NYIT

New York Institute of Technology

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SYMPOSIUM OF UNIVERSITY RESEARCH AND CREATIVE EXPRESSION

FRIDAY, APRIL 25, 2014: 10 A.M. - 4 P.M.

program 2014

EVENT LOCATIONS

CONFERENCE REGISTRATION AND SESSIONS
16 W. 61ST ST.
11TH FLOOR

PANEL DISCUSSION
"ARE ARTS AND SCIENCES REALLY THAT FAR APART?"
NYIT AUDITORIUM ON BROADWAY
1871 BROADWAY
BETWEEN 61ST AND 62ND STREETS

NYIT.EDU/SOURCE

Symposium on University Research and Creative Expression (SOURCE) 2014

New York Institute of Technology

Dear NYIT Faculty, Staff, Students, and Friends:

Welcome to the Eleventh Annual SOURCE of NYIT!

Creative expression and research with faculty members have become integral parts of a student's educational experience at New York Institute of Technology. The SOURCE is intended to provide a unique opportunity for students to present their research and creative scholarly work in collaboration with their faculty members and mentors. The SOURCE also generates a common ground for interdepartmental, interschool, and interdisciplinary communication.

I am very pleased to inform you that 69 abstracts were accepted for presentation and more than 175 undergraduate and graduate students of NYIT, representing all campuses, schools and colleges, have authored or co-authored these abstracts. The depth and breadth of the projects are strong indications of the quality of our teaching and learning at NYIT. I would like to take this opportunity to congratulate all the students for their academic excellence at NYIT.

Many individuals in the NYIT community have worked on the event diligently to make it a success. I would like to extend a very special thank you to all the students, faculty, administrators and volunteers who assisted with the preparation, management, and operation of SOURCE.

Sincerely,

Dr. Roger Yu, Chair
SOURCE Committee

Symposium on University Research and Creative Expression *2014 Program*	
10:00 AM - 10:20 AM	**REGISTRATION and BREAKFAST** **NYIT Conference Center, 11th Floor, 16 W. 61st Street, New York, NY 10023**
10:30 AM - 11:45 AM	**SESSION I**
12:00 PM - 1:00 PM	**LUNCH and PANEL PRESENTATION** ***"Are Arts and Sciences Really That Far Apart?"*** **PANELISTS: Kevin LaGrandeur, Associate Professor, English, Mathew Ford, Assistant Professor, Architecture, Ana Petrovic, Assistant Professor, Life Sciences, Yuko Oda, Associate Professor, Fine Arts, Eleni Nikitopoulos, Assistant Professor, Life Sciences, and Gail Linsenbard, Assistant Professor, Social Sciences** **MODERATOR: Roger Yu, Dean, College of Arts and Sciences** **NYIT Auditorium on Broadway, 1871 Broadway, New York, NY 10023**
1:15 PM – 2:00 PM	**EXHIBITION HALL**
2:15 PM - 3:30 PM	**SESSION II**
3:45 PM - 4:45 PM	**CERTIFICATE PRESENTATION** **President Edward Guiliano** **NYIT Auditorium on Broadway, 1871 Broadway, New York, NY 10023**

Session I 10:30 AM- 11:45 AM	8th Floor Room 821 Moderator: Rosemary Gallagher	8th Floor Room 822 Moderator: Emily Restivo	10th Floor Room 1026 Moderator: Marianne Land	10th Floor Room 1029 Moderator: Spencer Turkel
10:30 AM	"Trache Time Pillow"	“Religion and Film”	"Osteopathic Manipulative Therapy in Chronic Wound Management: A Basic Protocol"	"The Automatic Identification and Diagnosing System of MR Brain Images"
	Anthony Tucker, Elizabeth Siounis, Dimitra Mattes, Christopher Berg, and Christa Pumerantz	Sam Schmitz	Karan Lal and Danielle Defoe	Yida Zhang, Du Zhang, Zhibo Zhu, and Ziao Xu
10:45 AM	“Automated Pre-Ictal Phase Detection Algorithm from EEG Signals”	“The Future of Art Films”	"Dose Dependance of Renal Injury in the Zebrafish Laser Ablation Assay"	“Wireless EKG”
	Li Yequn, Chen Jian, Yin Xin, and Du Zhang	Grace Nardi	Farhana Tamanna and Imran Ilahi	Runze Dong, Linzhe Li, and Tian Tian
11:00 AM	"Can the Substitution of Shoulder Internal Rotation for External Rotation During ULNT3 Evoke a Comparable Neurodynamic Response in Embalmed Cadavers?"	“The End of Broadcast Television”	"Alternative Nucleic Acid Structures in the Macronucleaus and Micronucleus of Blepharisma"	"Robust Control System for a Car Active Suspension"
	Thomas Ahrens, David Block, Michael Dagro, Aliza Lyon, Lauren Brown, and James Falesto	Jeanine Feudi	Domenico Carbone and Alexia Skiadas	Syed Huda
11:15 AM	"Acute Effects of Aerobic Exercise and Yoga on Cognitive Performance"	“Sleep Deprivation and Aggressive Behavior”	"Immunocytochemical Staining of Tissue Sections by NYIT Students: Examination of Right-Handed B-DNA, Left-Handed Z-DNA, and Denatured Single-Stranded D"	"Episode 1: Public, Private, and Hybrid Clouds"
	Jenna D’Alessandro, Ashley Vitale, Kathryn Miller, Eva Freeh, Stephanie Mugnai, and Matthew Masciandaro	Lissette Palestro, Elyse Gagliardi, Richard Melendez, Keronia Blake, and Sehar Haider	Tressa Mahmood, Akshay Sharma, Bisma Ansar, David Dursunian and Muhammad Malik	Asad Richardson, Jingting Yao, and Paul Oliva
11:30 AM	"The Effects of Wii Bowling on Balance in Older Adults"	"The Effects of Football Game Losses on Domestic Violence"	"Protein Kinase C-2 Regulation of UNC-18 in Caenorhabditis Elegans"	
	Jaclyn Paler, Stephanie Bravo, Nicholas Vitale, Preeth George, and Melanie Hoffer	Sarah Udkow, Kerry Kaur, Sabrina Moore, Jovanni Ortiz, and Sophia Thermidor	Maryam Hussain, Sofia Javaid, Siddhant Kulkarni, Parth Patel, Alvaro Guerrero Uribe, and Aisha Nero	

Session II 2:15 PM- 3:30 PM	8th Floor Room 821 Moderator: Elizabeth Donaldson	8th Floor Room 822 Moderator: Nicholas Bloom	10th Floor Room 1026 Moderator: Youjeong Kim	10th Floor Room 1029 Moderator: TBA	7th Floor Room 723 Moderator: TBA
2:15 PM	"2.1 GHz Passive SAW Sensor Driver"	"Becoming Hombre"	"The Effect of E-Commerce and How It Has Altered the Relationship Between Consumers and Marketers"	"The Impact of Media on International Adoptions"	"Dynamic Bifurcation of the Swift-Hohenberg Equation"
	Yin Xu, Lening Wang, and Saide Zhu	Anne-Marie Gallo	Sasha Thomas	Catherine Gulotta	Oreoluwa Aderemi and Vikrant Sood
2:30 PM	"The Effects of an Acute Bout of Martial Art Exercise on Cognitive Performance in Middle-Aged Adults"	"The Effects of Active vs. Passive Sitting on Visual Acuity"	"Impact of Gaming Industry on Inner City Children"	"Social Media and Beijing Opera"	"Assessment of the Life Cycle Carbon Footprint Incandescent Lights vs. CFL"
	Christopher Douris, Aleksey Zhuchkan, Amir Rand, Freya Tarapore, Nicole Balder, and Michael LaCasse	Avneet Madhan, Adrian LaRosa, Alyssa Mariana, and Marsha Gaspard	Corey Gomillion	Xiaodi Wang	Yoav Malka
2:45 PM	"A Case Study: Does Single Leg Treadmill Training Aid in Isolated Gluteus Medius Strengthening"	"Traditional Bullying vs. Cyberbullying"	"SOT Video"	"The Uses and Gratifications of Print Newspapers, Online Newspapers and Newspaper Apps"	"South Bronx Living Greenways"
	Ilona Sharapan, Al Cascio, Matt Cohen, Allison Halbig, Irene Kelada, and Erica Melchione	Anthony Lanzarone, Erica Groover, Melisa Savin, and Ashley Wade	Crystal Kim, Krisztina Imre, Kajsa Lundman, Iris Benhaim, Bao Tran, and Fang Shen	John Santamaria	Heba ElGawish and Rhoda Tsado
3:00 PM	"Acute Effects of Caffeine on Physical and Cognitive Performance in Persons with Parkinson's Disease"	"Gender Role's Perspectives in Cyber Security"	"The Wandering Artists Movement"	"The Impact of the Internet on Video Gaming"	"GreenKids: Saving Panda"
	Matthew Simms, Jocelyn Dennen, Robert Caridi, Kelly Dougherty, and Denise Crawford	Joseph Daru, Vanester Opoku, Macy Faqiri, and Merve Yesilkaya	Milton Guanga, Catherine Vivanco-Opazo, Candace Turull, Eufenie Cham, and Sophia Kiriakides	Donnie D'Amato	Ajit Bali, Niket Patel, Nnanna Okorie, Nina Mirhabibi, and Justin Chua
3:15 PM		"An Examination of Prejudice in Law Enforcement"	"Twitter Content Analysis by Age"	"Globesville"	
		Jordan Melexenis, Marissa Viggiano, Stephanie Mahoney, Michael Auriemmo, and Vanessa Sobers	Kim Truong	Dawn-Marie Waits, Andre Doughty, Greg Goldat, and Donnie D'Amato	

On Permanent Display in Exhibition Hall Conference Center Lobby, 11th Floor	
“Natural Chemical Products and Cancer Prevention in Animal Models”	Ilona Aleksandrovich
“The Organic Global Market”	Catalina Salgado
“Biomedical OVID/Medline Literature Computer Search by NYIT Undergraduate Students: Laying the Groundwork for an Immunohistochemical Human Melanoma”	Gurinder Galhain, Rohni Kumari, and Harry Singh
“Effect of Hydrogen Peroxide on Cellular Content and Subcellular Organization of Tight Junction Proteins, Occludin, Claudin-1, ZO-1 and ZO-2, in Renal”	Angelina Voronina, Nikita Shah, Josephine Axis, and Anmol Singh
“Tracking the Kinetics of Handed Crystal Growth via Time-Lapse Capture”	Favour Akinjiyan and Batool Chaudhry
“Roomi”	Ajay Vadav
“Science Influencing Art: A Look at the Process of Creating a 3D Science Fiction Vehicle from a Real World Basis”	Shawn Gee
“The Role mTor-Regulated Mitophagy in Maintaining Mitochondria Homeostasis in Cardiomyocytes”	Tahsin Rahman
“Taurine Interaction with NMDA Receptor Subunits”	Ana Anazco
“Elucidation of Chiral Medicinal Natural Products towards Structure-Activity Relationship”	Thallys Goncalves
“Neocortical Molecular Layer Heterotopia in Transgenic Mouse Models”	Jawad Ashan
“Protein-Protein Interaction between CPG15 & Neuroligin1”	Kristel Yee-Mon
“Motorized Walker to Improve Gait of People with Parkinson’s Disease”	Corinne Fischer and Lauren Cooke

On Permanent Display in Exhibition Hall Conference Center Lobby, 11th Floor	
"Hand Eye Coordination of People with Parkinson's Disease"	Lauren Cooke and Corinne Fischer
"*In Vivo* Imaging of Crystalline Retinopathy using Adaptive Optics Scanning Light Ophthalmoscopy"	Ahmad Rehmani
"The Effect of Zinc Salts on Gastrointestinal Acid Secretion"	Ronika Sethi
"Literature Search by NYIT Students: Electrochemotherapy in the Treatment of Xeroderma Pigmentosum"	Rohni Kumari, Kristina Moffat, George Gadalla, Gurinder Galhain, and Harry Singh
"Discrepancies in Depression Diagnosis Documentation: An Analysis of Clinical, Social, and Demographic Variations Among Older Adults in Primary Care"	Sarah Abdou
"Diamonds are a Girl's Best Friend"	David Sun, Charity Chen, Nicole Hinds, and Jennifer Nunez
"Molecular Tweezers Capable of Picking-Up Handed Molecules: The Comparative Study"	Manthan Patel
"Determining Man-in-the-Middle Attacks in Fixed Wireless Networks Using WiFi Signal Strength and Round Trip Times"	Randolph Espejo
"Immunotherapy of Cancer with Chimeric Antigen Receptors (CARs)"	Orin Pramanik and Ksenia Klementyeva
"Thyroid Hormone Replacement Therapy Attenuates Atrial Remodeling and Reduces Atrial Fibrillation Inducibility in a Rat Myocardial Infarction-Heart Failure Model"	Khusbu Pun
"The Effects AMPK has on Mitophagy in Heart Cells"	Amanda Kaminaris
"Examining the Feasibility of Converting New York State's All-purpose Energy Infrastructure to One Using Wind, Water, and Sunlight"	Harris (Haralambos) Mouselimos
"Testing Climate Change and Overkill Extinction Hypotheses of Pleistocene Equids with Dental Mesowear"	Ishrat Ghani
"Association Between Lumbar Counterstrain Tender Points and Lumbar Segmental Somatic Dysfunctions"	Sarah Van Dine

<u>Session I Presentations</u>
8th Floor
Room 821
Moderator Rosemary Gallagher
10:30 am - 11:45 am

- "Trache Time Pillow"
  By: Anthony Tucker, Elizabeth Siounis, Dimitra Mattes, Christopher Berg, and Christa Pumerantz

- "Automated Pre-Ictal Phase Detection Algorithm from EEG Signals"
  By: Li Yequn, Chen Jian, Yin Xin, and Du Zhang

- "Can the Substitution of Shoulder Internal Rotation for External Rotation During ULNT3 Evoke a Comparable Neurodynamic Response in Embalmed Cadavers?"
  By: Thomas Ahrens, David Block, Michael Dagro, Aliza Lyon, Lauren Brown, and James Falesto

- "Acute Effects of Aerobic Exercise and Yoga on Cognitive Performance"
  By: Jenna D'Alessandro, Ashley Vitale, Kathryn Miller, Eva Freeh, Stephanie Mugnai, and Matthew Masciandaro

- "The Effects of Wii Bowling on Balance in Older Adults"
  By: Jaclyn Paler, Stephanie Bravo, Nicholas Vitale, Preeth George, and Melanie Hoffer

Trache Time Pillow

Student Names: Anthony Tucker, Elizabeth Siounis, Dimitra Mattes, Christopher Berg, Christa Pumerantz
Faculty Mentor: Joanne Scillitoe
Department: Management, School of Management

This presentation will introduce The Trache Time Pillow. The Trache Time Pillow is a first to market, unique solution designed to reduce the duration of tracheostomy maintenance caregiving sessions by 50%. The Trache Time Pillow enables maintenance labor to be handled by one person instead of two by allowing the patient to lay in a soothing position while also allowing caregivers to perform their job more quickly, more efficiently, and with less discomfort and anxiety for the patient.

