patients ($T=2.312, DF=10, P=0.043$). All other metabolite concentrations were non-significant.

Conclusion: Elevated gln:glu ratios suggest increased flux of the glutamatergic shuttle in the brains of geriatric BD patients. This may reflect neuronal excitotoxicity and resulting mitochondrial dysfunction. While this finding is novel in geriatric BD, it has been previously reported in other psychiatric illnesses. This study was limited by a small sample size; a larger study is warranted to further characterize mitochondrial dysfunction in geriatric BD.

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Title: School Counseling and Social Entrepreneurship

Abstract: School counselors are the pupil personnel service providers in the school who are responsible for individual and group counseling and consultancy work, all of which require networking collaboratively With administrators, teachers, parents, and the community. Given this context, it is argued that a social entrepreneurship approach is beneficial, in particular for school counselors, who are in a unique position to span the boundaries of their organizations and engage With the larger community. This article examines the Work done by interns in a school counseling training program in several New York City high schools. While mainly providing mental health care, they are also engaged in a variety of projects to improve the lives of their students. Their services and activities are evaluated to identify correspondences with social entrepreneurship.

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Title: Orthobiologics: A New Frontier of Orthopaedics

Abstract: A new area of medicine, coined “Orthobiologics”, has emerged as a new frontier for disease treatment with the potential to revolutionize medicine. Although Orthobiologic therapies have illustrated applications in a variety of medical fields[1], their use in Orthopaedics for the treatment of Osteoarthritis has exhibited an evolution unlike any other area. First generation biologics consisted of intra-articular viscosupplementation with Hyaluronic Acid, a sticky viscous glycosaminoglycan, which can provide lubrication and shock absorbency for a damaged arthritic joint [2] as well as pain reduction and functional improvements[3]. Platelet Rich Plasma (PRP) emerged as the 2nd generation of Orthobiologics, and the first Orthobiologic of the autologous form. First used in 1987 following open heart surgery[4], PRP has now been applied in a variety of medical areas[5], however recently, larger randomized controlled trials have started to emerge for orthopaedic conditions such as tendinopathies [6, 7] and knee osteoarthritis[8]. In recent years, Bone Marrow Concentrate has emerged as the 3rd generation of Orthobiologic therapy. Its potent mixture of mesenchymal stem cells, hematopoietic cells, platelets, and cytokines are hypothesized to act as the foundation for its regenerative potential[9]. Early experimental trials using BMC have illustrated positive results in Osteoarthritis patients[9, 10], as well as improved surgical results when administered postoperatively[9].

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Title: Inhibitors of Poly (ADP-RIBOSE) Polymerase 1 (PARP-1) as Protective Agents Against HN2 Toxicity in a Skin Cell Model

Mechlorethamine (HN2) is an alkylating agent and sulfur mustard mimetic. Mustard cytotoxicity involves oxidative stress and DNA damage. Numerous strand breaks lead to supraphysiological PARP-1 activation, resulting in NAD and ATP depletion, and subsequent necrosis. In the present work, four selected inhibitors of PARP-1, including 3-aminobenzamide (3-AB), 3-indazolinone (TT-1), indazole-3-carboxamide (TT-2), and 1-(3-(isatin-1-yl)propyl)-1H-indazole-3-carboxamide (TT-3) were tested for the ability to reduce HN2 toxicity in A-431 skin cells. A cell-free system was also utilized to determine the extent to which these compounds exhibited PARP-1 inhibitory activity. All compounds tested were observed to reduce the activity of this enzyme. The MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) assay was performed after 24 h to determine the effect of each test compound upon cellular viability in the presence or

absence of HN2 (40 μ M). It was observed that TT-1 interfered with the MTT reagent; therefore viability studies performed with this PARP-1 inhibitor were evaluated using the trypan blue dye exclusion method. In the absence of HN2, all the tested PARP-1 inhibitors, except TT-1, were found to be free of toxicity at concentrations of 75, 150 or 300 μ M. When cells were co-incubated with HN2 and test compound, no protection was observed for TT-1 or TT-3. However, the compounds 3-AB and TT-2 were observed to reduce cell death. Among them, 3-AB was able to improve cell viability at all three tested concentrations, while TT-2 only showed protection at the highest concentration. Light microscopy confirmed these findings for the two effective compounds. These data indicate that selected inhibitors of PARP-1 may protect A-431 skin cells from HN2 toxicity by a mechanism that prevents energy depletion in mustard treated cells.

