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## FORUM SCHEDULE

Dudley H. Davis Center, Fourth Floor, Silver Maple Ballroom

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<tr>
<td>8 a.m.</td>
<td>Refreshments</td>
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<td>8:25 a.m.</td>
<td>Dean’s Welcome</td>
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<tr>
<td>8:35 a.m.</td>
<td>Introduction</td>
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<td>8:45 a.m.</td>
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<tr>
<td>9:45 a.m.</td>
<td>Break</td>
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<td>10 a.m.</td>
<td>Poster Session</td>
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<tr>
<td>11:15 a.m.</td>
<td>Oral Presentation 1</td>
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<td>11:45 a.m.</td>
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Dr. Annick D. Van den Abbeele, chief of the Department of Imaging and founding director of the Center for Biomedical Imaging in Oncology at the Dana-Farber Cancer Institute will speak on “Cancer Imaging: Opening New Horizons for Precision Medicine” – a look at the rapidly evolving field of cancer therapy.

Dr. Van den Abbeele is internationally known for her translational research in molecular imaging, which builds upon her pioneering work in monitoring response to molecularly-targeted therapy and immunotherapy in several cancers; for developing an integrated clinical and research cancer imaging department; and for leading the implementation and development of quantitative metrics in cancer imaging. Dr. Van den Abbeele has mentored more than 100 trainees, served as a Ph.D. thesis advisor and reviewer, authored more than 200 scientific articles and abstracts, co-edited two textbooks, authored and co-authored 25 book chapters, and presented numerous lectures and workshops nationally and internationally.

Dr. Van den Abbeele is co-director of the Tumor Imaging Metrics Core at the Dana-Farber/Harvard Cancer Center and an associate professor of Radiology at Harvard Medical School. Her major areas of research include: enabling translational cancer research, probe and drug development, increasing the understanding of biologic processes and facilitating the design, size, duration and execution of pre-clinical and clinical trials including co-clinical trials using imaging including molecular imaging, quantitative imaging metrics and a multidisciplinary approach.
MAP OF POSTER PRESENTATIONS
Dudley H. Davis Center, Fourth Floor, Livak Fireplace Lounge
# POSTER PRESENTATIONS:
**TIME 10 to 11 A.M.**

Dudley H. Davis Center, Fourth Floor, Livak Fireplace Lounge

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<td>Sweet, J., Phatigaphong, B., and B. Manning</td>
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TIME 11:15 A.M. to 12:15 P.M.

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Silver Maple Ballroom

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<td>“Leukemia Epigenetics: From Mechanism to Therapy”</td>
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<td>Dr. Seth Frietze</td>
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<td>“The Sweet Tooth of the Immune System: How Sugar Metabolism Regulates Inflammation at the Cellular Level”</td>
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PRESENTERS/POSTERS

COMMUNICATION SCIENCES AND DISORDERS

Poster 7
Horowitz-McCadden, E. R., and M. S. Cannizarro
“Principles of Motor Learning in a Virtual Environment: Applying Instructional Focus to Virtual Task Acquisition Using Brain-Computer Interface”

The purpose of this research is to investigate a very under-studied component of virtual reality (VR)—the learning process and the principles that govern it. With so much known about how we learn to coordinate tasks in the natural environment (as described by the Principles of Motor Learning), the hypothesized extrapolation is that these principles will have similar effects in the virtual environment of VR. This research looks at the principle of instructional focus to determine if guiding a person through internal (proprioceptive) or external (environment) focus facilitates better learning of virtual “motor” tasks.

Poster 23
“A Systematic Review of the Effects of Male-to-Female Transgender Voice Therapy on Acoustic Measures and Perceptions of Vocal Femininity”

Vocal quality plays a major role in perceptions of gender for individuals in the process of transitioning between sexes. Their voice impacts their ability to communicate successfully within the role of their new gender and affects their overall quality of life. The objective of this systematic review was to determine whether surgical and non-surgical intervention with voice therapy improves the acoustic measures and perceptions of vocal femininity for the male-to-female (MtF) transgender population.

