School of Health Sciences
Research Colloquium
Abstract Compendium

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Bismarck, North Dakota
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ADDRESSING SUBOPTIMAL HPV VACCINATION RATES THROUGH STRONG PROVIDER RECOMMENDATION

Chelsey Zeltinger, BSN, RN & Angela Joneson, BSN, RN
Doctorate Family Nurse Practitioner Students
University of Mary
Bismarck, North Dakota

This doctoral project describes a quality improvement (QI) initiative at a Midwest outpatient pediatric clinic intended to increase human papillomavirus (HPV) vaccination rates in the preadolescent and adolescent patient population. A 12-week QI initiative used evidence-based interventions including provision of strong provider HPV vaccine recommendation and a standardized recommendation approach to adolescent vaccines. Pre and post implementation electronic health record reports and provider self-efficacy surveys were used for evaluation. Findings revealed a 4.6% increase in HPV vaccination rates during the intervention period. This project supports the continued use of these strategies to impact HPV vaccination rates in the preadolescent and adolescent patient population.
DEVELOPMENT OF AN INCREMENTAL STEPPING PROTOCOL

Elizabeth Heintzman, Tyson Kudrna, Michelle McGeary
Exercise Science Students
University of Mary
Bismarck, North Dakota

**Purpose:** To develop a submaximal incremental step test that is more portable than current incremental VO2 tests without compromising accuracy.

**Methods:** The subject population consisted of 10 generally healthy males (5) and females (5). Subjects performed a familiarization session (FS), followed by a submaximal incremental step test (SIST) and a maximal Bruce Protocol Test (MBP) with seven days of rest in-between each of the tests. Gas analysis was utilized to determine both measured VO2 max from the MBP and to estimate VO2 max from the SIST. Results of the two tests will then be compared to assist with determining accuracy of the SIST.

**Results:** A Pearson correlation coefficient was calculated for the relationship between participants’ SIST and MBP. There was a strong positive correlation between the two variables ($r = .765$, $n=10$, $p > .01$).

**Conclusions:** The SIST had a strong correlation with measured VO2 max. Due to low “n” number additional testing is needed to determine accuracy.
THE EFFECTS OF 90% ANKLE BRACE USAGE ON PROPRIOCEPTION IN COLLEGIATE FEMALE VOLLEYBALL PLAYERS

Matthew Gallegos, Seriann Birchem
Athletic Training Students
University of Mary
Bismarck, North Dakota

The purpose of this study is to examine the question of whether ankle proprioception changes or stays the same from the beginning of the season compared to the end of the season for collegiate volleyball athletes who wear ankle braces 90% of the time during games and practices. The projected outcome for this study includes a decrease in ankle proprioception due to the continuous use of ankle braces. The understanding that muscle atrophy correlated with discontinued use over time was the background knowledge that stemmed the intent of the research.
PROPrioceptive Preventive Program To Improve Balance Error Scoring System Scores

Candy Ankenbauer, ATC, LAT
MS Kinesiology Student
University of Mary
Bismarck, North Dakota

The purpose of this study is to determine if proprioceptive preventative training is effective in increasing Balance Error Scoring System (BESS) scores. Proprioception is how the body maintains its posture when standing as well as with movement, it is a sensory portion of the body’s sensorimotor control. The subjects involved in this study are male and female secondary school, varsity level track and field athletes, ages 14-18 years old. Prior to participation in the eight week balance training study, participants completed a pre-intervention questionnaire. A four week intervention was implemented twice over the eight week study. The intervention consisted of a four week protocol of single leg balance training exercises performed three times per week. Exercises were instructed and monitored by the researcher. Participants were tested via Balance Error Scoring System (BESS) prior to the intervention implementation, four weeks into intervention, and post-intervention at the eight week mark. The researcher used a paired-t test to compare the results of the BESS scores. Descriptive statistics were also utilized to analyze balance improvements, pain decrease, or increased performance reported by the subjects.
Opioid addiction among Americans has become an epidemic, therefore the Center for Disease Control and Prevention (CDC) issued guidelines in 2016 for prescribers that treat patients who suffer from chronic pain. Consequently, questions linger regarding practicing nurses’ knowledge levels regarding the implementation of these guidelines, which differ from previous guidelines, when they care for patients who experience chronic pain. With these new guidelines, nurses need to modify patient education practices to address non-pharmacological as well as non-opioid pharmacological methods to control chronic pain. The purpose of this study is to obtain perceptions of nurses, who work with patients who experience chronic pain, regarding their knowledge of the new CDC guidelines as well as their knowledge levels of the new recommended interventions that they need to know to educate these patients. This qualitative study will use the phenomenological design. After IRB from the University of Mary is obtained, face-to-face interviews, using an interview guide, will be conducted on a sample of seven to nine registered nurses until the data are saturated. The interviews will be recorded and the data will be transcribed. Data analysis will be conducted in conjunction with the thesis chair who is experienced in qualitative analysis. Categories, themes, and a final assertion will be derived from the coded data, the data will be compared to the existing literature and suggestions for future nursing education practice will be recommended.
THE ASSOCIATION BETWEEN HIP ADDUCTION RANGE OF MOTION AND CHRONIC LOWER EXTREMITY INJURY

Emma Ulmer, Sean Cometto, MyKayla Benjamin
Athletic Training Students
University of Mary
Bismarck, North Dakota

Mobility in athletes is a commonly examined dimension. Hip range of motion measurements can give us insight on predisposing factors that will lead to overuse injuries in athletes, especially runners. Do to increased range of motion, many injuries become present, such as, stress factors, iliotibial band syndrome, and chronic groin pain. The purpose of this study is to determine if there is an association between chronic lower extremity injuries and abnormal range of motion in hip adduction in Division II collegiate Cross-Country team. Participants included 34 (n=14 male, n=20 female) Division II collegiate Cross-Country runners. Participants were asked to answer six questions and have their hip adduction range of motion measured. Measurements were blinded to the participants’ injury history. Data was collected and analyzed using a Chi Square analysis.
MINDFULNESS AND ITS EFFECTS UPON UNDERGRADUATE STUDENTS:
A PILOT STUDY

Rebekah Faul, Catherine King, MiKayla Pflieger, Rachel Strauss, Elizabeth Vogel
Occupational Therapy Students
University of Mary
Bismarck, North Dakota