Automated Pre-Ictal Phase Detection Algorithm from EEG Signals

Student Names:	Li Yequn, Chen Jian, Yin Xin, Du Zhang
Faculty Mentor:	Vesna Zeljkovic
Department:	Electrical Engineering, School of Engineering and Computing Sciences

Epilepsy poses a significant burden to society due to associated healthcare costs to treat and control the unpredictable and spontaneous occurrence of seizures. There is a need for a quick screening process that could help neurologists diagnose and determine the patient's treatment. Electroencephalogram has been traditionally used to diagnose patients by evaluating brain functions that might correspond to epilepsy. This research focuses on developing a new classification technique and the prediction of pre-ictal states that announce epileptic seizures, from the direct EEG data analysis. The approach involves the placement of electrodes on critical regions on the patient's head as a part of a telemetry system which communicates with the EEG recorder and the DSP unit that performs automated pre-ictal state detection based on the obtained EEG signal. Studying potential preconditions and alerting the patient about a possible seizure attack so that she or he can take safety precautions has a potential to improve patient care management.

Can the Substitution of Shoulder Internal Rotation for External Rotation During ULNT3 Evoke a Comparable Neurodynamic Response in Embalmed Cadavers?

Student Names:	Thomas Ahrens, David Block, Michael Dagro, Aliza Lyon, Lauren Brown, James Falesto
Faculty Mentor:	Mark Gugliotti, Bennett Futterman
Department:	Physical Therapy, School of Health Professions

The purpose of this study is to examine a plausible alternative to the traditional ULNT3. This alternative utilizes shoulder internal rotation as a substitute for shoulder external rotation as an ulnar nerve sensitizing maneuver. Clinical neurodynamics concerns itself with both the mechanical and physiological response of a nerve to movement. Normal mechanical responses to loading such as gliding and tension are necessary for the maintenance of normal physiologic processes including healthy blood profusion, axonal conduction, and target tissue innervation. Compression along the nerve's pathway can lead to impaired nerve mobility, decreased nerve conduction velocity, nerve damage, and loss of function. Neurodynamic maneuvers are utilized by orthopedic manual therapists to identify and treat these adverse responses and ensure healthy gliding and tension along the nerves of the body. ULNT3 is one such maneuver used to bias the ulnar nerve. It utilizes passive wrist/finger extension, forearm pronation, elbow flexion, shoulder external rotation, shoulder girdle depression, and shoulder abduction. Patients presenting with limited shoulder external rotation are often prohibited from this position due to an increase in pain and/or articular limitation. In this study, the mechanical loading of the ulnar nerve on cadavers using the traditional ULNT3 maneuver was compared to an experimental substituting shoulder external rotation with shoulder internal rotation. Six cadavers with a mean age 80.3+9.13 years (range 65-88 years) were used in this study. Each cadaver was placed in the traditional ULNT3 position followed by the experimental ULNT3 position with shoulder internal rotation. Linear excursion (mm) and percent strain (%) of the ulnar nerve were recorded throughout both maneuvers using a differential reluctance transducer. During both methods, goniometric measurements were recorded at the conclusion of each sequentially imparted passive joint motion. Statistical analysis was performed using the Pearson product moment coefficient of correlation (r) with an alpha level of ($p=<.05$). A very strong correlation ($r=.98$) was shown to exist between maneuvers and this relationship was determined as significant ($p=.001$). In 50% of subjects the total linear excursion and percent strain was greater in the experimental maneuver. The component motion of shoulder internal rotation (0.037805mm) yielded a greater linear excursion when compared to shoulder external rotation (-0.03538mm) despite their difference in excursion direction. The component motion of shoulder internal rotation (0.945%) also yielded a greater percent strain when compared to shoulder external rotation (0.089%) despite their difference in strain direction. This study provides evidence that shoulder internal rotation is a viable substitute for providing strain along the ulnar nerve when compared to shoulder external rotation during the ULNT3. Further research involving living subjects will be needed to assess the effectiveness of the experimental maneuver in the clinical setting.

Acute Effects of Aerobic Exercise and Yoga on Cognitive Performance

Student Names: Jenna D'Alessandro, Ashley Vitale, Kathryn Miller, Eva Freeh, Stephanie Mugnai, Matthew Masciandaro

Faculty Mentor: Cheryl Hall

Department: Physical Therapy, School of Health Professions

The purpose of the study is to determine the acute effects of aerobic exercise and yoga on cognitive performance in healthy college-aged students. Seventeen college-aged students volunteered to perform 20 minutes each of aerobic exercise, yoga, and seated rest (control) in random order on three separate days at NYIT, Old Westbury. The aerobic exercise condition included walking at 65% of maximum predicted heart rate and at a subjective rate of perceived exertion (RPE) between 12-14/20 on the Borg RPE scale. The yoga portion consisted of 16 beginner poses and deep breathing exercises with video instruction from an iPad application, "Simply Yoga". The dependent variables were cognitive performance, blood pressure, heart rate, and RPE. Cognitive performance was assessed by a neuropsychological battery consisting of the Stroop Color and Word Test, Symbol Digit Modalities Test (SDMT), and the Memory section of the Montreal Cognitive Assessment (MoCA) administered immediately before and after each of the three conditions. Blood pressure, heart rate and respiratory rate were measured at baseline and immediately after each condition. Heart rate and RPE were collected every 5 minutes during each of the 20-minute conditions. Data are currently being analyzed. Our primary hypotheses are, 1) the aerobic exercise and yoga conditions will both have greater positive effects on cognitive performance than the control condition; 2) the yoga condition will have a greater effect on cognitive performance than the aerobic exercise condition possibly due to greater cortical and autonomic nervous system involvement during the performance of the yoga exercises. Our secondary hypothesis is that the aerobic exercise and yoga conditions will both have greater effects on blood pressure, heart rate, and RPE than the control condition. The findings of this study may have implications for optimizing cognitive performance during lecture and study time as well as for improving cardiovascular health and decreasing stress in college-aged students.

The Effects of Wii Bowling on Balance in Older Adults

Student Names: Jaclyn Paler, Stephanie Bravo, Nicholas Vitale, Preeth George, Melanie Hoffer

Faculty Mentor: Teresa Ingenito

Department: Physical Therapy, School of Health Professions

The purpose of this study is to investigate the effects of playing the Wii Bowling game on balance in older adults. The study consisted of 20 subjects all of which were over the age of 65. There were 9 females and 6 males at the end of the study enrolled, as some subjects dropped out. The subjects were placed in either the control group or the experimental group based on convenience. The experimental group participated in Wii bowling for 30 minutes twice a week, while the control group did not participate in Wii bowling. Pre/Post outcome measures included the Berg Balance Test and the Timed Up and Go Test. The research design used was a pretest-posttest control group design using a sample of volunteers from a nursing home that were instructed on playing the Wii for a period of time. The independent variable was the Wii Bowling game as the intervention; and the dependent variable was balance. An anova was used to show that there were no differences between the groups at the outset. Significant differences were only found in the Berg Balance Test scores of the experimental group pre and post intervention. No significant differences were found in the pre and post TUG scores of the experimental group, nor in the pre and post BERG and TUG scores of the control group. Participating in Wii bowling twice a week for 30 minutes for 8 weeks may be seen as an option to improve balance in older individuals; however further studies need to be performed given the small sample size and sample of convenience.

Session I Presentations
8th Floor
Room 822
Moderator Emily Restivo
10:30 am - 11:45 am

- "Religion and Film"
  By: Sam Schmitz

- "The Future of Art Films"
  By: Grace Nardi

- "The End of Broadcast Television"
  By: Jeanine Feudi

- "Sleep Deprivation and Aggressive Behavior"
  By: Lissette Palestro, Elyse Gagliardi,
  Richard Melendez, Keronia Blake, and Sehar Haider

- "The Effects of Football Game Losses on Domestic Violence"
  By: Sarah Udkow, Kerry Kaur, Sabrina Moore,
  Jovanni Ortiz, and Sophia Thermidor

Religion and Film

Student Name:	Sam Schmitz
Faculty Mentor:	James Fauvell
Department:	Communication Arts, College of Arts and Sciences

Recent films representing the thematic events from the Bible have received a mixed reception from audiences. With organized religions' attendance down each year in the United States, society needs to establish a new mythology to keep American values alive. In order to preserve the values religion teaches, some filmmakers will have to devise and innovate new stories separate from the biblical text to appease the growing population of people parting with religion. This presentation will provide: an explanation of why religious movies receive negative reception, an exploration of why mythology is necessary in organized societies, and an insight as to how current and future filmmakers will piggyback this movement and turn it in the right direction.

The Future of Art Films

Student Name: Grace Nardi
Faculty Mentor: James Fauvell
Department: Communication Arts, College of Arts and Sciences

While big blockbuster films continue to flourish, there is a new market developing for art films. This paper will do the following: identify the new audience for art films and explain why directors are choosing this genre, explain why more art films are being made, and define what qualifies as art films, and explain why they are becoming more readily available and profitable. Focus is on the impact these films are having/will have on their audiences while looking at the future of this industry.

The End of Broadcast Television

Student Name: Jeanine Feudi
Faculty Mentor: James Fauvell
Department: Communication Arts, College of Arts and Sciences

As technology becomes more user friendly, the web has, and will continue to become a fast and growing platform for various artists to showcase their work. This will ultimately put an end to broadcast television as we know it.

This presentation will:

- Explain the benefits of online channels such as YouTube for an artist.
- Explore the cost differences between cable and online television.
- Explore the future of web series and cable television.
- Examine the future of television and web TV looking at new forms of programing.

Sleep Deprivation and Aggressive Behavior

Student Names:	Lissette Palestro, Elyse Gagliardi, Richard Melendez, Keronia Blake, Sehar Haider
Faculty Mentor:	Emily Restivo
Department:	Behavioral Sciences, College of Arts and Sciences

Studies have linked sleep deprivation to several different symptoms. Previous research studies showed that those with sleep deprivation were more susceptible to engaging in risky behavior including substance abuse, hostility, and aggression. This was due to a decrease in self-control and an increase in impulsivity. The purpose of this study is to understand how the lack of sleep can affect a person's behavior in a negative manner and impact their lives. A sample of approximately 100 undergraduate students from the New York Institute of Technology-Old Westbury Campus will be asked to take part in this study by taking a survey. The survey consisted of multiple-choice and fill-in-the-blank questions. We hypothesized that an increase in sleep deprivation resulted in an increase in aggressive behavior.

The Effects of Football Game Losses on Domestic Violence

Student Names:	Sarah Udkow, Kerry Kaur, Sabrinna Moore, Jovanni Ortiz, Sophia Thermidor
Faculty Mentor:	Beth Adubato
Department:	Behavioral Sciences, College of Arts and Sciences

The purpose of this study is to discover a relationship between televised football games and domestic violence. We hypothesized that domestic violence rates increased during and the six-hour period after the game of a major televised football game. The investigation assessed the domestic violence rates during football games in Baltimore, Maryland. The data was collected from the established secondary police data from the Baltimore Police Department. We examined those domestic violence statistics from the 2012-2013 NFL and MLB seasons in the Baltimore area during a six hour time period.

Session I Presentations
10th Floor
Room 1026
Moderator Marianne Land
10:30 am - 11:45 am

- "Osteopathic Manipulative Therapy in Chronic Wound Management: A Basic Protocol"
  By: Karan Lal and Danielle Defoe

- "Dose Dependence of Renal Injury in the Zebrafish Laser Ablation Assay"
  By: Farhana Tamanna and Imran Ilahi

- "Alternative Nucleic Acid Structures in the Macronucleaus and Micronucleus of Blepharisma"
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- "Immunocytochemical Staining of Tissue Sections by NYIT Students: Examination of Right-Handed B-DNA, Left-Handed Z-DNA, and Denatured Single-Stranded D"
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- "Protein Kinase C-2 Regulation of UNC-18 in Caenorhabditis Elegans"
  By: Maryam Hussain, Sofia Javaid, Siddhant Kulkarni, Parth Patel, Alvaro Guerrero Uribe, and Aisha Nero

Osteopathic Manipulative Therapy in Chronic Wound Management: A Basic Protocol

Student Names:	Karan Lal, Danielle Defoe
Faculty Mentor:	Sheldon Yao
Department:	Osteopathic Manipulative Medicine, College of Osteopathic Medicine

The significant expense of wound care is partially due to the unrelenting co-morbidities that prevent efficient wound healing, and also for the multidisciplinary approach required for efficient wound care treatment. Chronic wounds are wounds that do not follow the traditional healing pathway, and due to poor perfusion, repetitive trauma, poor diet, or wound supporting co- morbidities, including diabetes and obesity, take over 12 weeks to heal. Wound care management plays a role in improving quality of life, preventing wound degeneration and infection, and preventing the development of malignancy within wounds. As the population at risk for chronic wounds continues to grow, it is vital to investigate the strengths and weaknesses of treatment options, as well as assess ways to improve upon them. When assessing a patient osteopathic physicians do not consider just the wounded area, but rather the body as an integrated unit, comparing multiple complex function and interrelated structures. Osteopathic manipulative treatment (OMT) can be beneficial to patients by relieving pain, improving function of the body's symptoms, increasing functional movement, and encouraging healing time via increased fluid function. OMT allows for the mobilization of fluid, increased flow through lymphatic drainage and mobilization of leukocytes, all necessary for proper wound healing. Because of these benefits it is essential to determine if osteopathic manipulative medicine is a treatment modality that should be incorporated into the standard of care for chronic wounds. We have developed a theoretic protocol that may be implemented as an adjunctive treatment plan utilizing several OMM techniques along with the standard of care for chronic wounds based on research in the field of osteopathic manipulative medicine. The protocol is based on the lymphatic component of osteopathy where we recommend beginning treatment with thoracic outlet release to promote better venous return to the heart, followed by diaphragm release which improves not only breathing mechanics, which are often impaired in the eldery, but also releases fascial strains in the abdominal cavity surrounding the cisterna chyli. The splenic pump would then be performed to increase the quantity of circulating lymphocytes allowing for proper wound healing, followed by bilateral popliteal release treatment which allows for proper return of lymphatic fluid into circulation. Lastly, we recommend performing the pedal pump which locally and globally works on the targeted areas of chronic wounds but also decreases congestion and venous stasis in the lower extremity, both of which impair wound healing. Our protocol aims to improve the overall fluid function of the body to in turn increase the body's innate ability to heal itself.

Dose Dependence of Renal Injury in the Zebrafish Laser Ablation Assay

Student Names: Farhana Tamanna, Imran Ilahi
Faculty Mentor: Aleksandr Vasilyev
Department: Biomedical Sciences, College of Osteopathic Medicine

Acute kidney injury (AKI) is a common and significant medical problem. Despite the kidney's remarkable regenerative capacity, the mortality rate for the AKI patients is very high. Thus, there remains a need to better understand the cellular mechanisms of nephron injury and repair. We developed a novel, laser ablation-based, zebrafish model of AKI. In the present study we use a variety of live imaging and immunohistochemical methods to investigate the different ways in which renal epithelium responds to various amount of kidney injury.