Poster 24
Sweet, J., Phatigaranphong, B., and B. Manning
“A Systematic Review of LSVT LOUD and its Efficacy”
The Lee Silverman Voice Treatment (LSVT LOUD) is a voice therapy program intended to treat voice disorders in patients with idiopathic Parkinson's disease (PD). The purpose of this systematic review is to identify the efficacy of the LSVT LOUD program.

**Poster 26**

Sedeyn, C.

“Visual attention to photographs and cartoon images in Social Stories™: A comparison of typical developing children and children with ASD”

Autism Spectrum Disorder (ASD) is often accompanied by atypical attention to face regions in images. Predictors of atypical visual attention observed in children with ASD have been identified in earlier studies. Some of these previous studies have suggested children with ASD demonstrate strengths when processing visual information from cartoons such as Boardmaker® (BM) images. However, others argue for the use of photographic stimuli, suggesting children with ASD demonstrate more typical visual information processing for these stimuli. However, none have compared photograph and cartoon images (i.e., BM) in the context of a Social Story™ (Gray, 2010), a common intervention. In this cross-sectional study, we examined visual attention to static social stimuli in the context of Social Stories™ for 19 typically developing (TD) children and 18 children with ASD.

**Poster 27**

Nalevanko, B. L.

“More than Words: Parent Training Strategies to Support the Communication of Young Children with Autism Spectrum Disorders”

Individuals with Autism Spectrum Disorder (ASD) often struggle with communicative and social deficits that inhibit their ability to engage meaningfully with others. As a result, many programs have been developed to provide intervention for individuals with ASD to help overcome these challenges. This paper examines the effectiveness of the Howard Centre’s More than Words Program, which was designed to teach parents of children with ASD unique techniques to implement during interactions with their children that promote the ability of the children to communicate and interact meaningfully. Although the program has been described as successful, this study will help fill the gap in understanding why the program is so valuable to parents and their children and what the parents’ role is in that success.

**Poster 29**

Nelson, E.

“Reading between the Lines: Facilitating Theory of Mind in Children with Autism Spectrum Disorders through Book Reading”

Reading Between the Lines: Facilitating Theory of Mind in Children with Autism Spectrum Disorders Through Book Reading is a research study which attempts to train caregivers in a twelve-week intervention task using book reading paired with targeted pre-determined questions to elicit thinking related to Theory of Mind (ToM) for children with Autism Spectrum Disorders. This ongoing study will work with 15 families to target three specific aspects of ToM including others’ perspectives, mental state terms (e.g., thoughts, memories, desires, emotions), and false beliefs to determine whether ToM skills can be improved with treatment.

**MEDICAL LABORATORY AND RADIATION SCIENCES**

**Poster 1**

O’Toole, K. T.

“Novel Molecular Interaction between Cyclic-AMP Dependent Protein Kinase A Holoenzymes and La-Related Protein 4”

Protein Kinase A (PKA) is a vital enzyme in our bodies and is involved in many of our major cellular and hormonal signaling pathways. Deregulation or mutation of Protein Kinase A causes altered cellular signaling, which can lead to diseases such as cancer. LARP4 is a La-related binding protein. The La-related protein family is evolutionarily conserved yet the functions of LARP4 are largely unknown. Stable Isotope Labeling of Amino Acids in Cell Culture (SILAC) and mass spectrometry were used to identify PKA binding partners and LARP4 was unexpectedly found as a novel PKA binding partner. LARP4 is known to regulate cell morphology and the cytoskeleton. Due to the known regulation of the cytoskeleton by Protein Kinase A, we wanted to further investigate the
role of LARP4 in PKA signaling. The binding of LARP4 to Protein Kinase A was validated through immunoprecipitation and showed that LARP4 was present when both the PKA catalytic and regulatory subunits were pulled down, suggesting LARP4 is bound to the PKA holoenzyme. Moreover, LARP4 immunoprecipitates were subjected to an in vitro kinase assay and showed PKA was present when LARP4 was pulled down, and it was also active.