The inability to cope with stressors associated with university studies can lead to negative consequences, including those which are personal and academic in nature. The purpose of this quantitative study was to examine the impact of a 6-week mindfulness training program on stress and self-efficacy in relation to academic performance of undergraduate students at a university in the Upper Midwest. Participants were selected through convenience sampling and word-of-mouth. Data were collected using the Perceived Stress Scale (PSS), College Self-Efficacy Inventory (CSEI), and Mindfulness Attention Awareness Scale (MAAS). Participants’ pre- and post-test scores were analyzed using the Wilcoxon signed-rank test which resulted in no significant changes in overall mindfulness, perceived stress, or self-efficacy (p < .05). Significance was found in the areas of coping with perceived stress and participants’ feeling in control of their lives on the PSS; and doing well on exams, taking good class notes, and involvement on campus on the CSEI. Although further research is needed, the results of this study indicate that mindfulness programs may assist faculty and personnel of higher education in meeting the unique and ever changing needs of undergraduate students.
FACTORS IN THE DEVELOPMENT OF ETHICAL REASONING IN PHYSICAL THERAPY STUDENTS

Ashley Aurich, Jeff Welk
Physical Therapy Students
University of Mary
Bismarck, North Dakota

Study Design: Mixed survey design, group assignment by attending educational institution and current academic year in a Doctorate of Physical therapy (DPT) program.

Objectives: The primary objective was to determine if specific factors in the background of DPT students can be correlated with a higher level of moral decision making (MDM). The secondary objective was to determine if the level of moral decision making changes during a DPT education by comparing DPT students in their first and their final academic semesters.

Background: Limited research regarding MDM in DPT students and possible correlations with pre-DPT education factors and progression through a DPT program.

Methods and Measures: 75 total responses were received from first and third year students enrolled at the University of Mary and University of North Dakota DPT programs. Moral decision making was assessed using the Defining Issues Test 2 (DIT-2). Factors which could impact MDM were collected using biographical and demographic surveys. Possible correlations between MDM and biographical factors, demographic factors, and year of DPT education.

Results: Results are pending.

Conclusions: Conclusions are pending.

Key Words: Defining Issues Test-version 2, Moral Decision Making, Morality
"NOBODY TOLD ME” ENHANCING CONCUSSION DISCHARGE EDUCATION BY USING TECHNOLOGY AND TEACHBACK METHOD

Darcy J. Subramaniam, BSN, RN & Marjorie M. Masten, BSN, RN  
Doctorate Family Nurse Practitioner Students  
University of Mary  
Bismarck, North Dakota

**Background:** Emergency Departments (ED) are often the first place patients seek medical care for a mild Traumatic Brain Injury (mTBI). The ED staff must provide high quality, effective, and efficient education to both the patient and their family to prevent early return to work, play, and school. The literature has shown knowledge gaps in providers and nursing staff’s mTBI knowledge base, giving inaccurate cognitive brain rest instructions, and following through with Return to Play (RTP) standards.

**Objective:** Would the inclusion of a video, focusing on cognitive rest and RTP/work, to the standard discharge instructions increase the staff’s confidence in teaching the education to a patient and their families diagnosed with mTBI as compared to the standard written and verbal instructions only?

**Design and Setting:** Nursing staff and providers in a 24 bed ED in the Midwest were given the option of “live” in-service or computerized on-line training on using the teachback method after they were shown an animated mTBI discharge care video for their mTBI patients and families. Pre and post knowledge questionnaires were obtained to determine the impact of the education provided. The ED staff used the video with the teachback method for 12 weeks. All ED staff were surveyed at the end of the 12 weeks to evaluate their perception on the impact the video and teachback method has had on their practice.

**Results:** Our results are pending and will be available at the colloquium

**Conclusion:** Our results are pending and will be available at the colloquium
UNDERSTANDING THE PROCESS OF ROLE ADJUSTMENTS IN WIDOWERHOOD

Julie Dinius, Kala Frank, Sara Lutz, Stasha Permann, Jacey Wanner, Brooke Winter
Occupational Therapy Students
University of Mary
Bismarck, North Dakota

The purpose of this study was to explore the role adjustment changes in the lived experiences of widowers aged 35 years or older who lived in central North Dakota. Six participants between the ages of 39 and 86 years were chosen using convenience and snowball sampling techniques. Each participant participated in a semi-structured interview. Qualitative data was analyzed through coding, categorization, and identifying themes. Three themes emerged: (a) participants attributed meaning to the loss of their spouse by accepting the need to persevere, (b) participants experienced various challenging emotional responses related to the loss of their spouse, and (c) participants were able to identify new roles which provided meaning and life satisfaction. Results from this research provided a deeper understanding of the widowers’ lived experience and the new roles they engaged in following the loss of their spouse. Through the transition of various role adjustments, participants possessed optimism while overcoming obstacles to achieve an increased appreciation of their own lived experiences. In addition, they learned to adapt to their present circumstances. Healthcare professionals, including occupational therapists require insight to provide client-centered care and resources to address the physical, mental, and social needs of their clients.
EFFECTS OF A COMMUNITY BASED RUNNING PROGRAM FOR THE YOUTH

Samantha Lemke, Samantha Lopez, Beatriz Quesada, Aaron Teigen
Physical Therapy Students
University of Mary
Bismarck, North Dakota

Study Design: Prospective Repeated Measure study, subjects in the study selected through inclusion criteria.

Objective: To examine the effects a pre-marathon training program had on activity levels in children age’s five to eight. We hypothesized that physical activity would increase after participating in the program.

Background: Many studies have examined the rate of obesity and amount of physical activity among school-aged children. Research is limited on the effects of a consistent training program and overall activity levels.

Methods and Measures: Eight healthy subjects (mean age (standard deviation), 7 (1) years) participating in the Bismarck Mini Marathon training program volunteered for the study. Participants’ guardians were given the FitnessGram Activity questionnaire during the first and last program session. Accelerometers were provided to participants at the first session. Data was collected at the last program session and 4-weeks following. Independent variable was the performance in the training program with dependent variables of accelerometer data and FitnessGram results. Data was analyzed using weekly average step counts and weekly standard deviations.

Results: After completing the 4-week Bismarck Mini Marathon training program, four out of the eight participants (n=4) demonstrated improved weekly average step counts and FitnessGram Activity questionnaire scores. Four subjects were unable to participate in the study due to insufficient data.

Conclusions: The results of this study suggest that a community based running program shows a positive trend to improve children’s physical activity levels. Further research is warranted to substantiate this association.