Alternative Nucleic Acid Structures in the Macronucleus and Micronucleus of Blepharisma

Student Names:	Domenico Carbone, Alexia Skiadas
Faculty Mentor:	Claude Gagna
Department:	Life Sciences, College of Arts and Sciences

Blepharisma is a unicellular ciliated protist that measures approximately 190 micrometers in length. It is a genus of unicellular ciliate protists found in both salt and fresh water. This fascinating group of tiny organisms contains about 40 species and numerous strains and sub-varieties. Nucleic acids, namely, DNA and RNA, are dynamic molecules that can adopt many different helical structures, such as right-handed double-stranded (ds-) B-DNA (i.e., conventional DNA), single-stranded (ss-) DNA (i.e., conventional denatured DNA), left-handed ds-Z-DNA (i.e., alternative form of DNA), triplex DNA (multi-stranded DNA), and quadruplex DNA (multi-stranded DNA). All of these biomolecules play roles in gene expression of living organisms. Our group wants to examine the different structures of DNA that are present in this organism so that we can better understand the reasons why such a primitive entity has such a large amount of genomic DNA. Answering these questions will help understand eukaryotic and prokaryotic evolution. Many different fixatives were used to preserve the organism's morphology and simultaneously preserving different structures of DNA. Antigen retrieval was performed at FDU. Both the macronucleus and micronucleus of Blepharisma were immunohistochemically examined for the presence of conventional, alternative and multi-stranded DNA structures. A variety of anti-ds-B-DNA antibodies, anti-ss-DNA antibodies, anti-Z-DNA antibodies, and anti-methylated DNA antibodies were used (data not shown). Dr. Gagna also used the Feulgen reaction in addition to the antibodies in order to determine DNA content. We used Feulgen reaction stained slides to examine these organism's morphology and genome (i.e., preservation of intact, unaltered DNA), namely, 10% formalin, zing formalin, Bouin solution, Zenker's solution, Histochoice, Davidson's fixative, glutaraldehyde, Carnoy's solution, and Methacarn. The next step is to compare Feulgen stained slides versus anti-DNA stained slides. The problem we are encountering is how to best obtain good morphology and excellent preservation of DNA, simultaneously. Students in this assignment contributed towards the overall project by characterizating the morphology of the differently fixed and stained organisms. We used light microscopy [(i.e., Zeiss AX10 microscope) (camera: ProgRes C5)],and computer-based image analysis(i.e., ProgRes Software) studies to obtain data, namely by taking color pictures of the differently fixed and stained Blepharismas. Data was then visually characterized. Our data indicates that Blepharismamorphology was best obtained with Carnoy's solution fixative. Dr. Gagna's results also showed that Carnoy's resulted in the best preservation of DNA structures (data not shown). Glutaraldehyde was by far the worst fixative for morphological preservation which was also supported by Dr. Gagna's research. Bouin's fixative resulted in very poor differentiation of internal structures. More research needs to be performed before major conclusions on evolution can be made.

This research project was supported in part by a NYIT 2011 Institutional Support of Research and Creativity grant.

Immunocytochemical Staining of Tissue Sections by NYIT Students: Examination of Right-Handed B-DNA, Left-Handed Z-DNA, and Denatured Single-Stranded D

Student Names: Tressa Mahmood, David Dursunian, Akshay Sharma, Muhammad Malik, Bisma Ansar

Faculty Mentor: Claude Gagna

Department: Life Sciences, College of Arts and Sciences

Human Melanoma is a dangerous malignant tumor of the melanocytes. The frequency of melanoma has continued to increase considerably over the past few decades. In the United States each year, more than 50,000 people are diagnosed with this potentially deadly disease. The danger from melanoma comes from it metastasizing to other parts of the human body, which could result in death. New classes of drugs need to be produced that can be used to treat and/or cure this dangerous disease. DNA-based drugs that specifically target B-DNA, Z-DNA and single-stranded (ss-) DNA would be used to inhibit gene expression. This would result in new classes of drugs with fewer side effects and give physicians more options to treat their patients. Conventional B-DNA makes up the majority of DNA in human cells that regulates gene expression. Left-handed Z-DNA is an alternative form of ds-DNA that plays an important role in regulating transcription, RNA editing and genetic recombination. SS-DNA also plays an important role in cellular division and the molecular biology of the cell. The distribution of right-handed double-stranded (ds-) B-DNA in melanoma tissue sections involving vertical growth (and also to some extent horizontal growth) of the epidermis into the dermis reveals the following: as the vertical growth of the epidermis proceeds down the dermis into the subcutaneous layer we found the strongest signal for B-DNA immunohistochemistry [Mean Optical Density units (MOD)]. The highest MOD units were always found in the tip of the vertical growth pattern. On the contrary, with the denatured ss- DNA there was very little growth at the tip, but a stronger ss-DNA color signal (MOD units) within the middle and top portions of the vertical growth pattern. In left-handed ds-Z-DNA, we witnessed similar binding patters as B-DNA, except the signal strength (MOD units) was not as strong as we observed for B-DNA. B-DNA MOD units were 6 times stronger than those of Z-DNA. Additionally, we have also stained tissue cultured melanoma cells with the same three anti-DNA antibodies. This data may be used together with tissue section results to obtain more knowledge on how these different forms of DNA regulate normal and melanoma cells. These results will also shed light on how cell death is affected by different types of DNA [apoptosis and terminal differentiation (denucleation)]. Therefore, resulting in data that can be applied to pharmaceutical R & D for new DNA-based drug treatment of melanoma.

Protein Kinase C-2 Regulation of UNC-18 in Caenorhabditis Elegans

Student Names: Maryam Hussain, Sofia Javaid, Siddhant Kulkarni, Parth Patel, Alvaro Guerrero Uribe, Aisha Nero

Faculty Mentor: Marianne Land

Department: Life Sciences, College of Arts and Sciences

Diacylglycerol and calcium activated classical (c) protein kinase C (PKC)s are a family of enzymes that phosphorylate specific serine/threonine amino acids and their substrates to regulate many functions in mammals, for example, differentiation, secretion, growth and neuronal function. However, knowledge of in vivo cPKC substrates is limited. In addition, cPKCs are mis-regulated in a number of diseases, such as cancer, Parkinson's, Alzheimer's, and in aging. Most signal transduction pathways and genes that are found in mammals are present in C. elegans, for example the aging and apoptosis (cell death) pathways were elucidated in this worm. In C.elegans a single gene (pkc-2) encodes cPKCs, whereas in mammals 3 genes encode cPKCs. Thus, studying PKC-2 in C.elegans may lead to a further understanding of cPKCs that will likely be extended to humans. Wild type (WT) worms can detect, remember and migrate to the temperature at which they were cultivated with an ample food source. PKC-2 null worms have an athermotactic thermotaxis phenotype, in that they migrate randomly to temperatures other than their cultivation temperature, when placed on a thermal temperature gradient. We are investigating the physiological relevance of potential PKC-2 sites in UNC-18, in the thermotaxis response of C.elegans. Mammalian Munc 18a is a protein that regulates synaptic vesicle fusion in neurotransmitter release, by binding v- and t-SNARES, to promote synaptic vesicle, priming, docking and fusion, during various phases of regulated exocytosis. We have used site directed mutagenesis to convert specific serine amino acids to alanine in UNC-18. This will prevent their phosphorylation and mimic unphosphorylated UNC-18. Transgenic worms that express these mutant forms of UNC-18 in the AFD thermosensory neuron of WT worms, elicit an athermotactic thermotaxis response. Furthermore, these mutants suppress the cryophilic phenotype of PKC-2 over expression, suggesting that UNC-18 is a PKC-2 target in the thermotaxis response. We are currently expressing wild type and mutant forms UNC-18, as fusion proteins in E.coli, to test as in vitro cPKC substrates.

Session I Presentations
10th Floor
Room 1029
Moderator Spencer Turkel
10:30 am - 11:45 am

- "The Automatic Identification and Diagnosing System of MR Brain Images"
  By: Yida Zhang, Du Zhang, Zhibo Zhu, and Ziao Xu

- "Wireless EKG"
  By: Runze Dong, Linzhe Li, and Tian Tian

- "Robust Control System for a Car Active Suspension"
  By: Syed Huda

- "Episode 1: Public, Private, and Hybrid Clouds"
  By: Asad Richardson, Jingting Yao, and Paul Oliva

The Automatic Identification and Diagnosing System of MR Brain Images

Student Names:	Yida Zhang, Du Zhang, Zhibo Zhu, Ziao Xu
Faculty Mentor:	Vesna Zeljkovic
Department:	Electrical Engineering, School of Engineering and Computing Sciences

Brain cancer diagnosis is mainly based on MR or CT scan images. The tumor tissue mainly appears in brighter colors than the rest of the regions in the brain. Based on this observation we propose an automated algorithm for brain tumor detection and medical doctors' assistance in facilitated and accelerated diagnosis procedure.

Wireless EKG

Student Names:	Runze Dong, Linzhe Li, Tian Tian
Faculty Mentor:	Tao Zhang
Department:	Electrical and Computer Engineering, School of Engineering and Computing Sciences

Our goal is to design a system that can make an easy way for patients to get their ECG in their smart phones. Doctors can also get an alarm by their smart phones when the patients' ECG is abnormal. They can take steps immediately, which can prevent patients from death in most cases. By using the wireless monitoring system, we can measure the ECG when people are doing special missions such as spaceflight or diving. The ideal system will have in place methods that will help to eliminate errors and expand efficiency of data transmission. Relaying this data back to a cell phone or base computer will allow for further processing of data, data storage, and the ability for data mining. Most importantly, the ability to deliver this data to a doctor's smartphone for remote monitoring is a key component. When the data contains life or death information, speed and efficiency cannot be taken for granted. This technology is generalized enough have multiple applications. The monitoring of patients is useful for patients at home, patients in nursing homes, and those in rehabilitation centers.

Robust Control System for a Car Active Suspension

Student Name:	Syed Huda
Faculty Mentor:	Sabiha Wadoo
Department:	Electrical and Computer Engineering, School of Engineering and Computing Sciences

Robust control theory is a method to measure the performance changes of a control system with changing system parameters. In this presentation the problem of vibration suspension in vehicles is discussed and a control strategy is developed to stabilize the attitude of the vehicle and improve its comfort level. A car model adopted with electro-hydraulic actuators having non-linear characteristics is considered to form the basics of accurate control. The stability analysis for the closed loop system is given within the Lyapunov framework and at the end a numerical example is illustrated to explain the proposed control law where different road conditions are considered.

Episode I: Public, Private and Hybrid Clouds

Student Names: Asad Richardson, Jingting Yao, Paul Oliva
Faculty Mentor: Sonali Chandel
Department: School of Engineering and Computing Sciences

The past few decades have witnessed the rapid development of cloud technology which provides an ever-prominent advantage of reduced cost through sharing of computing and storage resources. Three types of cloud: public, private and hybrid are available for cloud vendors to store and manage their data. On one hand, cloud computing completes data storage by creating a non-dedicated dynamic virtual space supervised by third-party servers where the service providers have full access to the data and customers have no control over their own information. On the other hand, the cryptographic techniques provided by cloud service providers for the security of the data stored are costly and consume a large amount of computing resources such as processor overhead. Many cloud service providers only offer basic encryption or alternatives to encryption that do not require as much processing power. These factors and loopholes in their protection strategies have brought about many security threats and have led to scientists' actively working to find some trustworthy solutions to overcome the existing issues as mentioned above. The first part of this research analyzes the three types of cloud in terms of their architecture characteristics, level of efficiency, robustness, scalability, speed, complexity and cost, thereby evaluating their safety performance. The second part focuses on delving into preferences of some cloud vendors as to their choices of the type of cloud. The merit of this research lies in the combined evaluation of the three types of cloud and their applications in the market while prior work in this domain is only particular to one or two types of cloud.

Session II Presentations

8th Floor
Room 821
Moderator Elizabeth Donaldson
2:15 pm - 3:30 pm

- "2.1 GHz Passive SAW Sensor Driver"
  By: Yin Xu, Lening Wang, and Saide Zhu

- "The Effects of an Acute Bout of Martial Art Exercise on Cognitive Performance in Middle-Aged Adults"
  By: Christopher Douris, Aleksey Zhuchkan, Amir Rand, Freya Tarapore, Nicole Balder, and Michael LaCasse

- "A Case Study: Does Single Leg Treadmill Training Aid in Isolated Gluteus Medius Strengthening?"
  By: Ilona Sharapan, Al Cascio, Allison Halbig, Irene Kelada, Erica Melchione, and Matt Cohen

- "Acute Effects of Caffeine on Physical and Cognitive Performance in Persons with Parkinson's disease"
  By: Matthew Simms, Robert Caridi, Kelly Dougherty, Denise Crawford, and Jocelyn Dennen

2.1 GHz Passive SAW Sensor Driver

Student Names:	Yin Xu, Lening Wang, Saide Zhu
Faculty Mentor:	Tao Zhang
Department:	Electrical and Computer Engineering, School of Engineering and Computing Sciences

Within the medical field, sensors are often used to continuously monitor a patient's vital signs or any other physiological phenomena for medical study or to determine treatment of a patient's condition. These sensors are either placed on the surface of the skin or implanted under the skin in various parts of the body. Sensors are electronic devices that will convert a biological signal to an electrical signal that can be used to monitor health conditions by nurses or doctors. All sensors require both power and a means of transmitting the information that has been obtained. Currently, most biological sensors use a wired connection to provide power and to transfer and display these signals on computers or other equipment. A wireless sensor may be the key to coping with the booming demand for convenience and humanity of patients and nurses/doctors. The integration of these technologies with medical sensors could be a great improvement over currently used wired sensors. The device then transduces this wave back into an electrical signal. Changes in amplitude, phase, frequency, or time-delay between the input and output electrical signals can be used to measure the presence of the desired phenomenon. In this project, we are focusing on building a Body Area Network system with a wireless driver for Surface Acoustic Wave (SAW) sensors operating at a specific range of frequency. The advantages of using a SAW sensor are that they are small in size and there is no need for a common power supply. When a SAW sensor is working, the reader sends a pulse at a specific frequency. The pulse can be a single short signal that will provide power to the SAW sensor. The sensor receives the pulse, which provides the energy for it to feedback a different pulse to the reader, which contains information needed. This information could be a patient's temperature, blood pressure, or many other physical conditions. The SAW sensor is much like a mirror. When light is pointed onto a mirror, it will then reflect a light back. It will point out the abnormal conditions if the state of the human body is out of a normal range.