Poster 6
Rodriguez, P., Johnson, A., and E. Amiel

“Elucidating the role of glycogen in B cell effector function”

B lymphocytes are adaptive immune cells that help neutralize pathogens via the production and secretion of immunoglobulins, or antibodies. Upon activation, there is an upregulation of metabolic processes, specifically an increased dependence on glucose and glycolysis, to meet the energy and nutritional needs of the cell. How these metabolic requirements are met during this transition is not entirely known. Upregulation of glycolysis and the consumption of extracellular glucose are known to be important for post-activation B cell homeostasis. In addition, glucose has been shown to be the primary source for cellular metabolic energy. Unpublished work from the Amiel laboratory has found that glycogen, a complex glucose polymer, is important for the metabolic regulation of myeloid immune cells. Here, we characterize the role of glycogen in B cells and hypothesized that glycogen is required to maintain intracellular glucose homeostasis during B cell activation.

Poster 18
Thwe, P. 1, Reisz, J. A. 2, D’Alessandro, A. 2, and E. Amiel 1

Departments: 1 UVM Medical Laboratory and Radiation Sciences, 2 University of Colorado, Denver

“Intracellular glycogen reserves fuel early glycolytic reprogramming associated with immune effector function in dendritic cells”

Dendritic cells (DCs), professional antigen presenting cells of the immune system, serve as a bridge between the innate and adaptive immune responses. Activation of DCs by a stimulus through toll-like receptors (TLRs) is coupled with an increase in energy demand fulfilled by a glycolytic burst. Upregulation of glycolysis provides these cells with molecular building blocks for DC effector function. Inhibition of glycolysis impairs the survival and effector function of activated DCs. In the prevailing model in the field of immuno-metabolism, TLR-driven glycolysis in DCs is thought to be sustained primarily by increased glucose uptake. While non-immune cells, such as hepatocytes, store glucose in the form of glycogen as an intracellular energy reserve, the role of glycogen metabolism in DCs has not been studied. The purpose of this study is to understand the role and regulatory mechanisms of glycogen metabolism in DC effector function.

NURSING

Poster 15
Lewis, L. F.

“A mixed methods study of barriers to formal diagnosis of autism spectrum disorder in adults”

Delayed diagnosis of autism spectrum disorder (ASD) into adulthood is common, and self-diagnosis without formal diagnosis is a growing phenomenon. As many as 70% of individuals with ASD experience comorbid disturbances such as depression, anxiety, and suicidal thoughts, and many experience social isolation and educational/employment challenges. These effects are likely amplified when the individual lacks self-awareness and support. This study aimed to identify barriers to formal diagnosis of ASD in adulthood and to explore the incidence and severity of those barriers.

Poster 16
Janowiec, C. V.

“Implementation of Family Planning and Contraception for Female Inmates in Vermont”

Unplanned pregnancies are disproportionately high among female inmates, and incarceration provides a unique opportunity for care that is otherwise difficult to obtain, including reproductive health and family planning services including the provision of contraception. Despite decades of research identifying the unmet need, very few prisons around the country provide any sort of sexual health or family planning care to prisoners.
Poster 17
Wachtel, D.
“Service Learning as an Educational Tool for Nurse Practitioner Students: A Harm Reduction Approach towards Substance Use Disorder”
Nurse practitioner (NP) education at the University of Vermont does not include a formal Harm Reduction framework within the curriculum. NP students must be prepared to provide treatment for patients with substance use disorder. Service learning is an effective educational tool, heightening student awareness and comfort when working with vulnerable populations. Service learning builds academic partnerships with local agencies and organizations while simultaneously providing a service for the community to address health disparities. The primary aim: assess service learning as an academic tool for improving the skill set of future NPs caring for patients with substance use disorder.