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Title: A Study on Prerequisites for Osteopathic Medical School: What Works and What Doesn't

PURPOSE: The Flexner Report and the MR5 report by the AAMC on Basic Science (BS) prerequisites for medical school admissions have not concentrated on the opinions of osteopathic medical students or their faculty. We created a survey to ask osteopathic medical students and faculty which BS prerequisites were most useful for their medical school coursework and their Osteopathic Manipulative Medicine training (OMM).

METHODS: A general survey question for prerequisite preparation as well as those on concepts needed for BS and OMM coursework were sent online to students and faculty from three Colleges of Osteopathic Medicine. SPSS statistical software was used for survey validation and statistical analysis. Results are considered significant at p value <0.05.

RESULTS: (1) Response by students and faculty to the general survey question as to whether the current prerequisites provide sufficient preparation for medical school was neutral but showed disagreement on this question for their OMM coursework. (2) Bio concepts (e.g. Anatomy) were most important to students and faculty for their BS coursework but those of ORGO and Physics show no/low importance as prerequisite concepts. None of the prerequisite concepts except for Bio were important to students and faculty for their OMM coursework. (3) Students and faculty would increase/add Physiology and Biochemistry as prerequisites. Statistical results showed (1) significance ($p=0.00$) between mean values of importance in the concept scales for BS vs OMM (student responses); (2) a correlation between the importance of prerequisite labs (Bio Lab, Chem Lab, ORGO Lab and Physics Lab) with the students' responses to the prerequisite modification question (p range = 0.022 - 0.00).

CONCLUSIONS: (1) Students and faculty deemed Bio > Chem > ORGO > Physics in importance for prerequisites. (2) Both students and faculty agreed that the ORGO/ORGO Lab and Physics/Physics Lab prerequisites should be decreased. These prerequisites could be replaced with more relevant topics to medical education, e.g. Anatomy, Physiology and

Biochemistry. (3) Prerequisites for OMM are presently insufficient. (4) Prerequisites for OMM should be evaluated for what is needed for osteopathic medical students. The difference between the first year and second year class may be due to the increased exposure of the second year students to OMM.

Authors: Bahri, Pino, Aldo

Title: Gender, cultural, and religious perspectives among medical students: the physical exam in Osteopathic Manipulative Training

Background: Osteopathic Manipulative training (OMT) relies primarily on hands-on techniques for diagnosis and treatment. This involves utilization of Peer Physical Examination (PPE), where medical students play roles as both “examiner” to their peers, as well as “examinee. Difficulties in OMT participation and in the dress code may arise due to the differences in gender, cultural background, and religious faith of the individual student.

Method: Participants attended a one-1 hour focus group session, which was recorded and transcribed. Students who could not attend the focus groups participated in an anonymous, online survey that consisted of the same open-ended and demographic questions included in the focus group. A total of 166 students participated. Using a grounded theory approach, all comments were analyzed and common themes were identified.

Results: Although most students acknowledged the educational purposes of OMT, several candidates, expressed discomfort with examining partners of the opposite gender. This was also noted among the religious conservatives, especially with regards to the OMT dress code requirement. Students of different cultures expressed the need of cultural awareness.

Conclusion: A need for those involved in osteopathic medical education to consider the gender, cultural, and religious perspectives of students in OMT is identified. Ways to promote cultural competency and encourage open communication between students, faculty, and administrators is key in making the learning environment conducive to future osteopathic physicians as they learn the fundamentals of diagnosis and treatment.