The Effects of an Acute Bout of Martial Art Exercise on Cognitive Performance in Middle-Aged Adults

Student Names:	Christopher Douris, Aleksey Zhuchkan, Amir Rand, Freya Tarapore, Nicole Balder, Michael LaCasse
Faculty Mentor:	Peter Douris
Department:	Physical Therapy, School of Health Professions

We investigated the acute effect of martial art training and aerobic exercise on cognitive performance in middle aged adults. Research has found that declines in cognitive performance are associated with aging in non-demented older adults. Previous research studies have shown that acute as well as long term aerobic exercise improves cognitive performance. However, there is limited research examining the effect that martial art training has on these cognitive processes. The research design used was a repeated measures design using a Latin square in order to randomize the treatment conditions which took place over a 3 week period with each treatment condition separated by one week. Ten subjects were enrolled in the Martial Arts School of Soo Bahk Do in Manhasset, NY, 4 women and 6 men (mean age=53.5Â±8.6) took part in three separate exercise conditions: 1) Typical or traditional martial art class 2) Atypical Martial art class 3) One hour walk at their own self-selected speed. The independent variables were the three exercise conditions and the dependent variables were cognitive performance (Stroop Color and Word tests), the Subjective Exercise Experiences Scale (SEES), and the Borg rating of perceived exertion (RPE). In order to test our hypothesis, we performed multifactor ANOVA's for each Stroop test in order to evaluate the change from pre to post for the three conditions and across conditions, and percent improvement in the Stroop scores. The stroop word and color tests measures processing speed while the Stroop incongruent color-word test and interference score tests for executive functioning. Repeated measures ANOVA's were also performed for the SEES and the RPE scores. An alpha level of $p<0.05$ was used for all statistical comparisons. There were no significant differences between the three conditions on enhancing cognitive performance. There were significant improvements ($p< 0.05$) between all pre and post Stroop scores for all three conditions. The fatigue domain of the SEES was significant ($p=0.004$), with post hoc analysis demonstrating that typical and atypical martial art class were more fatiguing than the one hour walk. The Borg scores were also significant ($p<0.001$),with post analysis also indicating that the subjects perceived the martial art classes more physically exerting than the one hour walk. We hypothesized that martial art training would have a positive effect on the cognitive performance of middle aged adults. Previous research has shown that aerobic exercise of moderate intensity improves cognitive performance. Our results demonstrated that all three conditions were equally effective on improving cognitive performance.

A Case Study: Does Single Leg Treadmill Training Aid in Isolated Gluteus Medius Strengthening

Student Names:	Ilona Sharapan, Al Cascio, Matt Cohen, Allison Halbig, Irene Kelada, Erica Melchione
Faculty Mentor:	Veronica Southard
Department:	Physical Therapy, School of Health Professions

The hip abductors, primarily the gluteus medius, (GM) have been proven in the literature to play a vital role in pelvis stabilization during gait. When the hip abductors are weak, it can lead to injuries of the knee and ankle as well as the hip. It has been shown that the GM is the main pelvic stabilizer during functional activity. Our study aimed to assess functional strength of the GM and also address the gap in the literature regarding unilateral treadmill training's effect on that functional strength. The purpose of this case study was to assess whether the use of unilateral treadmill training, in conjunction with isolated GM strengthening, will improve the functional strength of the hip abductor musculature. The study was conducted in an outpatient physical therapy clinic. The subject was a 54 year old female with a diagnosis of knee OA. The subject met the following inclusion criteria; ambulatory (i.e. able to walk with or without assistive device), aged 40-80 years old, able to follow instructions and capable of giving informed consent, and a positive trendelenberg test. The exclusion criteria included; presence of an acute illness, active or chronic cardiopulmonary disease, restricted from walking and/or cannot tolerate 6+ minutes of walking on a treadmill, greater than mild pain (>3/10) with walking, or progressive neurological diseases. Methods: The subject was seen 2x/week for 7 weeks. The subject received usual physical therapy and the addition of single leg treadmill training for 5 minutes. The outcome measures used were gait speed, 30 Second Sit-Stand test, and the Lower Extremity Functional Scale (LEFS). The outcome measures were taken at the initial visit and at discharge. The score from the gait speed test was converted from meters per second (m/s) to miles per hour (mph) to determine the speed at which the subject would perform the single leg treadmill training. Rate of perceived exertion (RPE) was recorded at the 2 minute mark and at the 5 minute mark for every session. Vitals were recorded before and after the single leg treadmill training. The subject's gait speed at initial was 1.33 m/s (3.48 mph) and at discharge was 1.30 m/s (3.48 mph) (2.25% decrease). The subject's 30 Second Sit-Stand score at initial was 11 reps and at discharge was 13 (18% increase). The subject's LEFS score at initial was 39/80 and at discharge was 46/80 (18% increase). The patient also exhibited a negative trendelenberg test. After 7 weeks of single leg treadmill training, in conjunction with isolated GM strengthening, the subject's gait speed decreased, however the 30 Second Sit-Stand and LEFS scores increased. Our case study proved that with this subject, there were improvements in two out of the three outcomes when single leg treadmill training was done in conjunction with isolated GM strengthening. Although we had improvements, this was a case study which can be used as the basis for further research.

Acute Effects of Caffeine on Physical and Cognitive Performance in Persons with Parkinson's Disease

Student Names: Matthew Simms, Jocelyn Dennen, Robert Caridi, Kelly Dougherty, Denise Crawford
Faculty Mentor: Rosemary Gallagher
Department: Physical Therapy, School of Health Professions

Caffeine is a drug known to block adenosine receptors, thus stimulating the sympathetic nervous system. This results in increased oxygen flow to the tissues and has been shown to significantly improve motor function. Several studies have examined the effects of chronic caffeine use and the onset of Parkinson's disease (PD), but only a few have examined the acute effects of caffeine on people with PD. In this pilot study, we compared the acute effects of caffeine on physical and cognitive performance in persons with PD. A total of 6 subjects between the ages of 55 and 85, stage 2-3 on the Hoehn and Yahr scale, participated: 3 caffeine users and 3 non-caffeine users. Subjects performed physical and cognitive tasks before and after taking either a caffeine supplement or a placebo. A greater effect in physical and cognitive performance for the non-caffeine users compared to the chronic caffeine users is expected. If positive effects are found, future larger studies should be conducted to further identify the use of caffeine in the short-term management of symptoms in persons with Parkinson's disease.

Session II Presentations

8th Floor
Room 822
Moderator Nicholas Bloom
2:15 pm - 3:30 pm

- "Becoming Hombre"
  By: Anne-Marie Gallo

- "The Effects of Active vs. Passive Sitting on Visual Acuity"
  By: Avneet Madhan, Adrian LaRosa, Alyssa Mariana, and Marsha Gaspard

- "Traditional Bullying vs. Cyberbullying"
  By: Anthony Lanzarone, Erica Groover, Melisa Savin, and Ashley Wade

- "Gender Role's Perspectives in Cyber Security"
  By: Joseph Daru, Vanester Opoku, Macy Faqiri, and Merve Yesilkaya

- "An Examination of Prejudice in Law Enforcement"
  By: Jordan Melexenis, Marissa Viggiano, Stephanie Mahoney, Michael Auriemmo, and Venessa Sobers

Becoming Hombre

Student Name: Anne-Marie Gallo
Faculty Mentor: Michael Schiavi
Department: English, College of Arts and Sciences

Down These Mean Streets by Piri Thomas, chronicles his tumultuous journey to becoming hombre, a man. I will be highlighting the three obstacles that Piri, a young, dark-skinned, Latino man faces because of his environment and prejudice against his culture and race. I will explore the racism, poverty, and violence Piri endures growing up in one of New York's poorest neighborhoods. My research will encompass the unlivable conditions in Spanish Harlem during this time. I will look at the racial inequalities faced by both the Hispanic and black communities. I will also examine the inescapable gang life young Latino men were accustomed to because violence was the norm. I am going to tell the story of a young man's desperation; Piri's struggle for himself and others to love his dark skin, his fight for a place to call home, and his desperation for acceptance from his family, and more importantly, from himself.

The Effects of Active vs. Passive Sitting on Visual Acuity

Student Names:	Avneet Madhan, Adrian LaRosa, Alyssa Mariana, Marsha Gaspard
Faculty Mentor:	Blair Hoplight
Department:	Behavioral Sciences, College of Arts and Sciences

The purpose of this pilot study was to investigate possible differences in visual acuity while sitting on a therapy ball compared to a normal office chair. The researchers hypothesized that the visual acuity will change during active sitting compared to passive sitting. To study this, a sample of 50 adult subjects were recruited from classes in the Behavioral Sciences department at the Old Westbury campus of NYIT. Subjects were then randomly assigned to one of the two possible testing groups: Group A (chair) and Group B (ball). During the study, each subject was asked to sit on a ball or a chair in front of a desktop PC equipped with a standard keyboard and a mouse, tablet, or laptop. Subjects were shown two images with slight differences on a computer screen and were also given handouts of the same images. Subjects were asked to note the differences between the two images by circling them on the handouts. It is hypothesized that there will be significant differences in visual acuity when sitting on a therapy ball (active sitting) compared to a normal office chair (passive sitting).

Traditional Bullying vs. Cyberbullying

Student Names:	Anthony Lanzarone, Erica Groover, Melisa Savin, Ashley Wade
Faculty Mentor:	Blair Hoplight
Department:	Behavioral Sciences, College of Arts and Sciences

The purpose of this study is to survey college students perceptions of traditional bullying compared to cyberbullying. Bullying effects individuals of all age groups ranging from adolescence to adulthood. Traditional bullying is performed to the individual in person. Whereas, cyberbullying is performed through social media, text messages, and photos. A survey was given to students in the Department of Behavioral Sciences at the New York Institute of Technology Old Westbury campus. Students were asked to evaluate scenarios on the intensity of bullying. Two surveys were distributed, one survey was for traditional bullying and the other was for cyberbullying. The scenarios are similar but survey A: cyberbullying scenarios were done online and B: traditional bullying scenarios were done in person. We hypothesize that cyberbullying will have more of an effect on an individual than traditional bullying.

Gender Role's Perspectives in Cyber Security

Student Names:	Joseph Daru, Vanester Opoku, Macy Faqiri, Merve Yesilkaya
Faculty Mentor:	Blair Hoplight
Department:	Behavioral Sciences, College of Arts and Sciences

The purpose of this study is to analyze how gender plays a role in the perspective of cyber security and technology awareness. The study of cyber technology is important because security and privacy issues have become a major concern to online users due to risky behaviors such as identity theft and stolen information. We examined the difference in knowledge between the two genders concerning cyber security and privacy. The study was conducted on 150 NYIT students from the behavioral science class at the Old Westbury and Manhattan campuses. A survey which consisted of 15 true or false questions concerning online privacy was filled out and collected. We hypothesized that men were more aware of the cyber security and privacy issues and did a better job of protecting themselves online compared to the female participants.

An Examination of Prejudice in Law Enforcement

Student Names: Jordan Melexenis, Marissa Viggiano, Stephanie Mahoney, Michael Auriemmo, Vanessa Sobers
Faculty Mentor: Dina Karafantis
Department: Behavioral Sciences, College of Arts and Sciences

The purpose of the experiment was to understand prejudice levels of Criminal Justice students entering law enforcement. We were seeking whether criminal justice majors were more likely to believe in a just world as compared to non-criminal justice majors. Early identification of any discrepancy between these and non-majors could aid in the implementation of anti-bias interventions for such students. Study participants consisted of undergraduate students from New York Institute of Technology, at the Old Westbury campus. The data was collected from different classes in the Behavioral Sciences Department during the spring 2014 semester. Data from approximately 150 students was collected as a survey. We hypothesize that criminal justice students will have a higher belief in a just world as compared to non-criminal justice students.

Session II Presentations
10th Floor
Room 1026
Moderator Youjeong Kim
2:15 pm - 3:30 pm

- "The Effect of E-Commerce and How It Has Altered the Relationship Between Consumers and Marketers"
  By: Sasha Thomas

- "Impact of Gaming Industry on Inner City Children"
  By: Corey Gomillion

- "SOT Video"
  By: Crystal Kim, Krisztina Imre, Kajsa Lundman, Iris Benhaim, Bao Tran, and Fang Shen

- "The Wandering Artists Movement"
  By: Milton Guanga, Catherine Vivanco-Opazo, Candace Turull, Eufenie Cham, and Sophia Kiriakides

- "Twitter Content Analysis by Age"
  By: Kim Troung

The Effect of E-Commerce and How It Has Altered the Relationship Between Consumers and Marketers

Student Name: Sasha Thomas
Faculty Mentor: James Fauvell
Department: Communication Arts, College of Arts and Sciences

With the increase of e-commerce through the virtual web via online platforms, the role of consumers has changed. With it, the tactics used by market and consumer researchers are evolving. Customers now demand more from businesses and digital technology. This development has resulted in an emphasis placed on examining the cognitions that influence consumer behavior.

This presentation will:

- Analyze the influences that have caused a shift in consumer attitude and roles.
- Explain how the marketing industry has responded to this change and explore the new strategies implemented to benefit from these changes.
- Examine future implications of new technology and discuss further expectations of the consumer.

Impact of Gaming Industry on Inner City Children

Student Name: Corey Gomillion
Faculty Mentor: James Fauvell
Department: Communication Arts, College of Arts and Sciences

In an industry that has proven to be controversial on multiple occasions, how can the gaming industry be beneficial towards the development of inner city children as well as with those of special needs? This presentation will explain how the gaming industry is beneficial towards child development, and how it could be beneficial towards kids with special needs.

SOT Video

Student Names:	Crystal Kim, Krisztina Imre, Kajsa Lundman, Iris Benhaim, Bao Tran, Fang Shen
Faculty Mentor:	Youjeong Kim
Department:	Communication Arts, College of Arts and Sciences

SOT Treatment on NYC's Weather, PROGRAM TITLE: Winter Lifestyle in NYC, PROGRAM FORMAT: A 2 minute and 33 second demonstration of sound on tape (SOT), PROGRAM OBJECTIVE: People's reaction to NYC winter weather, TARGET AUDIENCE: 10 to 50 year olds, who are concerned with their lifestyle in relation to the extreme winter weather and the activities that the snow and cold enables. The SOT is about the cold weather that people have been currently experiencing in New York City, which has been one of the coldest since 1871. Through this program, we intend to give advice on how people can manage to live well during a winter that cold. Extreme low temperatures and the snow affect people's lifestyle, such as their activities in the city or the way they dress. The Weather in New York: A few people were interviewed on what kind of clothes they wear to face the cold temperatures. One female said that she wears a heavy winter coat and winter boots noting that it is not really fashionable. A Swedish man, the next person interviewed, says that the weather is not so cold for him in NYC as he is used to colder temperatures in Sweden. Therefore, he isn't really worried about being cold in his clothes. The narrator then discusses how the cold weather affects people's activities in Central Park, one of the most popular leisure spots in NYC and show shots of many activities people are doing there. Another person interviewed describes his winter hobbies; he enjoys various outdoor activities which include taking a walk and watching figure skating. Then the host segues into the indoor activities that people like doing. One of the most popular indoor activities is a tour within the American National Museum, which is one of the most visited museums in the United States. To conclude, the host explains that it is possible to enjoy our time in NYC even in one of the harshest winter seasons, thanks to the numerous indoor or outdoor activities, if they are dressed with all the necessary winter apparel.

The Wandering Artists Movement

Student Names:	Milton Guanga, Catherine Vivanco-Opazo, Candace Turull, Eufenie Cham, Sophia Kiriakides
Faculty Mentor:	Youjeong Kim
Department:	Communication Arts, College of Arts and Sciences

My group and I were supposed to interview a man who owns a bakery, but at the last minute he canceled on us. Unsure of what to do, we stumbled upon a woman named Pinky G. She is part of a movement known as The Wandering Artists Movement. They are a group of artists that go from gallery to gallery demonstrating their work to the audience in the lower east side. We grabbed the camera, completely unprepared for this surprising little miracle, and we interviewed some of the artists who have a powerful message to deliver. We are here to present their message.

Twitter Content Analysis by Age

Student Name: Kim Truong
Faculty Mentor: James Wyckoff
Department: Communication Arts, College of Arts and Sciences

Surveys of different age group social media users at NYIT reveal that postings to Facebook, Twitter and Instagram on specific topics may correlate with age. Research questions focus on whether older social media users post longer, more grammatical, more complex postings than younger counterparts.