Poster 20
Gorman, M. J.
“Nurse’s Perceptions and Education on LGBT Health and Health Care in Australia and the United States of America with a focus on Transgender Health”
Nursing literature shows a lack of culturally competent care in the LGBT community. This qualitative pilot study examined how nurses’ perceptions differ in USA and Australia in regards to their clinical experiences with LGBT care. This study explored nurses’ access and role in establishing LGBT healthcare policies and their education and knowledge pertaining to LBGT care.

Poster 21
Lemieux, N., Hamel-Bissell, B., and M. Bosek
“Transfer of Simulation Learning to the Practice Setting”
Purpose is to investigate how nursing students perceive transfer of simulation learning to the care of patients in the clinical setting. Research questions were: (1) To what extent did nursing students perceive transfer of learning to care of patients? (2) In what ways did nursing students perceive the transfer of learning to care of patients.

REHABILITATION AND MOVEMENT SCIENCE
Poster 2
Braman, J. L.1, Gehring K. J.1, Ponce, M. P.1, Slabinski E. E.1, Bianchi, N.2, Morton- Ouellette, R.1, and R. Escorpizo1
Departments: 1Rehabilitation and Movement Science, 2Dana Medical Library
“How the use of a therapeutic mobile or internet-based applications affects the management of chronic pain: A Systematic Literature Review”
Chronic pain is a prevalent, costly, and complex health condition. Currently, there is no universally-accepted treatment. With advances in technology, the use of mobile applications and internet-based interventions (applications) offers an innovative intervention. These applications include a variety of platforms, including smartphone applications, pain diaries, provider communication, and both interactive and static educational modules. The purpose of this literature review is to determine the effects of applications in the management of chronic pain.

Poster 3
Dee, J. M., Klotz, S. R., Matos, V. P., Nason, J. L., Ninh, C., and J. D. Oziemina
“Feasibility and Acceptability of Trauma Informed Physical Therapy: a Case Series”
Successful treatment of chronic pain is a challenge in physical therapy (PT), particularly in individuals who have survived physical and/or emotional trauma. The impact of psychological distress and alterations in the central nervous system necessitate a new approach to the management and treatment of chronic pain in this population. The objective of this study was to test the feasibility and acceptability of a trauma informed PT (TIPT) model of care comprised of pain education, therapeutic exercise, and Graded Motor Imagery (GMI) for trauma survivors who experience chronic pain, with the goal of formalizing this model for use by other clinicians.
Poster 4
Dwyer, K.1, Boulanger, K.1, Bekaert, J.1, Pollutro, K.1, Blake, M.1, Bianchi, N.2, Sargent, E.1, Orest, M.3, and R. Escorpizo1
Departments: 1Rehabilitation and Movement Science, 2Dana Medical Library, 3UVM Medical Center
“No Difference was found Between Group or Individual Physical Therapy Intervention as Evidenced by Pain and Functional Outcomes after Hip or Knee Joint Replacement: A Systematic Literature Review”
Physical therapy can influence post-surgical outcomes. Many reviews cover which exercises lead to a successful recovery; however, current research falls short in investigating what type of physical therapy intervention best supports successful post-surgical outcomes. The purpose of this literature review was to compare group and individual rehabilitation following a total hip or knee replacement to determine how physical therapists can best treat patients recovering from these surgeries as evidenced by decreased pain levels and better functional outcomes.