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Title: Effect of Sulfated Hyaluronic Acid on Tumor Progression

Over the past two decades there have been significant advancements in understanding tumor progression. Many studies focused on extracellular factors. A major one of those factors is hyaluronic acid (HA)¹. Depending on the stage of progression, tumors utilize HA synthesis and metabolism for tissue expansion and angiogenesis². This results in high HA turnover as well as high levels of circulating HA in several types of major tumors³. HA appears to be a cardinal player in the tumorigenic process and understanding its components will be crucial in developing therapies. There have been many studies with the focus of evaluating the potential disruption of tumor-HA communication as a means of therapy, including studies of HA receptors (CD44 and CD168/RHAMM and their

isoforms^{4,5}), hyaluronan synthases and hyaluronidases^{1,6,7}. Many of these studies have achieved some degree of successful tumor regression; however, only for specific tumors, and with toxic side effects. The goal of the study is to establish a 3D hydrogel framework for growing and evaluating tumor behavior, subject prostate and breast cancer cell lines to sHA, and evaluate their response. We will partially reproduce studies by Gurski⁹ and Benitez⁶ using prostate cell lines and then with breast cancer lines. We will measure tumor progression, hyaluronidase levels, and CD44 and RHAMM expression levels.

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Title: Cirrhosis and Barrett's Esophagus (BE): Diagnosis and Prevalence

Background:

In the general population, the prevalence of BE, a risk factor for adenocarcinoma of the esophagus, is 2-4%. The prevalence of BE in cirrhotic patients (pts) has not been well studied, and may be diagnostically challenging in pts with esophageal varices (EV). While abdominal obesity is a potential shared risk factor for BE and non-alcoholic steatohepatitis (NASH), it is not known whether the prevalence of BE is higher in pts with NASH cirrhosis. The diagnosis of BE in cirrhotics may be of particular importance post-transplant, when they may be at an increased risk of progression to cancer.

Purpose:

The aim of this study was to investigate the prevalence of BE in pts with cirrhosis, and to assess whether the etiology of cirrhosis (such as NASH) is associated with a higher risk of BE.

Methods:

A retrospective chart review of 1448 pts with cirrhosis seen at an academic faculty practice 2003-2009 was performed. Pts were included if they had histological, radiographic or clinical evidence of cirrhosis and underwent at least one documented endoscopy for screening for EV. Pts without BMI data were excluded. Univariate and multivariate analyses using chi-square and logistic regression with SAS 9.2 were performed.

Results:

After inclusion and exclusion criteria were applied, data on 686 pts was analyzed. 10% had NASH cirrhosis. 2.3% (16 pts) had histologically proven BE (HBE); one of these based on cytology. Another 13 pts had endoscopically suggested BE (EBE) which was not biopsied, thus potentially increasing the prevalence of BE in cirrhotics to 4.2%. We found no association between etiology of cirrhosis and BE on both univariate and multivariate analyses. On multivariate analysis, only gastroesophageal reflux (GERD) was significantly associated with BE (38% pts with BE had GERD compared to 16% without BE, $p < 0.0001$) with an odds ratio of 10.42 ($p < 0.001$). BMI > 25 was not associated with BE ($p = 0.72$). EV were present in 27% of pts with HBE and in 54% of those with EBE. Only 17% of BE pts had surveillance for BE planned or performed.

Conclusions:

- (1) The prevalence of BE in cirrhotics was similar to that of the general population.
- (2) While GERD was strongly associated with BE, there was no relationship between the presence of BE and the etiology of cirrhosis or BMI.
- (3) Pts with EBE were less likely to have histological confirmation in the presence of EV.
- (4) Post-transplant surveillance of BE should be performed if BE has been diagnosed preoperatively.
- (5) The prevalence, diagnosis, including use of brush cytology, and management of BE in cirrhotic pts should be further evaluated in prospective studies.