Session II Presentations
10th Floor
Room 1029
Moderator TBA
2:15 pm - 3:30 pm

- "The Impact of Media on International Adoptions"
  By: Catherine Gulotta

- "Social Media and Beijing Opera"
  By: Xiaodi Wang

- "The Uses and Gratifications of Print Newspapers, Online Newspapers, and Newspaper Apps"
  By: John Santamaria

- "The Impact of the Internet on Video Gaming"
  By: Donnie D'Amato

- "Globesville"
  By: Dawn-Marie Waits, Andre Doughty, Greg Goldat, and Donnie D'Amato

The Impact of Media on International Adoptions

Student Name: Catherine Gulotta
Faculty Mentor: Mandy Zhang
Department: Communication Arts, College of Arts and Sciences

The purpose of this research is to study the impact of media on international adoptions mainly through the Internet and television broadcasting. Although the media have informed as well as broadened options in family creation in the United States, such as international adoptions, there seems to be more media exposure about positive qualities compared to negative qualities. These qualities will expose and explain the fundamental dilemmas that coincide with the lighthearted notion of creating a family for adoptees and adopters. Participants of the present research specify American families with internationally adopted children who demonstrate apparent physical differences (Galvin, 2003). For an example, a white American family who adopts a child from Vietnam qualifies for this research because the child is of Asian descent. On the other hand, a white American family who adopts a child from Canada who also appears white does not qualify for this study. In other words, previous studies consider these circumstances visible adoptions. This is a term that can better identify families who obtain adoptees that obviously lack biological evidence or ties to the nuclear family and extended family. The balance between potential rewards and consequences regarding international adoption is needed among the media in order to preserve the integrity of intercultural communication between the American people, families and internationally adopted children. Most of this existing research is mostly relative towards the fields of sociology and psychology. This topic will be executed from a communication perspective. Psychology and sociology indicate that not enough people are mindful enough to question the adoptees mental health that have not been exploited by the media enough (Wegar, 2000). To be specific, this study will further focus on intercultural communication and interpersonal communication converging with how the adopters and adoptees make sense of visible adoption and family values. Extensive research has concluded that an adoptee's narrative will help tell society about his or her life challenges and rewards. This idea revolves around the difficulties that parents of internationally adopted children may face during their children's developmental stages such as: identifying physical and ethnic differences, questions about the adoptee's birth parents, circumstances that instigated the child's adoption. This is to stress that there is evidence of the many negative aspects toward visible adoptions that could cause the adoptee hardships and internal trauma as they come to the realization of their circumstance (Kline, Chatterjee & Karel, 2009). Through qualitative analysis, in-depth interviews will be performed among three families of different backgrounds with internationally adopted children. Different backgrounds encompass marital status, financial status and social status. This method will provide knowledge of how much, if any, influence the media has on American families' decisions to adopt children internationally. Additionally, in-depth interviews will investigate if there is potential for a balance of positive and negative exposure provided by the media among the masses.

Social Media and Beijing Opera

Student Name: Xiaodi Wang
Faculty Mentor: Mandy Zhang
Department: Communication Arts, College of Arts and Sciences

While social media has grown very fast during the past few years, some traditional cultures face severe challenges. The Peking Opera, a part of traditional Chinese culture, is struggling to appeal to modern society and has the potential to become a dying art form (Liu, 2011). The Chinese government provided financial support for 230 Peking Opera troupes, and supported young performers for training (Earnshaw, n,d,). It is under such circumstances that more scholars become involved in the investigation of the relationship between social media and the Peking Opera. The literature shows that some traditional performances, such as the Peking Opera and Crosstalk are declining. One of the factors is the content of the performance itself. It is boring for young adults who prefer to get new and exciting things. While there are many websites about the Peking Opera, almost none of them are related to social networking sites. The purpose of this study is twofold. First, the study will investigate the relationship between social media and the Beijing Opera. Specifically, the study intends to find out if the development of social media has any effect on the development of the Beijing Opera. A focus group will be conducted to collect data to answer this research question. Second, the study will explore how to use social media, Weibo in particular, to promote the Beijing Opera and enhance people's interest in it. Focus group together with experimental studies will be conducted. People's knowledge of the Peking Opera come from various sources, and mass media and family influence are two major sources (Casmir, Zhang & Lin, n,d,). Weibo is the most popular social media platform in China. As it provides a lot of opportunities to share and promote, this study will focus on the use of Weibo to promote the Beijing Opera.

The Uses and Gratifications of Print Newspapers, Online Newspapers and Newspaper Apps

Student Name: John Santamaria
Faculty Mentor: Mandy Zhang
Department: Communication Arts, College of Arts and Sciences

In recent years, fewer people are reading print versions of publications. As a result, some newspapers have changed their printing format in hopes of getting consistent readership, or they have removed their print version (Hollander, Krugman, Reichert, & Adam, 2011). Everything that is read in print publications is also viewed online at no cost until recently when some newspapers launched pay walls for Web content (Sindik & Qingmei, 2012). Examples include The New York Times. More information can be available digitally than in a print publication that can sometimes have its limits. Meanwhile, e-readers like Kindle and iPad provided added value features such as audio, video, and interactive features to enrich reading experience (Neil, 2012). This study compares newspaper's print versions, websites and applications. The results provide implications for the future development of print newspapers. The author will interview reporters, editors, and subscribers of five print newspaper publications in two major media markets: New York and Los Angeles. The author will also interview faculty advisers, student reporters and editors, and readers of student-run newspapers in five colleges. Interview questions will focus on the comparisons between the newspaper's print versions, their websites, and their apps in the following aspects: 1) reader's uses and gratifications, 2) content variations, 3) financial situations, and 4) future development.

The Impact of the Internet on Video Gaming

Student Name: Donnie D'Amato
Faculty Mentor: Mandy Zhang
Department: Communication Arts, College of Arts and Sciences

The purpose of this study is to document the development of the gaming industry and compare former video game enthusiasts regularly meeting in arcades and current video game enthusiasts interacting via the Internet in terms of their gaming behavior and the effects of gaming on their social activity. Most arcades today exist as an accompaniment to other attractions or amusements as they cannot survive easily on arcade games alone (June, 2013). The number of video arcades has diminished as online gaming has become popular. The graphics improvement greatly made the console release more popular than the arcade release (Bailey, 2012). Video game enthusiasts no longer meet each other in the real world and rather stay at home. Because the Internet is immediate and global, news about games travel more quickly. Many game enthusiasts regularly check message boards for their favorite titles and share the latest news, even conversing with game developers and reporting from location tests for everyone to review. Computer gaming minimizes real-life social activity but enhances virtual social activity as online games become popular. The genre of MMORPG (massively multiplayer online role-playing game) debuted in 1997. MMORPG allowed many players to play against each other at their own computers in their own homes at the same time (Zackariasson & Wilson, 2010). To study the behavior of gamers and the effects of gaming on their social activity, the author will conduct surveys in family entertainment centers such as Dave & Busters or Chuck E. Cheeses as well as in locations that sell console games (e.g., GameStop). Survey questions include personality test to determine if a gamer is introverted or extroverted, his or her gamine experience, and comparisons between gaming at an arcade and on the Internet, their social activity, and demographic questions.

Globesville

Student Names:	Dawn-Marie Waits, Andre Doughty, Greg Goldat, Donnie D'Amato
Faculty Mentor:	Don Fizzinoglia
Department:	Communication Arts, College of Arts and Sciences

This presentation will introduce Globesville. Globesville unites NYIT'S current students and alumni located around the world via a social network that strives to be the premier media outlet on and off campus. The global platform will not only connect various cultures through knowledge and awareness, but also inspire our members to share their experiences and visions of growth through interactive exchange in the community.

Session II Presentations
7th Floor
Room 723
Moderator TBA
2:15 pm - 3:30 pm

- "Dynamic Bifurcation of the Swift-Hohenberg Equation"
  By: Oreoluwa Aderemi and Vikrant Sood

- "Assessment of the Life Cycle Carbon Footprint Incandescent Lights vs. CFL"
  By: Yoav Malka

- "South Bronx Living Greenways"
  By: Heba ElGawish and Rhoda Tsado

- "GreenKids: Saving Panda"
  By: Ajit Bali, Niket Patel, Nnanna Okorie, Nina Mirhabibi, and Justin Chua

Dynamic Bifurcation of the Swift-Hohenberg Equation

Student Names: Oreoluwa Aderemi, Vikrant Sood
Faculty Mentor: Jungho Park
Department: Mathematics, College of Arts and Sciences

We want to examine a stability analysis of dynamic bifurcation for the Swift-Hohenberg equation which arises from many physics models such as the theory of phase transitions, nonlinear optics and shallow water waves. The spectrum of eigenvalues has been explored and the onset of instability was proved as well. The main tool is the classical dynamic bifurcation theory and the center manifold reduction method.

Assessment of the Life Cycle Carbon Footprint
Incandescent Lights vs. CFL

Student Name: Yoav Malka
Faculty Mentors: Robert Amundsen, Stanley Greenwald
Department: Energy Management, School of Engineering and Computing Sciences

The carbon footprint of a product or service is the total sets of carbon dioxide (CO2) and other greenhouse gas (GHG) emissions over the life cycle of a certain product or service. It is a measure of the effect that these GHG emissions have on the environment. These emissions are expressed as kilograms of CO2 equivalents. Many, if not all of our daily activities and products used, generate some level of carbon emission. One of these products used on a daily basis is the light bulb. There are many options to choose from when selecting lighting; two of them being incandescent lights and compact fluorescent lights (CFLs). An Incandescent light is an electric light which produces light with a filament wire heated to a high temperature by an electric current passing through it until it glows. An alternative to incandescent lights is compact fluorescent lamps (CFL). These lamps use curved or folded tubs designed to fit into the space of an incandescent bulb and are designed to replace an incandescent bulb. The following report will determine and compare the complete Lifecycle Carbon Footprint for incandescent lights vs. CFLs. Included in this analysis will be information regarding materials utilized, production & manufacturing, transportation of materials and final product distribution & delivery. Additionally, this paper will also include details regarding disposal and industry standards.

South Bronx Living Greenways

Student Names: Heba ElGawish, Rhoda Tsado
Faculty Mentor: Jeffrey Raven
Department: MAURD, School of Architecture and Design

For the 2013 Fall Semester, MAURD students were divided into five teams of two to take on New York City's five boroughs as a laboratory for urban design techniques. The focus was to develop innovative solutions that address the economic, social and ecological elements for each site to create a resilient community that adapts to socio-political, environmental and economic forces. The Bronx team, consisting of Heba ElGawish and Rhoda Tsado, had a vision to confront South Bronx's classification as a "food desert" (area lacking fresh fruit, vegetables, and other healthful whole foods). The project introduces Urban Agriculture as a development strategy, along with a set of tactical formal and programmatic interventions that attempt to mitigate the area's anthropogenic and ecological challenges. The Bronx team proposed placing an urban farming system over the Metro-North Rail Corridor by leveraging the development air rights above the tracks. With a phased development timeline that begins with integrating green infrastructure into the existing urban fabric, and zoning amendments to accommodate agriculture use through a network of greenways, the project ultimately creates food security through the reliance on a local food system. Access to healthy food, creating diverse economies, introducing renewable sources of energy such as bio-digesters, all generate robust, redundant systems that are key to a resilient city. This type of organic planning which focuses on community engagement and a holistic approach to urban regeneration, builds social structures that strengthen the fabric of the community.

GreenKids: Saving Panda

Student Names:	Ajit Bali, Niket Patel, Nnanna Okorie, Nina Mirhabibi, Justin Chua
Faculty Mentor:	Lynn Rogoff
Department:	Fine Arts, College of Arts and Sciences

Greenkids: Saving Panda, is the first game of the Greenkids Series. There are 36 games on six continents. Each game focuses on a given endangered species. The objective is first to inform and educate the young player about the specific animal, its geography, habitat, food and other factors that the animal relies for survival. The player is then made aware of the dangers and challenges that threaten the species' survival. These threats are explained in the context of the impact of man's activities on the species way of life. Armed with the above knowledge the player jumps into action and tries to overcome many challenges, traps, and pitfalls in order to find the animal and save it from imminent danger. The players receive points and prizes for overcoming each obstacle. Once the animal is rescued, the player has to protect and restore the animal's habitat. At this stage the player has to intelligently decide how to spend his gained points in order to push back against the social, environmental, and economic factors that are threatening the animal's chance of survival. We continue adding challenges for the player to purchase level ups and additions based on his spending choices and habits. If you purchase resources that improve the species effective well-being you will be awarded with additional levels. We have utilized the latest 3D game technology to produce an engaging game that is realistic, exciting and social.

On Permanent Display in Exhibition Hall
Conference Center Lobby, 11th Floor

- "Natural Chemical Products and Cancer Prevention in Animal Models"
  By: Ilona Aleksandrovich

- "The Organic Global Market"
  By: Catalina Salgado

- "Biomedical OVID/Medline Literature Computer Search by NYIT Undergraduate Students: Laying the Groundwork for an Immunohistochemical Human Melanoma"
  By: Gurinder Galhain, Rohni Kumari, and Harry Singh

- "Effect of Hydrogen Peroxide on Cellular Content and Subcellular Organization of Tight Junction Proteins, Occludin, Claudin-1, ZO-1 and ZO-2, in Renal"
  By: Angelina Voronina, Nikita Shah, Josephine Axis, and Anmol Singh

- "Tracking the Kinetics of Handed Crystal Growth via Time-Lapse Capture"
  By: Favour Akinjiyan and Batool Chaudhry

- "Roomi"
  By: Ajay Vadav

- "Science Influencing Art: A Look at the Process of Creating a 3D Science Fiction Vehicle from a Real World Basis"
  By: Shawn Gee

- "The Role mTor-Regulated Mitophagy in Maintaining Mitochondria Homeostasis in Cardiomyocytes"
  By: Tahsin Rahman

- "Taurine Interaction with NMDA Receptor Subunits"
  By: Ana Anazco

- "Elucidation of Chiral Medicinal Natural Products towards Structure-Activity Relationship"
  By: Thallys Goncalves

- "Neocortical Molecular Layer Heterotopia in Transgenic Mouse Models"
  By: Jawad Ashan

- "Protein-Protein Interaction between CPG15 & Neuroligin1"
  By: Kristel Yee-Mon

- “Motorized Walker to Improve Gait of People with Parkinson’s Disease”
  By: Corinne Fischer and Lauren Cooke

- “Hand Eye Coordination of People with Parkinson’s Disease”
  By: Lauren Cooke and Corinne Fischer

- “*In Vivo* Imaging of Crystalline Retinopathy using Adaptive Optics Scanning Light Ophthalmoscopy”
  By: Ahmad Rehmani

- “The Effect of Zinc Salts on Gastrointestinal Acid Secretion”
  By: Ronika Sethi

- “Literature Search by NYIT Students: Electrochemotherapy in the Treatment of Xeroderma Pigmentosum”
  By: Rohni Kumari, Kristina Moffat, George Gadalla, Gurinder Galhain, and Harry Singh