Key Words: Physical Activity, Obesity, Exercise, FitnessGram, Children, Body Mass Index
ANTERIOR CRUCIATE LIGAMENT TEARS AND AN ASSOCIATED FAMILY HISTORY: A BLIND STUDY

Danielle Williams, Kyle Ver Burg, Maari Beck
Athletic Training Students
University of Mary
Bismarck, North Dakota

There have been past studies conducted that suggest there is a relationship between a genetic component and Achilles tendon ruptures, rotator cuff tears, and anterior cruciate ligament injuries. This study was performed to determine if this relationship is apparent athletes at the University of Mary who have a history of an anterior cruciate ligament (ACL) tear and also have an immediate blood related family member with a history of this injury; compared to those who have history of ACL tear with no family history of the injury. This blinded study was conducted through an anonymous survey, administrated to the athletes at the University of Mary through a third party, in order to maintain confidentiality. The data collected was put into a 2X2 Chi Square to identify any association between ACL injuries and an associated family history. After analyzing the data the researchers determined that 3.7% of athletes at the University of Mary show the relationship of having torn their ACL and having an associated family history of the injury.
ASSESSING CONCUSSION KNOWLEDGE IN PARENTS OF STUDENT ATHLETES

Anesu Banda, LAT, ATC & Joshua Kuntz, LAT, ATC
MS Kinesiology Students
University of Mary
Bismarck, North Dakota

The purpose of this study is to assess parent/guardian knowledge of sports concussions. Participating parents/guardians of high school student athletes were asked to complete a questionnaire that assessed knowledge regarding concussion diagnosis, signs & symptoms, and return to play. The questions from this study were adopted from the Center of Disease Control: Heads Up initiative which provides a more universal baseline of concussion policies and procedures. It is hypothesized that parents who have previous personal experience with concussions, or have a child that has sustained a concussion would be more knowledgeable of diagnostic guidelines, and would be better able to identify signs and symptoms.
THE EFFECTS OF RECRUITMENT OF JAW MUSCULATURE ON DYNAMIC POSTURAL CONTROL

Tony Chung, Rodolfo DeLima, Anthony Mitterling, Naeem Ugharadar, Justin Woitte
Physical Therapy Students
University of Mary
Bismarck, North Dakota

Study Design: Quasi-Experimental Design where each participant was assessed by the Rhythmic Weight Shift assessment (RWSA) using the NeuroCom Balance Master® force platform system using 2 jaw positions (relaxed and clenched).

Objective: To investigate the effect of recruitment of jaw musculature on dynamic postural control in healthy young adults.

Background: Previous studies have examined the influence of the jaw sensory-motor system on static postural control in healthy adults. However, research is limited on the effects of recruitment of jaw musculature on dynamic postural control.

Methods and Measures: Thirty-three healthy subjects (15 males, 18 females), ages 18 – 30 years, volunteered for the study. Dynamic postural stability was assessed using the RWSA on the force platform system. All participants performed the RWSA with jaw musculature relaxed and clenched on 2 separate days completing lateral and anterior/posterior weight shifts at various speeds. Directional control and on-axis velocity were recorded as a measure of dynamic stability for all trials.

Results: Participant scores improved with jaw clenching in 6/8 clinical trials including slow, fast, and composite scores for lateral weight shifts and slow, moderate, and composite scores for anterior/posterior weight shifts. Statistically significant improvements were found in dynamic balance for participants with jaw clenched vs. relaxed in lateral weight shifts, both slow speed and composite scores, and in anterior/posterior weight shifts at a moderate speed.

Conclusion: Jaw clenching appears to improve dynamic postural control in healthy young adults. Further research is warranted on the effects of jaw clenching on dynamic balance in individuals with balance impairments.

Key Words: NeuroCom, physical therapy, postural control, dynamic balance, rhythmic weight shift, jaw clench
FACTORS INFLUENCING OCCUPATIONAL THERAPY
STATE ASSOCIATION MEMBERSHIP

Corrine Fournier, Kristen Henderson, Jessalyn Kleinsasser, Sonia Merritt, Keley Traeger
Occupational Therapy Students
University of Mary
Bismarck, North Dakota

State occupational therapy (OT) associations exist in order to advocate for and promote awareness of the profession and to advance the quality and standards of the profession on behalf of their members and the public. However, there is a growing concern over low membership rates within several OT state associations. The purpose of this quantitative study was to explore factors that influence licensed OT practitioners’ decision to become members of their state professional associations. A cross-sectional survey developed by the researchers was emailed to licensed occupational therapists and occupational therapy assistants from two different states. Researchers analyzed 146 surveys, and identified several factors that influence membership and the perceived benefits of joining state associations. A significant correlation ($p \leq .05$) was found in nine out of 14 factors that were indicators of OT state association membership. These factors included: maintain professional reputation, advance notice of meeting times, convenient location of meeting, time to be a member, affordable membership cost, opportunities to develop new friendships, family commitments, and membership required by employer. Results of this study may assist OT associations in understanding the factors that influence OT practitioners’ decision to become a member of their OT state association.
There is a demand for professional nurses to have quality critical thinking abilities because of the rapidly changing healthcare environment that are attributed to government regulations, repayment guidelines, and patient population changes. This qualitative study was conducted to explore the perceptions of senior nursing students, in a baccalaureate program, regarding concept mapping as a learning tool to facilitate critical thinking development. The study examined the perceptions of seven senior nursing students from a Baccalaureate college located in the Midwest that utilized concept mapping as a learning tool. Private interviews were conducted with open ended questions to explore the participants’ true perceptions of concept mapping. The researcher discovered that participants believed that concept mapping helped them to connect ideas and develop critical thinking skills. The participants also perceived concept mapping was time consuming but they believed that the learning tool became easier with the more experience and knowledge that they gained. The participants recommended a less structured format in the initial assignment of concept maps to help decrease the stress of using this learning tool. The participants also stated that provision of examples and practice exercises prior to the official use of concept maps would help build their sense of self-efficacy. The perceptions gained from this study may be helpful for future nurse educators to choose whether or not to use concept maps in their classroom and/or clinical experiences.
EVALUATION OF OBSTRUCTIVE SLEEP APNEA SCREENING RATES FOLLOWING THE DEVELOPMENT AND IMPLEMENTATION OF A SCREENING PROTOCOL

Marina Rath, BSN, RN & Kristy Weigum, BSN, RN
Doctorate Family Nurse Practitioner Students
University of Mary
Bismarck, North Dakota

Introduction: Obstructive sleep apnea (OSA) is the most common type of sleep-disordered breathing. OSA is associated with multiple health comorbidities, including cardiovascular disease, cognitive impairment, increased risk of motor-vehicle accidents, and reduced quality of life overall. Obesity is a strong and predictive risk factor for the development of OSA. Body mass index (BMI) is one of several anthropometric measures which can be utilized to identify individuals, who are at risk for OSA. Primary care providers (PCPs) do not routinely screen patients for OSA, possibly due to a lack of a published guidelines as well as personal attitudes and knowledge deficits. Nevertheless, early recognition of individuals at risk for OSA is vital in order to improve patient outcomes.