Poster 5
Osorio, V.1, Pitkin, M. O.1, Sackett, E. L.1, Slayton, E. P.1, Sargent, E.1, Henry, S.2, Bianchi, N.3, and R. Escorpizo1
Departments: 1Rehabilitation and Movement Science, 2Dana Medical Library, 3UVM Medical Center
“There is No Difference between Eccentric and Concentric Strengthening Exercise in the Treatment of Rotator Cuff Tendinopathy: A Systematic Literature Review”
Evidence suggests that eccentric strength training is effective when treating tendinopathies in the lower extremity and wrist. However, there is little evidence regarding the outcomes of eccentric strength training when compared to concentric strength training in rotator cuff tendinopathy. The purpose of this literature review was to establish whether patients with rotator cuff tendinopathy experience better outcomes if treatment includes eccentric strengthening exercises versus only concentric strengthening exercises.

Poster 8
Potter, E. G., and C. Tompkins
“Predictors of Time Spent in Sedentary Behavior in Adolescents”
Determining the factors that contribute to sedentary behavior is essential to mitigating this increasingly significant problem. This study further evaluated the relationship between the built environment and sedentary behavior to determine whether availability of specific features of the built environment were predictive of sedentary behavior.

Poster 9
Crosby A. T., and S. L. Kasser
“Association of Mobility Impairment and Disease Related Factors with Falls in Adults with Multiple Sclerosis”
Falling is a major concern for individuals with multiple sclerosis (MS). Understanding those factors that best associate with falls is thus an important consideration for fall prevention programs. This present study aimed to examine the relationship between specific MS impairments and falls in those with MS.

Poster 10
Pisinski C. M., Alpert, D., and S. L. Kasser
“Cognitive Motor Interference during Walking and Balancing in Individuals with Multiple Sclerosis”
Individuals with multiple sclerosis (MS) have associated motor and cognitive deficits. When performing a task that involves motor and cognitive attention, referred to as dual tasking, those with MS may be at a higher fall risk. This study aimed to determine the cognitive-motor interference of balancing and walking while simultaneously performing one of two cognitive tasks in individuals with MS.

Poster 11
Departments: 1Rehabilitation and Movement Science, 2Dana Medical Library
“The Addition of Motor Imagery to Physical Therapy Intervention May Improve Gait and Function for Patients with Parkinson’s Disease”

Rehabilitation has begun to focus on helping people with neurological disorders create new ways of initiating movement. Motor imagery (MI) is a process of visualizing movement as a means to improve motor function. MI has been used in the rehabilitation of patients with stroke, spinal cord injury, and amputation, and may be of similar benefit to patients with Parkinson’s disease (PD). This systematic literature review synthesizes the evidence to answer the question: when compared to traditional physical therapy interventions, does the addition of motor imagery improve movement dysfunction in patients with PD?

Poster 12

“Clinician Expectations of Full Thickness Rotator Cuff Repair Surgical Outcomes”

Approximately 250,000 people undergo elective rotator cuff repair surgery (RCRS) in the U.S. annually. Patient’s commonly overestimate their expected outcomes after elective orthopedic surgeries. Since patients rely on providers to educate them on expected outcomes, it’s important to explore provider expectations relative to published outcomes after RCRS. The purpose of this study is to examine provider expectations of outcomes after full-thickness RCRS, and if expectations differ between clinician experience level.

Poster 13

“An Innovative Model of International Clinical Mentoring for Physical Therapists”

Clinical mentoring is important for novice physical therapists who face insecurities with challenging patient populations and are developing critical thinking and clinical-decision making skills. Research exploring innovative strategies to reduce barriers and provide mentoring to novice clinicians is needed. The purpose of this study was to examine the effects of providing online clinical mentoring to small international groups of novice clinicians treating patients with spinal pain in the outpatient setting.

Poster 14

Departments:1 Rehabilitation & Movement Science, 2 Psychology, 3 Education

“Compliance with the Physical Activity Guideline for Preschool-Age Children”

According to the U.S. Institute of Medicine guideline, preschool-age children should be participating in at least 15 min of physical activity (PA) per hour. We sought to determine compliance with this guideline in a sample of children in a local preschool.