- “Discrepancies in Depression Diagnosis Documentation: An Analysis of Clinical, Social, and Demographic Variations Among Older Adults in Primary Care”
  By: Sarah Abdou

- “Diamonds are a Girl’s Best Friend”
  By: David Sun, Charity Chen, Nicole Hinds, and Jennifer Nunez

- “Molecular Tweezers Capable of Picking-Up Handed Molecules: The Comparative Study”
  By: Manthan Patel

- “Determining Man-in-the-Middle Attacks in Fixed Wireless Networks Using WiFi Signal Strength and Round Trip Times”
  By: Randolph Espejo

- “Immunotherapy of Cancer with Chimeric Antigen Receptors (CARs)”
  By: Orin Pramanik and Ksenia Klementyeva

- “Thyroid Hormone Replacement Therapy Attenuates Atrial Remodeling and Reduces Atrial Fibrillation Inducibility in a Rat Myocardial Infarction-Heart Failure Model”
  By: Khusbu Pun

- “The Effects AMPK has on Mitophagy in Heart Cells”
  By: Amanda Kaminaris

- “Examining the Feasibility of Converting New York State's All-purpose Energy Infrastructure to One Using Wind, Water, and Sunlight”
  By: Harris (Haralambos) Mouselimos

- “Testing Climate Change and Overkill Extinction Hypotheses of Pleistocene Equids with Dental Mesowear”
  By: Ishrat Ghani

- “Association Between Lumbar Counterstrain Tender Points and Lumbar Segmental Somatic Dysfunctions”
  By: Sarah Van Dine

Natural Chemical Products and Cancer Prevention in Animal Models

Student Name: Ilona Aleksandrovich
Faculty Mentor: Niharika Nath
Department: Life Sciences, College of Arts and Sciences

Carcinogenesis is a multistep process, which stems from genetically altered epithelial cells followed by a cluster formation of cells, Colorectal cancer (CRC) is considered to be one of the most prevalent causes of deaths in western countries, including the United States. Various molecular pathways are important in carcinogenesis. Cyclin D-1 and regulators of the cell cycle, and PCNA expression are essential in the continual proliferation of cells. Nutraceuticals and nutritional intervention with various natural dietary constituents' agents are effective strategies for the control of colon cancer by modulating various molecular pathways of proliferation and apoptosis. The objective of my study was to examine and summarize studies of these three aspects, namely, AOM-animal models of CRC, various dietary agents such as coffee fiber, milk thistle extract containing Silibinin, Grape seed extract (GSE) and others, and the effect on proliferation and apoptosis. These studies were compared to my current studies performed with modified aspirins, which are proposed to be cancer preventive agents, on animal models of cancer. The methods used are an examination of 14 primary original and 5 review articles relating to the above three parameters relating only to proliferative and apoptotic effects. These studies were also compared to my current laboratory studies performed with modified aspirins, which are proposed to be cancer preventive agents, on animal models of cancer. In some studies a known chemopreventive agents was used as control for comparison. My review and study results show that Silibinin and GSE have dose dependent inhibitory effects on PCNA labeling index and on Cyclin D-1, and modified aspirins have apoptotic inducing effects and reduced ACF, and therefore, may be an effective mechanism to suppress cell proliferation in the colonic tissue. Overall, there was decreased cell proliferation and an increase in apoptotic cells. These studies on animal models demonstrate the potential of natural compounds in prevention of colorectal cancer.

The Organic Global Market

Student Name: Catalina Salgado
Faculty Mentor: Niharika Nath
Department: Life Sciences, College of Arts and Sciences

"The Organic Global Market" is a graphic which explores an extraordinary global trend that has expanded vastly and will continue to grow. The global economy has been slowing down, however this piece will clearly show the growth of the market since the early 2000's through statistics of demand and consumption in several areas around the world and the agricultural availability to produce for the market on a global scale. Another aspect will explore the increased number of countries with organic standards and countries that are in the process of drafting legislation to produce for this market. The goal through the visual is to provide a better understanding of the organic wave that is only getting stronger and give an idea, agriculturally as well as culturally, of how it will further impact our lives in the future.

Biomedical OVID/Medline Literature Computer Search by NYIT Undergraduate Students: Laying the Groundwork for an Immunohistochemical Human Melanoma

Student Names: Gurinder Galhain, Rohni Kumari, Harry Singh
Faculty Mentor: Claude Gagna
Department: Life Sciences, College of Arts and Sciences

The group members were involved in finding relevant peer-reviewed journal articles using the different databases offered through NYIT. The databases used were OVID and Medline. Key words used for the searches were: melanoma, DNA, DNA content, B-DNA, Z-DNA, histotechnology, alternative DNA, DNA structure, triplex DNA, melanoma (stages 0 to IV), cell death, apoptosis, denucleation, immunohistochemistry, histochemistry, tissue fixatives, and fixation. As students in Dr. Claude Gagna's Biomedical Research course it was our assignment to locate journal articles for our mentor, Dr. Gagna (and his colleague Dr. W. Clark Lambert), namely, peer-reviewed journal articles concerning Stage 0, I, II, III, and IV melanoma. We located both general review articles and specific original research articles. Using the combine feature of OVID, these articles were oriented towards a combination of histology and molecular biology. From this, our mentors will learn about what has been achieved in this area of research and techniques, and this will allow them not to duplicate work. No one has ever looked at the presence of B-DNA, Z-DNA, triplex DNA, and single-stranded DNA in melanoma. In the past when investigators discussed DNA in tissue sections, it was only about DNA content (Feulgen Reaction). There are many types of DNA; B-DNA, Z-DNA, single-stranded DNA and triplex DNA. Each of these DNAs plays an important molecular biological function in normal and cancerous skin. As part of our literature search we will look at what other scientists have done in the past regarding melanoma based on the Feulgen Reaction. Therefore, before our mentors begin any more of their research involving melanoma tissue sections fixed in 10% formalin (paraffin-embedded), they will review the literature we accumulated for them. Before the spring 2014 semester ends Dr. Gagna will allow us to immunohistochemically stain tissue cultured melanoma cells in NYIT's Theobald Hall Faculty Research Lab (Room 407). We will use anti-B-DNA, anti-Z-DNA and anti-single-stranded DNA polyclonal and monoclonal antibody probes. By using journal articles of other scientists that did histological/DNA research on melanoma tissue sections we can better prepare ourselves for the future melanoma/DNA-based research projects.

Effect of Hydrogen Peroxide on Cellular Content and Subcellular Organization of Tight Junction Proteins, Occludin, Claudin-1, ZO-1 and ZO-2, in Renal

Student Names:	Angelina Voronina, Anmol Singh, Nikita Shah, Josephine Axis
Faculty Mentor:	Kurt Amsler
Department:	Biomedical Sciences, College of Osteopathic Medicine

Epithelial cells form sheets that function as essential barriers to the mixing of compounds in body compartments separated by these sheets. Tight junctions (TJ) are circumferential junctions at the apicolateral border of adjacent epithelial cells that form the barrier to the movement of compounds between adjacent epithelial cells, the paracellular permeability barrier. Disturbance of this barrier is associated with disease pathogenesis in many epithelial organs (the intestine, the lung, the kidney, etc). In several diseases, including kidney diseases (e.g., Acute Kidney Injury, AKI), hydrogen peroxide (H2O2) is believed to mediate the pathogenic process, including observed increases in paracellular permeability. Our lab has been investigating the mechanism by which H2O2 increases paracellular permeability of renal epithelial cell sheets. We have previously shown that at least three (3) TJ proteins, occludin, ZO-1 and ZO-2, are involved in H2O2-dependent regulation of renal epithelial cell paracellular permeability. Based on previous data, we developed several, non-exclusive hypotheses describing how H2O2 increases renal epithelial paracellular permeability. Hypothesis 1. H2O2 treatment causes degradation of one or more TJ proteins leading to disruption of the renal epithelial paracellular permeability barrier. Hypothesis 2. H2O2 treatment disrupts the association of one or more TJ proteins with the TJ structure leading to disruption of the renal epithelial paracellular permeability barrier. To test Hypothesis 1 we quantitated by Western blotting the total cellular contents of occludin, ZO-1, ZO-2, and claudin-1 proteins in renal epithelial cells treated with 0 ï□-M H2O2 (control), 44-55 ï M-H2O2 (sublethal treatment) and 88-110 ï M-H2O2 (lethal treatment). H2O2 treatment had no effect on the total cellular content of any of the four TJ proteins quantitated. To test Hypothesis 2 we separated TJ proteins into fractions that are solubilized by incubation with 1% Triton X-100 solution (a mild detergent that solubilizes proteins not organized into macromolecular complexes, like the TJ) and those not solubilized by 1% Triton X-100. Contents of the TJ proteins in each fraction were compared by Western blotting in control renal cell populations and populations treated with sublethal and lethal H2O2 concentrations. In our hands, the majority of all four TJ proteins examined was solubilized by Triton X-100 treatment. H2O2 treatment did not produce a marked change in the content of any TJ protein in the Triton X-100-souble fraction. There was no change in the content of occludin, claudin-1 and ZO-1 in the Triton X-100-insoluble fraction. There was a modest, concentration-dependent decrease in the content of ZO-2 protein in the Triton X-100-insoluble fraction with increasing H2O2 concentration. These results indicate that the H2O2-induced increase in renal epithelial paracellular permeability is not due to changes in total cellular content of one or more TJ proteins examined. Further, the H2O2-induced increase in paracellular permeability is not due to a change in the organization of occludin, claudin-1 and/or ZO-1 proteins. A change in the organization of ZO-2 protein, however, was correlated with increased H2O2-induced increase in paracellular permeability suggesting disruption of the association of ZO-2 with the TJ complex may mediate, at least in part, the H2O2-induced effect.

Tracking the Kinetics of Handed Crystal Growth via Time-Lapse Capture

Student Names: Favour Akinjiyan, Batool Chaudhry
Faculty Mentor: Ana Petrovic
Department: Life Sciences, College of Arts and Sciences

By looking at all scales of human awareness of the world, one can note that there is pervasive predominance of one form of handedness in nature, also known as homo-chirality. Examples can be found from micro- to macro-scale systems: from handed molecules, to spiral sea-shells, to spiral morphology of galaxies. Interestingly, even at the fundamental biochemical level, all carbohydrates, amino acids, and DNA are homo-chiral. Namely, naturally occurring carbohydrates are predominantly right-handed, all naturally occurring essential amino acids are left-handed, and DNA is mostly a right-handed double helix. What makes the quest for the origin of chirality particularly intriguing is that three of the mentioned major classes of biomolecules exhibit prominent homo-chirality for all living organisms on Earth, meaning preference of one type of chiral asymmetric form over the other. Our research tackles the quest for the origin of homo-chirality by following the kinetics of nucleation and growth of right vs. left handed chiral crystals. More specifically, we are interested in investigating various environmental factors that could potentially amplify the nucleation and growth of one form of handed crystal and not the other. We will present currently ongoing investigation that involves following the rate of crystal nucleation and growth of left and right handed NaClO3 crystals via a time lapse camera. At later stage, we plan to extend the kinetic study with the use of infrared (IR) spectroscopy to obtain a more quantitative assessment of the rate laws. Ultimately, we will study how specific environmental factors and chemical additives affect the rates of nucleation and growth process for each of the handed forms. Within this research, we hope to unveil some of the mechanisms for the universal preference of one chiral form over another. There appeared to be a positive trend supporting the efficacy of McKenzie principles compared to manual therapy on pain and disability, however these outcomes were not significant.

Roomi

Student Name: Ajay Yadav
Faculty Mentor: Joanne Scillitoe
Department: School of Management

In this presentation I will introduce Roomi. Roomi makes it easy to find and connect with compatible roommates. Whether you're renting out an extra room or searching for a place to stay, Roomi is the first mobile app to take the guesswork out of finding the perfect roommate.

Here is the site: http://roomiapp.com.

Science Influencing Art: A Look at the Process of Creating a 3D Science Fiction Vehicle from a Real World Basis

Student Name: Shawn Gee
Faculty Mentors: Helen Bayona, Lynn Pocock
Department: Fine Arts, College of Arts and Sciences

As an artist, it is my job to create breathtaking worlds which the audience of viewer can connect to. However, in order to achieve that, there must be visual elements and functions that the audience can identify with in order to make that connection. Otherwise, it goes from logically possible to highly fantastical. The basis of this project lies in how art and science can work in tandem with each other; the latter, being the jumping point of how many mechanics in the science fiction genre have basis in the real world. I am here to show, through an example of my own, that many of the vehicles, machines, or technology we see in the multitude of science fiction movies known in our culture are speculative or simply extreme extrapolations of current counterparts we have today. In the display, a demonstration of how I go through the process of visualizing, conceiving, and ultimately creating the vehicle will be displayed; the final result is a 3d rendering of the vehicle and its parts in action.

The Role mTOR-Regulated Mitophagy in Maintaining Mitochondria Homeostasis in Cardiomyocytes

Student Name: Tahsin Rahman
Faculty Mentor: Qiangrong Liang
Department: Biomedical Sciences, College of Osteopathic Medicine

Autophagy is the breakdown of damaged or useless cellular components through the action of lysosomes. Autophagy can aid in cell survival by reducing energy consumption during starvation or by removing hazardous cell components. In mitophagy, mitochondria that are damaged or old are digested through the process of autophagy. This prevents such mitochondria from leaking reactive oxygen species which damage cell DNA. It has been noted that mitochondria have been the target of autophagy during ischemic injury to cells. Ischemic injury can lead to mitochondrial dysfunction. Mitophagy prevents the accumulation of damaged mitochondria and protects against cell death. Studies have shown that Rapamycin, a macrolide antibiotic, enhances mitophagy during ischemic stress by increasing translocation of p62, a mediator in autophagy, to the mitochondria. Rapamycin treatment during ischemic brain injury lowered cell damage and protected mitochondrial function in cells afflicted. Rapamycin affects a serine/threonine protein kinase named mTOR (mammalian Target Of Rapamycin). mTOR regulates cell growth, motility, survival, and protein synthesis. It is composed of two complexes, mTOR complex 1 and mTOR complex 2. Rapamycin works by inhibiting mTOR. As Rapamycin is able to enhance mitophagy in certain conditions, it suggests that the mTOR pathway plays a role in mitochondrial homeostasis. This project seeks to test the hypothesis that mTOR-regulated mitophagy is responsible for maintaining mitochondrial homeostasis in cardiomyocytes. To test this hypothesis, cell cultures were used to test the effects of mTOR inhibition and overexpression on mitochondrial morphology and autophagy. Rapamycin and siRNA would be used to test the inhibition of the mTOR pathway. Adenovirus infection would be used to test the overexpression of mTOR of mitochondrial homeostasis.