Methodology: The pilot project included development and implementation of an evidence-based screening protocol for OSA at two different sites. As part of the project, PCPs involved in the implementation of the protocol were also educated about OSA risk factors and importance of timely identification of at risk individuals.

Conclusion: The pilot project demonstrated usefulness and effectiveness of screening protocol implementation. As a result of the implementation, the increase in the OSA screening rates in at risk individuals was noted. The project also positively affected the PCPs perspectives regarding OSA screening.

Keywords: OSA, obstructive sleep apnea, primary care providers
PERCEIVED WELLNESS & SATISFACTION OF ATHLETIC TRAINING STUDENTS AMONG ATHLETIC TRAINING PROGRAMS IN NORTH DAKOTA

William Littlefield, LAT, ATC
MS Kinesiology Student
University of Mary
Bismarck, North Dakota

The purpose of this study is to investigate the difference between junior and senior athletic training student’s average perceived wellness and satisfaction scores through the use of Perceived Wellness Survey and Job Satisfaction Survey. Study participants were from the Mid America Athletic Training Association District 5, including the states: North Dakota, South Dakota, Iowa, Nebraska, Kansas, Missouri, and Oklahoma. The Perceived Wellness survey includes 36 statements that an individual can either score from 1, "very strongly disagree" all the way to 6, "very strongly agree.” The scoring for this survey is on a possible 354 point total. The Job Satisfaction Survey measures occupational work through a series of nine facet scales. A total of 216 points are used for the scoring. An online data collection was used to distribute the questions from these two surveys to participants. Survey scores and subgroup results were analyzed using an ANOVA to compare the means of each group to clarify relationships. A P≤.05 was utilized to analyze the statistical significance. Spearman correlation coefficients were calculated to determine the strength of association between gender and grade level.
GENDER DIFFERENCES OF BODY IMAGE DISSATISFACTION AMONG DIVISION II COLLEGIATE ATHLETES

Kristin Ormsby, LAT, ATC
MS Kinesiology Student
University of Mary
Bismarck, North Dakota

The purpose of this study is to compare differences in body image dissatisfaction between male and female Division II collegiate athletes at University of Mary. All participants are Division II collegiate athletes at the University of Mary between the ages of 17-25. The study is a casual-comparative study. Each participant was provided with a questionnaire, known as the Eating Disorder Examination Questionnaire (EDE-Q).

Each participant was asked to return the Eating Disorder Examination Questionnaire to assigned coaching staff in a concealed envelope within 48 hours upon receipt. The data was then collected by the researcher and analyzed to determine differences in body image dissatisfaction between male and female Division II collegiate athletes at the University of Mary.
Antipsychotic medications have long been used in the treatment of those suffering with severe mental illness. Although their efficacy in treating these disorders has been well established, drawbacks still exist with their use. These include weight gain, metabolic disturbances, sedating effects, and extrapyramidal side effects (Cunningham, Peters & Mannix, 2013). The overall risk of developing extrapyramidal side effects, such as tardive dyskinesia, over the course of ongoing treatment is between 30-50%. Approximately 60-70% of tardive dyskinesia cases are mild, and three percent of cases are extremely severe (National Alliance on Mental Illness, 2016). Although these drugs play an important role in the treatment of serious and chronic mental illness, tardive dyskinesia is an unfortunate, serious side effect of long-term antipsychotic use. The AIMS assessment is a well-established and proven screening tool to detect tardive dyskinesia and monitor its severity over time.

The purpose of this project is aimed at improving AIMS tool utilization in a population of providers working in a behavioral health setting in an urban location in the Midwest. The project will occur within a pilot clinic setting—a behavioral health clinic that serves the outpatient population. The goal of this project is to improve use of the AIMS screening tool for identification of tardive dyskinesia symptoms in patients taking antipsychotics medications.
KNOWLEDGE OF PALLIATIVE CARE IN THE INTENSIVE CARE UNIT

Virginia Titman, BSN, RN  
Nurse Educator Student  
University of Mary  
Bismarck, North Dakota

The knowledge level of nurses to provide palliative care to patients in the intensive care unit (ICU) was identified as an area of investigation for this quantitative research study. Review of the literature revealed that utilization of palliative care was associated with a reduction in direct hospital costs as well as with an improvement in patients’ quality of care and quality of life. The purpose of this study was to assess knowledge levels of palliative care in nurses who worked in an ICU setting to determine whether the variable of education preparation and/or years of ICU experience predicted their knowledge levels of palliative care. The sample for this study included 77 registered nurses who worked in a 45-bed ICU located in a Midwestern tertiary hospital in the United States. The participants completed a demographic survey and the Palliative Care Quiz for Nursing (PCQN) which measured the nurses’ knowledge of palliative care. Findings of the study identified a mean average score of 64.4% that indicated that the nurses who participated in the study were moderately but not fully knowledgeable in palliative care. The difference in educational preparation was not significant (p > 0.5); however, the number of years of ICU experience was a significant predictor (p = 0.0086). Findings of this study indicate that palliative care educational opportunities need to be implemented to improve the nurses’ knowledge levels in their roles to provide palliative care and/or to refer ICU patients to palliative care services. Continued research on this topic is needed in order to build upon an existing knowledge base to improve quality nursing care to this patient population.
EXAMINATION OF TEACHER KNOWLEDGE AND CLASSROOM MANAGEMENT OF STUDENT-ATHLETE CONCUSSIONS: IMPLICATIONS FOR RETURN-TO-LEARN PROTOCOLS IN A DIVISION II UNIVERSITY CURRICULUM

Kathryn Thurman, Miranda Dupree
Athletic Training Students
University of Mary
Bismarck, North Dakota