Poster 19
Dee, J., and S. Henry

“Psychosocial factors associated with disability in patients with chronic low back pain”

Physical and psychosocial factors associated with improved outcomes in the care of chronic low back pain (LBP) are unclear. We assessed which factors were most strongly associated with treatment success. We hypothesized that psychosocial variables would correlate with and predict initial Oswestry Disability Index (ODI) and that psychosocial variables could predict treatment success.

Poster 22
Weisbecker, G. A., and K. Westervelt

“Pre-Exercise Soaking in Warm Water – Effects on Physiology and Performance”

Geothermal springs are located throughout the world, and soaking in the warm waters have many known therapeutic effects including improving conditions such as osteoarthritis and psoriasis. However, little is known about warm water soaking’s effects on exercise. This study’s objective was to determine what happens physiologically during a soak in warm water, and how soaking affects subsequent exercise performance.
Poster 25
Worth, S.
“Injury incidence in cross-country skiers”
Prospective, cross-country ski injury incidence data is scarce to describe the injury type and incidence sustained by elite cross-country skiers in north-eastern America. We hypothesized that lower extremity injury incidence would be higher than other body regions. A secondary aim was to determine any factors that correlate with new injury.

Poster 28
Warshaw, A., Holm, A., McCuin, T., and S. Henry
“Psychologically Informed Practice Training Changes Physical Therapists’ Attitudes and Beliefs about Chronic Pain”
Psychologically informed practice (PIP) incorporates a biopsychosocial orientation to physical therapy treatment resulting in better treatment outcomes for patients with chronic low back pain (LBP) because psychosocial issues associated with chronic pain are addressed. Common psychosocial issues, such as fear avoidance behaviors, are seen in chronic LBP patients and can lead to decreased functioning and increased pain. However, most physical therapists (PTs) use biomedically oriented treatments that focus on patho-anatomical contributions to LBP. We hypothesized that PIP training would shift PTs’ treatment orientation from a biomedical toward biopsychosocial one.

Poster 29
Nelson, E.
“Reading between the Lines: Facilitating Theory of Mind in Children with Autism Spectrum Disorders through Book Reading”
Reading Between the Lines: Facilitating Theory of Mind in Children with Autism Spectrum Disorders Through Book Reading is a research study which attempts to train caregivers in a twelve-week intervention task using book reading paired with targeted pre-determined questions to elicit thinking related to Theory of Mind (ToM) for children with Autism Spectrum Disorders. This ongoing study will work with 15 families to target three specific aspects of ToM including others’ perspectives, mental state terms (e.g., thoughts, memories, desires, emotions), and false beliefs to determine whether ToM skills can be improved with treatment.

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11:15 to 11:45 A.M.
Dr. Seth Frietze
Department of Medical Laboratory and Radiation Sciences
“Leukemia Epigenetics: From Mechanism to Therapy”

11:45 A.M. to 12:15 P.M.
Dr. Eyal Amiel
Department of Medical Laboratory and Radiation Sciences
“The Sweet Tooth of the Immune System: How Sugar Metabolism Regulates Inflammation at the Cellular Level”
INDEX OF PRESENTATIONS BY DEPARTMENT (Poster)

Department of Communication Sciences and Disorders


Nalevanko, B. L. “More Than Words: Parent Training Strategies to Support the Communication of Young Children with Autism Spectrum Disorders”. (27)


Department of Medical Laboratory and Radiation Sciences

O'Toole, K. T. “Novel Molecular Interaction between Cyclic-AMP Dependent Protein Kinase A Holoenzymes and La-Related Protein 4”. (1)


Department of Nursing

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Janowiec, C. V. “Implementation of Family Planning and Contraception for Female Inmates in Vermont”. (16)


Gorman, M. J. “Nurse’s Perceptions and Education on LGBT Health and Health Care in Australia and the United States of America with a focus on Transgender Health”. (20)


Department of Rehabilitation and Movement Science


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