Taurine Interaction with NMDA Receptor Subunits

Student Name: Ana Anazco
Faculty Mentor: Niharika Nath
Department: Life Sciences, College of Arts and Sciences

Taurine has been known to bind to a specific receptor to gate a Cl- channel and this action is blocked by picrotoxin or 6-aminomethyl-3-methyl-4H-1,2,4-benzothiadiazine 1,1-dioxide. We sought to test in the present study our hypothesis that taurine interacts functionally with the GluN2B subunit of the NMDA receptor. Two GluN2B and 2 GluN1 subunits form a major subtype of the NMDA receptor. We recorded field potential responses from medial prefrontal cortex evoked by single electrical impulses delivered to the ventral medial cortical area in rat brain slices, and monitored its modulation by bath-applied Ro25-6981, an established GluN2-receptor noncompetitive antagonist (0.1-10 Î¼M), and 2 mM taurine co-applied with 10 Î¼M Ro25-6981. The dose-dependent action of Ro25-6981 was characterized by non-linear curve-fitting to the Hill Equation. Initial fitting outcomes showed an IC50 of 3.5 Î¼M with maximum inhibition of 69% and a Hill coefficient near 1. Despite good fit (r2=0.98), the higher IC50 relative to that reported for cloned GluN2B receptors possibly reflects some cross reactivity to a low affinity site on the GluN2A receptor in a different receptor subtype. Bath-applied 2mM taurine with 10 Î¼M Ro25-6981 inhibited the evoked N2 response by 63 +/- 8% (s.e.m.). Thus, the additional inhibition by 2mM taurine was 11.2% in the presence of 10 Î¼M Ro25-6981, which was lower than the 41% we have reported for 2 mM taurine applied alone. Furthermore, this inhibitory level (63%) was within 1s.e.m. from the maximum inhibition (69%) by Ro25-6981 determined by curve fitting. This non-additive relation between the actions of taurine and of saturating R025-6891 (determined by curve-fitting) infers that the taurine action shares the same target of inhibitory modulation as this GluN2B antagonist. In summary, our data suggest that taurine modulates the NMDA receptor by inhibiting the Ro25-6981-sensitive component of the evoked NMDA receptor-mediated response. A parallel study to examine the interaction of taurine with the GluN2A is under way. In further experiments, in order to support and confirm the above observed ceiling effect on the action of taurine exerted by co-applied Ro25-6981, I will perform similar electrophysiological experiments in which 2mM taurine is co-applied with sub-saturating doses of Ro25-6981, viz. 0.2, 1, 5 Î¼M. I will use non-linear curve fitting to derive the dose-response curve of these mixtures and subtract it from the dose-response curve mentioned above. If the % inhibition in the difference waveform declines with increasing Ro25-6981 doses, the non-additive relationship of the actions of these 2 modulators will be confirmed.

Elucidation of Chiral Medicinal Natural Products towards Structure-Activity Relationship

Student Name: Thallys Goncalves
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In the last two decades, there has been a notable shift in the composition of life-improving and life-saving therapeutic agents that have been brought by the pharmaceutical industry to the marketplace. Nearly two thirds of currently approved Food and Drug Administration (FDA) drugs are chiral drugs (exhibiting molecular handedness) with only single handed-molecule being considered as effective and safe for administration. The two handed-molecular forms, called enantiomers, have the same two-dimensional atomic architecture, but are neither identical in the three-dimensional arrangement of atoms in space, nor are they likely to induce the same physiological or toxicological response in living systems. One of the major sources of these class of chiral drug leads are natural products. This presentation reflects an interdisciplinary effort to investigate a unique set of chiral natural products, isolated from fungi, which display promising bioactivities for the use as drugs in pharmaceutical industry. The project involves two stages of research, which are as follows: 1) to engage in the extensive chiroptical spectroscopic and molecular modeling analysis to reliably determine the chirality, that is the Absolute Configuration (AC), of the selected natural product; 2) to conduct a systematic, comparative study associated with the difference in physiological and toxicological response between the naturally produced enantiomer (isolated from *in vivo*) and the one of opposite chirality (synthesized *in vitro*). Our presentation focuses on the first stage of the research endeavor.

Neocortical Molecular Layer Heterotopia in Transgenic Mouse Models

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Malformations of neocortical development are associated with diverse disorders such as epilepsy, cognitive disability, and autism. Several mouse strains exhibit malformations similar to those found in humans, suggesting that these mice may be a valuable animal model. In the present study, we examined whether and to what extent Cre-trangenic mice on a C57BL/6 background exhibit neocortical molecular heterotopia (MLH). We identified a small number of mice that indeed exhibit MLH and therefore have expanded our list of mouse models that may be useful toward greater understanding of human neocortical malformations.

Protein-Protein Interaction between CPG15 & Neuroligin1

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CPG15 is a gene that encodes for the expression of an extracellular membrane bound protein GPI linked to the presynaptic membrane that is involved in brain plasticity while Neuroligin and Neurexin are trans-membrane cell adhesion proteins on the postsynaptic and presynaptic membrane respectively that interact to ensure synaptic formation. Although studies have been shown that qualitatively evaluate the functional effects of CPG15 via mouse CPG15 knockout studies, the specific biochemical signaling pathway of CPG15 receptor interaction with the postsynapse is unknown. It has been observed that the Neuroligin 1 isoform drives excitatory synapse maturation while excitatory synapses are found in lower density in the CPG15 KO mouse. The hypothesis can then be formulated that the CPG15 and NLgn1 may be interacting such that CPG15 is signaling through NLgn. Therefore with the use of coimmunoprecipitation assays on transfected HEK293-T cells and western blots with fluorescence imaging we can test or evaluate the possible protein protein interaction between CPG15 and Neurolgin1. Results have shown that while Neurolign and CPG15 are expressed and there is successful IP of Neuroligin, there is however no co-Ip of NLgn with CPG15. Therefore it can be concluded that CPG15 and NLgn do not interact biochemically and alternative methods and hypotheses must be formulated to deduce the receptor and signaling pathway of CPG15.

Motorized Walker to Improve Gait of People with Parkinson's Disease

Student Names: Corinne Fischer, Lauren Cooke
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The aim of this study is to test whether walking while following a motorized walker improves gait of people with Parkinson's disease (PD). The effects of PD on gait include increased cadence, decreased stride length and gait velocity, and freezing and delays in gait initiation, all of which can result in increased falls and decreased independence. Manual contact with a stable surface stabilizes standing posture by adding mechanical support, and also provides sensory feedback by touch to control posture. It has been shown that posture is stabilized in individuals with PD by strategies such as focusing attention, and individuals with PD also do well in tasks involving hand contact, such as precision grip tasks. As such, the proposed research study will test the hypothesis that feedback from manual contact can be used to regulate and improve control of gait in individuals with PD as well as healthy subjects. Preliminary results have found that manual contact with a moving handrail can regulate gait speed and gait initiation. Subjects walked under different conditions of feedback, including with and without manual contact of a static and moving handrail. Touching the static handrail decreased stride length, while touching the moving handrail increased gait speed and stride length. These results suggest that walking with a self-powered walker could also increase gait speed and stride length during turning, which often triggers freezing of gait in individuals with PD. Pilot testing with a motorized walker prototype demonstrated that individuals with PD could match the speed of the walker well, as evidenced by a more consistent speed and stride length throughout turning. However, the motorized walker prototype did not move as fast as the test subjects could, so walking speed was not increased. Therefore, the walker has been modified to move faster and smoother for further testing. Subjects will be instructed to follow a path through our experimental test environment under the conditions of (1) walking unassisted, (2) using a standard walker with front casters, and (3) using the motorized walker. Cameras will measure the position of reflective markers attached to the subjects. We will analyze gait speed, turning speed, stride length, and consistency of the speeds of the user and the walker to assess gait control.

Hand Eye Coordination of People with Parkinson's Disease

Student Names:	Lauren Cooke, Corinne Fischer
Faculty Mentor:	Ely Rabin
Department:	Biomedical Sciences, College of Osteopathic Medicine

The objective of this study is to investigate the relationship between eye movements and micrographia in Parkinson's disease. Micrographia, or low amplitude handwriting, is a well-documented sequela of Parkinson's disease. It is, however, highly variable between subjects with Parkinson's disease. Studies have shown that external visual or audio cues can improve micrographia. Additionally, micrographia is improved when patients close their eyes. An increased target size will increase writing variability while a smaller target improves micrographia, indicating that what the patient is looking at may impact the severity of the symptom. We hypothesize that the frequency and amplitude of eye movements will be related to spatial errors in writing and drawing tasks in people with Parkinson's disease when compared to healthy control subjects. To test this hypothesis, we will measure the simultaneous motion of hand and eye during drawing as well as writing tasks. Differences in eye movements between PD and healthy control participants will be examined in relation to differences in hand control. Preliminary results from 8 participants with PD, and 7 healthy controls copying text (at different sizes and with/without guide lines) have shown different hand/eye coordination prior to writing: (1) PD participants take more time foveating the writing space before initiating writing (2) PD participants make fewer saccades (rapid change in point of fixation) before and during the writing task. This ongoing project will recruit 12 naÃ¯ve healthy subjects without neurological sensory-motor deficits to participate. Subjects participating in these studies will be equal numbers of male and female volunteers (age 20-40) from the faculty, staff and graduate students of NYCOM and NYIT. We will then follow up by recruiting 12 subjects with Parkinson's disease (50-65 years of age), and 12 age and gender matched controls. Subjects will copy drawing patterns and text on a computer writing tablet. Patterns and texts will be copied with varying supporting spatial cues. For example, in the case of drawing: completing a partially complete pattern (more cues), or copying an entire pattern (fewer cues). In the case of writing: writing with or without lines (more; fewer cues). Eye movements will be measured with an ISCAN eye tracking system worn on the subject's head. Hand movements will be measured mouse/pen movements. Both will be sampled using Labview software. Data will be analyzed in Matlab. Data will be processed to remove eye-blink artifacts and calibrate eye position to hand-space (point of fixation). Comparisons between PD and healthy subjects will include: timing of over-all completion, of individual writing strokes, of pattern scanning, amount of saccades (switching fixation) between pattern and pen movements, and of focusing ahead or behind pen motion. Resources available include all data collection hardware and software necessary to do this work.

In Vivo Imaging of Crystalline Retinopathy using Adaptive Optics Scanning Light Ophthalmoscopy

Student Name: Ahmad Rehmani
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Department: Anatomy, College of Osteopathic Medicine

Purpose: Crystalline retinopathy is a rare condition of the retina with genetic, toxic, metabolic and idiopathic etiologies. When crystals deposit in the macula, they may have significant impact on visual acuity. However, the effect the crystals have on normal retinal architecture and function remains unknown. Reflectance adaptive optics scanning light ophthalmoscopy (AOSLO) has become a powerful tool in the *in vivo* exploration of the retinal structure at a microscopic level. AOSLO has been able to show *in vivo* photoreceptor mosaic disruption undetected by conventional imaging. In this study, we use reflectance AOSLO to study the microscopic features of perifoveal crystalline deposits and to assess the status of the photoreceptor mosaic deep to the deposits. Methods: Two patients (four eyes) carrying the diagnosis of crystalline retinopathy with unknown etiology were imaged. Patient 1 was a 31 year old female with no visual symptoms and evidence of crystals in fundus examination. Patient 2 was a 15 year old male and had large bilateral central scotomas with decreased macular function on multifocal electroretinography. AOSLO imaging of the inner retinal layer and of the photoreceptor layer was performed for both patients using a 790nm light source with a 1Í¦ field of view (FOV). Registered images were montaged using photoshop for a larger FOV. For comparison, conventional imaging performed included Topcon fundus photography and Heidelberg Spectralis SD-OCT. Results: In all four eyes imaged, red-free fundus photography showed large bright, annular, perifoveal reflexes. All retinal layers appeared normal on SD-OCT, except for a focal hyper-reflectivity on the surface of the fovea, in concordance to the fundus photographs. Reflectance AOSLO imaging revealed the crystalline formations as hyper-reflective structures located in the perifoveal region. The photoreceptor mosaic appeared preserved. mfERG showed marked decreased amplitude in the foveal center in patient 2, and normal findings in patient 1. Conclusions: Reflectance AOSLO offers a unique opportunity for in vivo microscopic study of pathological retinal crystalline formations and their effects on retinal architecture. In this study, we were able to appreciate the intricate structure of crystalline formations, and to show that the underlying photoreceptor mosaic is preserved. Further studies are needed to assess status of other retinal layers, including the vascular and nerve fiber layers.

The Effect of Zinc Salts on Gastrointestinal Acid Secretion

Student Name: Ronika Sethi
Faculty Mentor: Niharika Nath
Department: Life Sciences, College of Arts and Sciences

The overproduction of gastric acid and associated illnesses linked to hypersecretion in the stomach affect about 25 million people worldwide. Zinc causes rapid and prolonged inhibition of gastric acid secretion and offers an alternative or supplemental treatment for patients with gastroesophageal reflux disease. However, increased intake of zinc is known to chelate copper, which is essential for our nervous system to function. My research project at Yale University School of Medicine entailed determining how different concentrations of zinc altered acid secretion and inhibition. I performed gastrectomies in rats, and then by microscopic dissection, I isolated individual gastric glands containing parietal cells. I then used fluorescent vital stains to monitor the changes in ionic concentration and acid secretion within the parietal cells. Using an inverted microscope, I observed how different concentrations of zinc affected the pH and acid secretion of the parietal cells in real time. We found that different concentrations of zinc affected acid secretion in distinctive ways. Compared to the control, acid secretion was decreased when zinc concentrations were increased. This research is still being continued by Dr. Geibel and his team at the Brady Memorial Laboratory in the Yale School of Medicine. The findings will be applied to clinical settings in the form of a new antacid medication to inhibit acid secretion while still allowing other physiological processes within the body to take place normally.

Literature Search by NYIT Students: Electrochemotherapy in the Treatment of Xeroderma Pigmentosum

Student Names:	Rohni Kumari, Kristina Moffat, George Gadalla, Gurinder Galhain, Harry Singh
Faculty Mentor:	Claude Gagna
Department:	Life Sciences, College of Arts and Sciences

Dr. Claude E Gagna, New York Institute of Technology (Department of Life Sciences) along with his colleague W. Clark Lambert, M.D., Ph.D., Rutgers University-New Jersey Medical School (Department of Pathology, and Department of Medicine) are researching the use of electrochemotherapy to treat the general population with melanoma. In an effort to begin this complex research project, NYIT students (i.e., Rohni, Kristina, Gurinder, George, and Harry) are assisting in the literature research aspect of the project. In order to do so, we began by performing OVID and Medline computer searches on the topics of interest. Then, we consulted with Dr. Gagna as to which articles we should obtain. Now, we located articles that were free on line and saved them as pdf files and printed them. We also looked in the library to see if NYIT was subscribed to the journals we needed. Articles that were not freely available were obtained via the NYIT library (interlibrary loan system). Articles were then delivered to Dr. Gagna and Dr. Lambert. During the project, we will also search DNA databases for genes linked to XP. The first difficulty we encountered was searching through OVID, where we were sometimes unable to attain the full article for various reasons, including limited availability only to NYIT-COM. We therefore had to go to the library and request the articles in person. Further difficulties we encountered with other databases (Medline); including unavailability of articles and charges for each article of more than $30+. Additionally, we researched different companies that make and sell the electrochemotherapeutic device, meanwhile saving photos of commercial devices.