There is currently no standardized guidelines in affect for Return-to-Learn for the National Collegiate Athletic Association (NCAA). The NCAA only recommends that a student-athlete sit out from the classroom for one day before he or she is considered well enough to perform classroom tasks (Aukerman et. al.). The purpose of this study is to evaluate faculty knowledge, at the University of Mary, of the Return-to-Learn protocol for student-athletes who have sustained a concussion. 46 full-time University of Mary faculty members participated in the study. The projected outcome is that University of Mary professors will be unfamiliar with the Return-to-Learn protocol. Results: 60.87% of teachers have taught a concussed athlete before, 69.57% of teachers were somewhat/ not confident in recognizing concussion symptoms, 71.74% have never received information about concussions from the institution, 73.91% have never had an educational seminar with a health care professional on the topic, 69.57% say that there is a need for concussion information, 76.09% are somewhat/ not confident at all with their knowledge of classroom modifications for concussed students, 48.89% said that they didn’t do anything different in terms of classroom management. The data collected suggested that the University of Mary full-time faculty have indeed been exposed to concussed student-athletes but are limited in their knowledge of the Return-To-Learn protocol.
EXPLORING OCCUPATIONAL THERAPY’S IDENTITY WITHIN PALLIATIVE CARE THROUGH THE EYES OF OCCUPATIONAL THERAPISTS

Kayla Berntsen, Lacey Brilz, Katelyn Greenmyer, Mariah Hathaway, Rachel Weir
Occupational Therapy Students
University of Mary
Bismarck, North Dakota

Palliative care is a growing field of medicine and occupational therapy (OT) practitioners can be important members in interdisciplinary teams in this area. However, the role of OT in palliative care is not well known by OT practitioners, and other healthcare professionals. The purpose of this study was to examine the perceptions of the role of OT in palliative care. Opinions were gathered from OT practitioners in the United States (U.S.) via a quantitative study. Online surveys were sent to 5,720 email addresses, and 254 were returned. Participants were from various regions throughout the U.S. Analysis of results included descriptive statistics, Kruskal-Wallis tests, and Chi-Square tests. Also, several trends emerged from open ended responses to identify factors that are potentially inhibiting the presence of OT in palliative care. Age and years of experience were significant predictors of perceived emotional preparedness to work in palliative care, and perceived educational preparedness was a significant predictor of current employment in the practice area. Barriers to practice in palliative care included education, communication, referrals, stigma, and reimbursement. Facilitators were timeliness of referrals, family participation in treatment, and interdisciplinary support. Sufficient emotional and clinical preparedness as well as lack of education contribute to OT practitioners’ contribution to palliative care. This study concluded that while OT practitioners can be a vital source of improving the quality of life of individuals receiving palliative care, misconceptions remain, which warrants further research and understanding in this area of practice.
A COMMUNITY ALL ACCESS DANCE CLASS FOR CHILDREN OF ALL ABILITIES: WHAT DOES THIS MEAN FOR PARENTS AND CHILDREN? PRESENT AND FUTURE CONSIDERATIONS?

McKayla M. Artz, Jennifer A. Cassel, Caitlin B. Miller, Alexis B. Quale
Physical Therapy Students
University of Mary
Bismarck, North Dakota

Study Design: Repeated measures design and a 1 time post parental questionnaire.

Objectives: To determine a change in dance specific skills for children with participation restrictions (PR), and identify parent/caregiver(s) perception of current and future enrollment in community physical activities (CPA) following an all access dance class (AADC).

Background: Research supports physical activity for children of all abilities, and acknowledges children with PR are limited in CPA opportunities. Dance therapy is recognized as a therapeutic intervention for individuals with PR. Research is limited regarding change in dance specific skills following an adapted dance class for children with PR, as well as the perception of parents/caregiver(s) for future enrollment in an adapted or inclusive CPA, following an AADC.

Methods and Measures: Nine children with PR participated in an all ADC for 45-minute sessions, once a week, for 6 weeks. Pre/post evaluations of dance specific skills, quality of movement, and a post parental questionnaire targeting perception of current and future participation in CPA were administered.

Results: Statistically significant (P<.05) improvements pre to post were achieved in the mean rank of 16/21 dance specific skills, and 4/5 quality of movement skills. All parent/caregiver(s) indicated the experience was favorable and would consider reenrollment in the AADC; however, none indicated enrollment in a non-adaptive dance or other CPA following the experience.

Conclusions: Children with PR can improve dance specific skills following an adapted community dance class. Parental perceptions of the class were favorable, however future enrollments would be limited to adaptive CPA.

Keywords: physical activity, participation restrictions, dance therapy, physical fitness activities, movement therapy
INDIVIDUAL ANATOMICAL CHARACTERISTICS AND PERFORMANCE OF THE
STANDARD, AND VARIATIONS OF, PARTIAL CURL-UP TEST

Ashley Nodland, Haleigh Holzer, Casey Reamann
Exercise Science Students
University of Mary
Bismarck, North Dakota

Background: Studies have shown that age is a predictor of performance on the standard curl-up
test. Resultantly the Standard Canadian Society of Exercise Physiology (SCSEP) state that
individuals <45 yr are to complete the partial curl-up test at a reach distance of 12 cm and those
>45 yr at 8 cm.

Purpose: This study aimed to investigate the relationship of spinal flexibility, arm length,
height, and torso length on execution of the SCSEP curl-up test, as variables not previously
studied according to the knowledge of the researchers, and in addition to previously studied
variables of age, waist circumference, plank time and reported physical activity. To the best of
our knowledge, no study has assessed all of these variables and their effect on curl-up
performance at varying reach distances of 8, 10, and 12 cm.

Methods: Maximal plank time and anatomical assessments were recorded for 68 [age 22 (18-
45)] subjects. Each subject completed a partial curl-up test following the SCSEP protocol as
distances of 8, 10, and 12 cm in randomized order and 24-48 hours apart. Number of repetitions
completed at each reach distance was recorded as the outcome variable.

Results: For the variables that were normally distributed, a one-way repeated measures
ANOVA was calculated comparing the curl-up repetitions of study participants at three different
reach distances: 8 cm, 10 cm, 12 cm. A significant effect was found (F(2, 40) = 28.035, p <
.001). Follow-up protected t tests revealed that curl-up performance decreased significantly from
8 cm (53.29 ± 23.12) to 10 cm (43.85 ± 26.90), and again from 10 cm to 12 cm (32.69 ± 27.41).
A mixed-design ANOVA was calculated to examine the effects of height, waist circumference,
arm length, spinal flexibility, and torso length and reach distance (8 cm, 10 cm, 12 cm) on curl-up
performance. No significant main effects or interactions were found. A step-wise regression
analysis was calculated predicting participant’s curl-up performance at 8, 10 and 12 cm. No
variable or combination of variables were found to be a major predictor for performance at each
of the reach distances.

Conclusion: Anatomical characteristics such as height, waist circumference, arm length, spinal
flexibility, and torso length in an active, young adult population, appear to have no effect on
curl-up performance and at the three reach distances assessed in this study. Further research,
with a larger N number and a better distribution of variables, is needed to determine influence of
physical activity status, weight and BMI on performance of the curl-up test at any of the reach
distances examined in this study and in individuals <45 years of age.
THE EFFECTS OF CORE STRENGTHENING ON BALANCE AND GAIT SPEED IN THE GERIATRIC POPULATION

Ali Heintz, Soohan Kim, Jennifer Moen, Juliette Nguyen, Jeff Sedler, Desireé Willman
Physical Therapy Students
University of Mary
Bismarck, North Dakota

Study Design: Prospective uncontrolled before-and-after experimental design.

Objective: To determine the effects of a land-based core stabilization program on balance and gait speed in the geriatric population.

Background: Previous research has found relationships between core stabilization and balance, balance and gait speed, and gait speed and longevity. Little research has been done examining a causal relationship between core stabilization and gait speed.

Methods and Measures: Eight older adults (mean age (SD), 73 (8) years) volunteered for this study and were screened for inclusion using the Physical Activity Readiness Questionnaire for Everyone. Participants engaged in a group exercise class with core stabilization for 30 minutes per session 3 times per week for 6 weeks. Outcomes included balance, measured by the Mini Balance Evaluation Systems Test, and gait speed, measured by the 10 Meter Walk Test. Data was collected pre- and post-intervention. A paired t-test was performed to analyze effects on gait speed and a Wilcoxon t-test conducted to analyze effects on balance.

Results: A significant difference was found for overall balance (z = 2.043, P = 0.041) and reactive postural control (z = 2.070, P = 0.038). A mean increase of 0.0304 m/s was found for gait speed but was not significant (P = 0.161).

Conclusions: Core stabilization training resulted in significant improvements in overall balance and reactive postural control in this geriatric population but did not significantly improve gait speed.

Key Words: core stabilization, strength training, stability, walking speed, gait velocity, falls, fall risk, elderly, older adults, longevity, MiniBEST, 10MWT
PROTOCOL IN FOLLOW-UP WITH SEXUAL ASSAULT VICTIMS ACROSS WESTERN-CENTRAL NORTH DAKOTA

Megan Johns, BSN, RN & Tiah Rigby, BSN, RN
Doctorate Family Nurse Practitioner Students
University of Mary
Bismarck, North Dakota

Introduction: Nationally, there is an estimated 1.3 million rape-related assaults that occur against women annually (ACOG, 2014). Specific to North Dakota, there were approximately 1,221 victims served by assault crisis centers in 2015 (CAWS, 2015). To narrow the number of victims down by region; 145 of those victims were examined by SANE professionals employed within the Central Forensic Examiners Program (Scheuer, 2008). Currently, there are no protocols for sexual assault follow-up in the Central Dakota Forensic Nurse Examiners program. Aside from the recommendation to refer to primary care, no medical professional point-of-contact post-assault is provided for the victim. The lack of a supervised treatment plan creates a deficit in post-assault compliance and leaves the victim vulnerable to long-term mental and physical health complications. This is an evidenced based practice project to identify and implement a follow-up assessment tool that examines sexual assault victim’s needs and creates an individualized treatment plan with necessary referrals to ensure future health and well-being after a sexual assault incident. This project aims to address the question: “In victims of sexual assault in Western-Central North Dakota, how does the implementation of a follow-up program influence post-rape care as compared to the current standard of practice?” Sexual Assault Nurse Examiners (SANE), whom are employed with the Central Dakota Forensic Nurse Examiners program, will be the participants of this project. The setting will be in Western-Central North Dakota, which includes the communities of Dickinson, Williston, Bismarck, and Minot.

Methodology: The evidence-based practice project included a pre- and post-survey to evaluate the Sexual Assault Nurse Examiner’s perceptions of the implemented post-assault follow-up assessment tool and protocol. The qualitative data was then interpreted using a repeated-measures t-test. The project incorporated identified needs of the victims, PHQ-9 assessment, medication needs, forensic needs, and additional referrals to local resources that were then analyzed to evaluate significance.

Conclusion: During the 12-week implementation period (Dec 1st, 2016-March 1st, 2017), there were 42 sexual assault cases treated between all 13 participating SANE nurses. The follow-up protocol was utilized in 11 of these cases, which resulted in a 26% implementation rate. Only 7 of the 13 (53%) participating SANE nurses completed a single follow-up assessment, though all but one nurse completed at least one sexual assault examination during the 12-week period. An independent sample t-test was done to compare those who completed follow-up examinations with the pre- and post-survey data. It was found that those who did not complete any follow-ups had significantly lower global self-efficacy before the program implementation (M=3.33,
SD=.52) than those who did complete the follow-up assessment (M=4.29, SD=49; t(11)=3.42, p<.01). The post-survey that was completed by the 13 SANE professionals revealed a statistically significant increase for the self-efficacy and self-confidence in assessing victim’s 72 hours post-sexual assault. Implementing a follow-up assessment for victims of sexual assaults is successful in identifying and intervening for potential post-assault complications. As the DNP students turn the program over to the Central Dakota Forensic Nurse Examiner’s program for self-sustained continuation, it will be imperative for the program to receive continuing education regarding the importance and implementation of this post-assault follow-up assessment protocol.

**Keywords:** sexual assault nurse examiners, sexual-assault follow-up care, sexual assault complications, SANE follow-up protocol
A COMPARISON STUDY OF INTERSTIM®, URGENT PC® AND BOTOX®
TREATMENTS ON OVERACTIVE BLADDER AND THEIR EFFECTS ON QUALITY OF LIFE

Alison Albers, Rebecca Frickey, Sarah Jacobson, Mandy Peerboom,
Krystal Rasmussen, Sherri Stokes
Physical Therapy Students
University of Mary
Bismarck, North Dakota

Background and Purpose: Interstim®, Botox®, and Posterior Tibial Nerve Stimulation (PTNS) have been shown in clinical studies to improve the symptoms of Urge Urinary Incontinence (UUI), however they have not been compared to one another. This case series evaluated the effects of the 3 interventions on UUI and Quality of Life (QOL).