Discrepancies in Depression Diagnosis Documentation: An Analysis of Clinical, Social, and Demographic Variations Among Older Adults in Primary Care

Student Name: Sarah Abdou
Faculty Mentor: Eleni Nikitopoulos
Department: Life Sciences, College of Arts and Sciences

Depression, a prevalent disorder in older adults is often treated in a primary care setting. While treatment may be offered, concurrent medical documentation is inconsistent. Patients prescribed anti-depressants lack a clear diagnosis of depression in their patient charts from their primary care physicians. Here we examine patient demographic, social, and clinical factors associated with a diagnosis of depression in a primary care setting. We used patient data from the Treatment Initiation and Participation (TIP) study, an intervention to improve antidepressant adherence and depression outcomes in older adults. Eligible participants in this study were prescribed an antidepressant for depression and were recruited from an urban primary care clinic. Interview data on gender, ethnicity, marital status, depression severity, and stigma levels from TIP were compared to chart extracted data on patient diagnosis, chart notes on symptoms and chart discrepancies. The total sample was 88 older adults, with available data for 77 patients who fully completed the study. Sixty percent of the sample that endorsed depression had received a diagnosis, while the remaining 40% of our sample had chart discrepancies with their diagnosis. Three factors significantly correlated with the patients with discrepant diagnoses were: self-identification as Hispanic, marital status and, for immigrant patients, number of years living in the USA. However, in spite of this significant correlation, a clear majority of patients in these categories had received a diagnosis of depression. Our study shows that despite some discrepancies between treatment and chart diagnosis associated with patient demography, primary care physicians are accepting of having a depression diagnosis in the charts of the older adult population. Complete and accurate documentation for depression is important for continuity of care, treatment adherence, and the holistic view of the patient.

Diamonds are a Girl's Best Friend

Student Name: Nicole Hinds, David Sun, Charity Chen, Jennifer Nunez
Faculty Mentor: Youjeong Kim
Department: Communication Arts, College of Arts and Sciences

This presentation will showcase "Diamonds are a Girl's Best Friend". "Diamonds are a Girl's Best Friend" is a 30 second sot submitted in Television Commercial Production class. The project uses non-diegetic sound technique where editing is more important. The commercial was shot on location at Tiffany & Co on 5th avenue in New York City. The choice of sound is Marilyn Monroe's classic hit "Diamonds are a Girl's Best Friend".

Molecular Tweezers Capable of Picking-Up Handed Molecules: The Comparative Study

Student Name: Manthan Patel
Faculty Mentor: Ana Petrovic
Department: Life Sciences, College of Arts and Sciences

During the past fifteen years, a supramolecular approach using dimeric metallo-porphyrin tweezers as hosts has been developed and applied to manifold of chiral guests for determining of their absolute configuration (AC). This methodology is based on stereo-controlled formation of the 1:1 CD-sensitive host/guest complex, whose preferred interporphyrin helicity leads to AC-diagnostic ECD exciton couplet. The literature, however, lacks a comparative study on the application of the most intriguing sets of tweezers. Our presentation reflects a systematic study of six tweezer-hosts containing pentanediol or melamine bridges along with variable degree of sterically encumbered aryl-based periphery. The simultaneous experimental and molecular modeling study is focused on establishing comparative, quantitative guidelines on scope and limitation for applying each of the six tweezers for reliably elucidating the absolute configuration and conformation of chiral molecules. The study is focused on a comparative application to a few selected diamine-based synthetic chiral guests and a natural product. In the process, we will also present efforts to determine the binding constants for each tweezer-guest complex in order to assess their respective binding affinities. Additionally, we will present our efforts to arrive to a uniform molecular modeling approach for predicting interpoprhyin helicities of the most prevailing conformations, regardless of the host/guest system.

Determining Man-in-the-Middle Attacks in Fixed Wireless Networks Using WiFi Signal Strength and Round Trip Times

Student Name:	Randolph Espejo
Faculty Mentor:	Cecilia Dong
Department:	Electrical and Computer Engineering, School of Engineering and Computing Sciences

We propose a novel method to identify a Man-in-the-Middle attack between two nodes in a fixed wireless network by analyzing round-trip time and measured WiFi Received Signal Strength. To evaluate the effectiveness of the proposed method, we use a fixed wireless network test bed comprised of a client, a server, and an attacker machine in a room designated as the test environment. The proposed method evaluates the round trip times (RTTs) and received signal strength (RSS) at both the client and the server side, and calculates the mean and the standard deviation of the measured RTTs and RSS. These values are used as baselines to detect Man-in-the-Middle attacks. We show that the presence of a Man-in-the-Middle attack incurs a significantly longer delay and larger standard deviation in measured RTT compared to that measured without a Man-in-the-Middle attack. The measured RSS also provides indication of the difference in distance where the designated server and the Man-in-the-Middle attacker is located. We also observe significant packet loss when a client is under the Man-in-the-Middle attack. The proposed method integrates the above criteria and was implemented as a message protocol on both the client and server side to analyze and detect abnormal network delays and signal strength from the fixed wireless network to detect Man-in-the-Middle attacks.

Immunotherapy of Cancer with Chimeric Antigen Receptors (CARs)

Student Names: Orin Pramanik, Ksenia Klementyeva
Faculty Mentor: Gavin McStay
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Genetically engineered antigen receptors can be used to stimulate the immune system to reject cancer. Usually cancer cells do not provoke an immune response in the body of humans and animals because the immune system is only able to discriminate between self and non-self. The cancer cells are essentially the patient's own cells that grow, divide, and spread without proper regulation and thus the immune system is not activated by these cells. Genetically modified T-cells using chimeric genes can provide immune cells with antibody-type recognition so that cancer cells can be selectively killed. The idea is to combine the variable regions (Fv) of a chimeric antibody with the constant regions of the T lymphocyte cell surface receptor (T-cell receptor or TCR) to produce chimeric antigen receptors, which would provide higher levels of antibody-type specificity. The results show that once these chimeric receptors come into contact with an antigen, they trigger interleukin-2 (IL-2) secretion, which then induces breakdown of a specific target. Upon additional studies it was revealed that the zeta (Î¶) and gamma (Î³) chains were of most interest for these chimeric genes. In the end, the gene were constructed of an anti-2,4,6-trinitrophenyl (TNP) antibody and either the FcR Î³ chain or the CD3 complex Î¶ chain. With this mechanism, T-cells can be redirect towards tumor cells or to any other target of choice in which antibodies can be raised and thus is a great development for targeted immunotherapy.

Thyroid Hormone Replacement Therapy Attenuates Atrial Remodeling and Reduces Atrial Fibrillation Inducibility in a Rat Myocardial Infarction-Heart Failure Model

Student Name: Khusbu Pun
Faculty Mentor: Youhua Zhang
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Heart failure (HF) is associated with increased atrial fibrillation (AF) risk. Accumulating evidence suggests the presence of myocardial tissue hypothyroidism in various cardiac diseases, including HF, and this may contribute to HF development. There is also evidence that thyroid hormone replacement therapy can improve left ventricular function in HF. However, due to increased atrial arrhythmogenesis in hyperthyroidism and possible fear of overdosing , thyroid hormone replacement therapy has not been adopted clinically in HF treatment. Recent data from our group has clearly demonstrated that hypothyroidism also leads to increased AF inducibility. Thus, we hypothesized that by improving cardiac function thyroid hormone replacement therapy may reduce, rather than increase AF risk in HF. Myocardial infarction (MI) was produced in rats by ligation of the left anterior descending coronary artery. Rats with large MI (>40% of left ventricular circumference by echocardiography) were randomized into L-thyroxine (T4, n=14) and placebo (n=15) groups 2 weeks after surgery. Rats received 3.3 mg T4 (in 60-day release form) or placebo pellets for 2 months. Echocardiography, left ventricular hemodynamics, in vivo cardiac electrophysiology and AF inducibility test (with transvenous cardiac catheter approach) were performed and left atrial tissues were harvested for myocardial fibrosis and connexin 43 density determination at the end of the study. Compared with placebo, T4 treatment decreased left ventricular internal diameters as well as left atrial diameter. Both systolic and diastolic left ventricular functions were improved. T4 treatment attenuated atrial effective refractory period prolongation (45Â±6 ms in placebo group vs 37Â±6 ms in T4 group, P<0.01) and reduced atrial tachyarrhymia inducibility (AF/atrial flutter was inducible in 11/15 rats, or 73% in placebo vs 4/14 rats, or 29% in T4 treated group, P<0.05). The atrial tachyarrhythmia reduction was associated with decreased atrial fibrosis content but was not associated with connexin 43 changes. TH replacement therapy in HF attenuated atrial remodeling and reduced atrial tachyarrhythmia inducibility in a rat MI-HF model. In contrast to the common clinical concern of accidental atrial arrhythmia induction with thyroid hormone treatment, our results suggest that withholding thyroid hormone treatment may be doing harm.

The Effects AMPK has on Mitophagy in Heart Cells

Student Name: Amanda Kaminaris
Faculty Mentor: Qiangrong Liang
Department: Biomedical Sciences, College of Osteopathic Medicine

AMP-activated protein kinase plays a role in cellular energy homeostasis. What is unknown is how AMPK affects mitophagy in heart cells. Through confocal microscopy I am able to view the mitophagy of the cells by different drug treatments that either activate or inhibit AMPK. Western Blotting is another method used to detect the protein levels in the cell samples. By using several different techniques we will be able to prove the effects of AMPK have on mitophagy.

Examining the Feasibility of Converting New York State's All-purpose Energy Infrastructure to One Using Wind, Water, and Sunlight

Student Name:	Harris (Haralambos) Mouselimos
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This study analyzes a plan to convert New York State's all-purpose (for electricity, transportation, heating / cooling, and industry) energy infrastructure to one derived entirely from wind, water, and sunlight (WWS) generating electricity and electrolytic hydrogen. Under the plan, NYS's 2050 all-purpose end-use power would be provided by 10% onshore wind (4,020 5-MW turbines), 40% offshore wind (12,700 5-MW turbines), 10% concentrated solar (387 100-MW plants), 10% solar-PV plants (828 50-MW plants), 6% residential rooftop PV (5 million 5-kW systems), 12% commercial/government rooftop PV (500,000 100-kW systems), 5% geothermal (36 100-MW plants), 0.5% wave (1,910 0.75-MW devices), 1% tidal (2,600 1-MW turbines), and 5.5% hydroelectric (6.6 1,300-MW plants, of which 89% exist). The conversion would reduce NYS's end-use power demand 37% and stabilize energy prices since fuel costs would be zero. It would create more jobs than lost because nearly all NYS energy would now be produced in-state. NYS air pollution mortality and its costs would decline by 4,000 (1,200-7,600) deaths/yr, and $33 (10-76) billion/yr (3% of 2010 NYS GDP), respectively, alone repaying the 271 GW installed power needed within 17 years, before accounting for electricity sales. NYS's own emission decreases would reduce 2050 U.S. climate costs by $3.2 billion/yr.

Testing Climate Change and Overkill Extinction Hypotheses of Pleistocene Equids with Dental Mesowear

Student Name: Ishrat Ghani
Faculty Mentor: Matthew Mihlbachler
Department: Anatomy, College of Osteopathic Medicine

The late Pleistocene equid Equus ferus underwent rapid body size decline in Alaska preceding its extinction c.a. 12.5 radiocarbon KYBP. This size shift, thought to be caused by a climate/vegetational shift, has been used to argue against human overkill. The disarticulated condition of fossils from this region renders it difficult to examine paleoecological trends because the skulls, jaws, and dentitions are disassociated from the C14 dated metacarpals. Nevertheless, if changes in paleodiet are associated with body size decline, then correlations between body size and paleodiet should exist. We examined trends in paleodiet using a recently developed semilandmark-based mesowear technique with 245 fossil equid molars (174 lower m2s and 71 upper M2s). We also analyzed several species of extant wild equids to establish a relationship between the mesowear of upper and lower molars. Using photographs taken at a standardized angle, 70 evenly spread semilandmarks were distributed on the paracones of the uppers and in the corresponding occlusal valleys between the paraconid and metaconid on the lowers. Among modern equids, the first principal component scores of the upper and lower landmark data are significantly correlated, suggesting that both uppers and lowers provide similar paleodietary information. For the Alaska equid, tooth shape, defined by the Procrustes coordinates, was compared to a body size proxy (molar length + width) using multivariate regression. Lower dental mesowear is significantly related to size, with smaller (and presumably younger) specimens having a shallower lingual occlusal valley, suggesting a shift towards more highly abrasive diets as body size declined. We found no relationship of mesowear and size among upper molars, although the smaller sample size of upper molars may explain the insignificant result. Thus far the results are most consistent with ecological change towards the end of the Pleistocene, although intraspecific variation in body size renders it difficult to establish a true relationship with time. Directly dating the cranio-dental material would enable a more direct analysis of ecological change through time.

Association Between Lumbar Counterstrain Tender Points and Lumbar Segmental Somatic Dysfunctions

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Faculty Mentor: Sheldon Yao
Department: Osteopathic Manipulative Medicine, College of Osteopathic Medicine

Lumbar counterstrain tender points (TPs) are commonly taught to osteopathic medical students, but although osteopathic literature identifies structural relationships between lumbar TPs and vertebrae, research has yet to determine the frequency with which associations between lumbar TPs and lumbar segmental somatic dysfunctions exists. This study will identify anterior and posterior lumbar TPs and lumbar segmental somatic dysfunctions in osteopathic medical students and to asses for associations between TPs and segmental somatic dysfunctions, as well as associations between TPs and history of low back pain, lower extremity, urinary, or gastrointestinal symptoms. First- and second-year osteopathic medical students at the New York Institute of Technology College of Osteopathic Medicine (NYIT-COM) were given a worksheet during a laboratory session and asked to identify the presence of any anterior and posterior lumbar TPs, and to diagnoses any lumbar segmental somatic dysfunctions present in their laboratory partner. Osteopathic medical students were asked to collect demographic information and history of any lower back pain, lower extremity, urinary, or gastrointestinal symptoms. Participating student demographics and symptoms were summarized as frequencies and percentages. The frequency and percentages were also calculated for each TP and posterior transverse process. The McNemar test was used to assess the frequency of anterior lumbar TPs, posterior lumbar TPs, and posterior transverse processes between the left and right sides of the body. Binomial logistic regressions were used to compare student demographics and symptoms to presence of a lumbar TP or posterior lumbar transverse process. Chi-square analysis was used to assess each TP and its relationship to an ipsilateral posterior transverse process at the corresponding vertebral level. Of 572 students included in the study, the mean age was 26 (SD 5.6; n=513) and 54.3% were male (n=519). 277 students reported a chief complaint, with low back pain being the most common (85.9%) symptom. The frequencies of anterior lumbar and posterior transverse process TPs ranged from 9.6%-24.9% in our cohort, with statistically significant right-sided predominance for TPs at posterior lumbar transverse processes 1, 3, and 4. Spinous TPs were found to be less frequent, ranging from 5.1-14.7%, whereas posterior transverse processes were more common, with 26.1-34.5% posterior processes in the cohort. When comparing TPs to characteristics, it was found that statistically, females are at increased odds of having an anterior lumber 3 or 4 or a posterior transverse lumbar 1 or 5 TP. Individuals with low back pain are at increased odds of having a posterior transverse lumbar 3 or 5 TP. Posterior transverse lumbar TPs are all statistically associated with having a posterior transverse process at its respective ipsilateral vertebral level. This preliminary study has both clinical and educational implications. The association of lumbar tender points to underlying symptoms, as well as structural relationships to corresponding vertebrae, may not be as reliable as stated in osteopathic medical text for diagnostic purposes.