Study Design: A descriptive case series which included a pre- and post-intervention chart review of 8 patients that underwent Interstim®, Botox®, or PTNS. Each patient was given an International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF) prior to treatment and again at follow up.

Case Description: Mean age of the 8 participants was 77 years (range 67-88 years). There was variability in characteristics, comorbidities, and presenting complaints with each subject failing a trial of conservative treatment prior to enrollment. Each participant was evaluated by a family nurse practitioner for diagnoses with UUI and/or overactive bladder (OAB) and signed an informed consent form.

Outcomes: The PTNS group demonstrated an average improvement of 5.4 points on the ICIQ-SF. The Interstim® participant experienced minimal change in QOL. The Botox® group had the most significant change with average improvement of 14 points.

Conclusion: The three treatments, on average, all positively affected quality of life in patients who had UUI with a decrease in symptoms. Botox® had a slightly greater improvement than PTNS and Interstim®.

Key Words: urge urinary incontinence, neurogenic bladder, urinary leakage, ICIQ- SF, posterior tibial nerve stimulation, sacral neuromodulation, botulinum neurotoxin type A
A RETROSPECTIVE STUDY OF THE COMPARISON OF CONCUSSION SCREENING TOOLS AND THEIR EFFECTIVENESS

Kara Buss, Adrienne Martwick, Jacob Retzer, Wayne Engelhard, Kirstie Strelo
Physical Therapy Students
University of Mary
Bismarck, North Dakota

**Design:** Retrospective study.

**Objective:** To determine if performing a Buffalo Concussion Treadmill Test (BCTT) or King-Devick test (K-D test), in addition to the current Sports Concussion Assessment Tool (SCAT3), could more accurately identify the cause of an athlete's symptoms, thereby improving treatment decisions.

**Background:** Concussions may be identified through various screening tools; however, there is limited research on the screening process during concussion evaluation to determine how to proceed with graduated exercise. The BCTT uses symptoms and objective signs to determine if a patient is physically prepared to continue exercise. Also, numerous studies have demonstrated that vestibular/ocular deficits may be important in identifying athletes who sustain concussions, thus the inclusion of the K-D test.

**Methods and Measures:** Concussion screening results of ten athletes from Mandan high school and middle school were examined. Each athlete was assessed using SCAT3, K-D test, and BCTT prior to beginning the graded exertional return to play protocol. A diagnostic data comparison was made amongst the three screening tool results for each participant to determine discrepancies.

**Results:** There were no statistically significant differences detected amongst test results that suggest using one screening tool to more accurately identify a concussion. However, advantages were found in using the various specific assessments of each screening tool.

**Conclusion:** The results of this study suggest that the K-D test and BCTT may be beneficial to include as screening tools for concussion in addition to the current standard SCAT3. The results of this study should be viewed cautiously and critically, due to the small sample size.

**Key Words:** Mild traumatic brain injuries, athletic injuries, sports medicine
A CORRELATION STUDY OF PRESEASON SUMMER WORKOUT COMPLIANCE TO INJURY RATES IN NCAA DIVISION II COLLEGIATE ATHLETES INVOLVED IN FALL SPORTS

Sarah Peabody, Rebekah Horgan
Athletic Training Students
University of Mary
Bismarck, North Dakota

Context: The purpose of this study is to investigate the correlation between compliance to the 2016 summer preseason strength and conditioning workouts and injury rate in collegiate NCAA Division II athletes who participate in a fall sport.

Objective: To determine if preseason workout compliance affects the number of injuries sustained by athletes during their fall season.

Design: Survey Research.

Setting: University of Mary athletic training facility and athletic training program classroom.

Patients/Participants: NCAA Division II collegiate athletes in women’s volleyball, tennis, and soccer and in men’s football and soccer

Data Collection and Analysis: Subjects will be recruited during their mandatory off-season weight lifting sessions for their respective sports and be given a study that asks them their compliance of their summer pre-season workout and the number of injuries that they sustained in their fall sports season. All potential subjects will be included in the study if they were given a 2016 preseason strength and conditioning workout program for the summer. Descriptive statistics will be used to summarize age, gender, sport, position of sport, injuries, and compliance of preseason summer workouts. Average means and standard deviations will be calculated for all variables. A multiple regression analysis will be used to test the hypothesis of compliance of preseason summer workouts to the number of injuries sustained during the season. Statistical significance will be set at p ≤ 0.05.

Intervention: Fall season athletes who consent to be in the study will be given the survey at the end of their season so the number of injuries they sustained during their fall sports season is known. The study’s survey will include the athlete’s sport, summer workout compliance questions, and the number of injuries which occurred during their 2016 fall season.

Results: The expected outcome of this study is that subjects who are compliant versus somewhat compliant or non-compliant in summer preseason workouts will have fewer total injuries during the 2016 fall season. Collegiate sports teams may benefit from understanding what factor their summer preseason workout compliance plays in regards to the injury rate during their seasons.
THE EFFECTS OF A FOUR-DAY SCHOOL WEEK ON ACADEMIC PERFORMANCE

Clinton Neville
Sports and Physical Education Administration Student
University of Mary
Bismarck, North Dakota

This study contains historical information regarding the four day school week. It focuses on six Montana schools that between the years of 2006 and 2014, had a junior high and high school enrollment of 75 to 190 students. The primary focus of this study was to determine if the standardized state test scores were effected by schools switching to a four day school week. The data was collected from the Montana department of education website. The population sampled were 7th grade students test scores one year prior to their school switching to a four day school week. State test scores were also collected from the same group as 10th graders, three years after their schools switched to a four day school week. The study also compared ACT scores from 12 South Dakota schools one year prior to switching to a four day school week to the ACT scores 3 years after switching to a four day school week. All data was analyzed using a Z-score analysis with a .05 level of significance to determine if the change in scores was significantly better, worse, or had no change at all.
YOU’RE NOT GOING TO LEARN IT ALL: GRADUATE NURSES’ PERCEPTIONS OF PREPAREDNESS FOR CLINICAL PRACTICE

Nicole Hatzenbuhler, MSN, RN
Nurse Educator
University of Mary
Bismarck, North Dakota

This qualitative study explored the perceptions of graduate nurses regarding their preparedness to enter the nursing workforce. The intent of this research was to achieve a greater understanding of how educational experiences may influence newly graduated nurses’ preparedness to assume their professional roles and responsibilities. Semi-structured interviews were conducted with 10 registered nurses who held BSN degrees, were employed in acute care settings, and had one to two years of practice experience. Three categories emerged during data analysis: 1) “It’s Hard for Nursing School to Prepare You for Everything”; 2) “Being in the Workforce is Different”; and 3) Pearls of Wisdom. The study’s findings revealed that nursing education could not completely prepare the graduates for their multifaceted roles and responsibilities as registered nurses. Practical experiences as a nurse were deemed necessary due to differences in students’ and nurses’ roles in clinical settings. The participants recommended mentoring for novice nurses, more hands-on experiences during nursing education, and the need for lifelong learning skills to enhance graduates’ preparedness for clinical practice. These findings supported the need for a collaborative approach among nurse leaders in academia, research, and practice to implement socialization strategies that will prepare graduates to navigate the challenges associated with entry into the nursing workforce. Facilitating graduate nurses’ successful transitions into clinical practice is an important strategy that can address turnover and retention among graduate nurses, the emergent and ongoing nursing shortage, patient safety, and other related issues that pervade current health care systems.
THE EFFECTS OF OCULOMOTOR TRAINING ON EYE MOVEMENTS AND READING SCORES OF STUDENTS WITH READING DEFICITS

Briana P. Jackson, Mollie R. Koble, Alison R. Sluke, Erin R. Volk, Alexandra M. Winters
Occupational Therapy Students
University of Mary
Bismarck, North Dakota

A majority of a child’s learning occurs through the eyes. Oculomotor (eye movement) skills play an important role in the ability of children to read efficiently during everyday activities and in a variety of environments. This study used a quasi-experimental pretest/posttest design to examine the effectiveness of oculomotor training activities in improving reading scores and eye movement skills of elementary students. Thirty-five children who received reading services in an elementary school in an upper Midwest town during the 2016-2017 school year participated in this study, with 10 in the intervention group and 25 in the control group. Reading benchmark scores, observations of eye movement skills, and the Developmental Eye Movement (DEM) test were used as pretest and posttest to evaluate changes in the students’ skills. Oculomotor exercises were implemented 4 to 5 times a week for 8 weeks. Exercises addressed saccades (quick movement of the eyes), pursuits (visual tracking), and vergence (bringing the eyes to midline and back). Data were analyzed following interventions. Paired samples t-tests and Wilcoxon Signed Rank tests showed improvements for children in both groups over time. The independent samples t-tests showed that the control group had significantly higher scores at the beginning of the study, but scores were basically the same at posttest, indicating the intervention group “caught up” to the control group. These results were inconclusive, but indicated oculomotor exercises may be beneficial in improving eye movement and reading skills for children with reading deficits.
IMPLEMENTATION OF AN INTRATHECAL PAIN THERAPY PROGRAM BETWEEN AN ONCOLOGY CENTER AND PAIN MANAGEMENT CLINIC

Jaydee Unruh, BSN, RN & Cyndi Wald, BSN, RN
Doctorate Family Nurse Practitioner Students
University of Mary
Bismarck, North Dakota

According to the North Dakota Cancer Coalition (2011), one out of two men and one out of three women will develop cancer in their lifetimes. Research estimates at least 10% of cancer patients do not receive effective relief of their cancer pain identified by the World Health Organization (WHO) three-step ladder guidelines, and an upwards to 30% of patients receive poor pain control, especially in their last year of life (Raphael et al., 2010). For patients with refractory cancer pain, intrathecal pain therapy is an established and superior alternative to conventional opioid use (Brogan, 2006). Interventional pain treatments, such as intrathecal pain pumps, offer rapid and effective analgesia with less toxicity than oral or parenteral agents, permit dose reductions of systemic analgesics, serve as an alternative to refractory pain, and enhance performance status and quality of life of patients with cancer-related pain (Christo & Mazloomdoost, 2008). While intrathecal drug delivery may enhance the ability of oncologists and pain specialists to treat complicated pain syndromes, several factors hamper its widespread use including lack of understanding the relevant indications for this mode of analgesia and the types of patients who may benefit (Stearns et al., 2005).

The EBP project was a pilot program geared to streamline pain management practices. The project settings were within two specialty practices in separate healthcare facilities located in the Midwest, an outpatient Oncology Clinic and a Pain Management Clinic. The program developed and implemented a standardized algorithm intended to facilitate healthcare providers’ detection and determination of candidacy for intrathecal pain therapy among oncology patients.

This quality improvement project noted an increase in cancer patients referred to pain management. Utilization of a standardized screening algorithm and referral process allowed earlier referral of cancer patients to pain management. Importantly, development and implementation of the algorithm and referral process improved collaboration among and between oncology and pain management professionals from two healthcare facilities.
STANDARDIZED PERINATAL DEPRESSION SCREENING FOR OPTIMIZING PATIENT CARE

Kara Kniert, BSN, RN & Melissa Nehl, BSN, RN
Doctorate Family Nurse Practitioner Students
University of Mary
Bismarck, North Dakota

Study Design: Action Research, Evidence Based Practice Project.

Purpose: This evidence based Doctorate of Nursing Practice (DNP) capstone project investigates whether screening all women at certain points in the perinatal period, for depression, identifies more cases of perinatal depression (PND) than does individual provider discretion.

Background: PND is a pervasive condition affecting thousands of new mothers each year. PND includes major and minor depressive episodes during pregnancy and/or up to a year following the birth of a baby, and affects up to one in five new mothers. Healthcare providers tend to overestimate their PND screening frequency and accuracy. Inconsistent PND screening practices still exist, despite evidence that the condition has a vast array of negative consequences.

Methods: This DNP capstone project implemented a 12-week standardized PND screening protocol in an obstetric (OB) clinic located in the upper Midwestern United States. Pre-implementation education was provided to all participants (OB providers, nurses, and clerical staff). The Edinburgh Postnatal Depression Scale (EPDS) was utilized to screen women for PND at two specific points during the perinatal period: 24-28 weeks gestation, the same visit as the oral glucose tolerance test, and 6 weeks postpartum. Patients that had an EPDS score of ≥10 were recommended to be referred to a mental health provider for further evaluation and treatment. Data was collected for the following three time periods, each 12 weeks in length: 1) one year prior to implementation, 2) pre-implementation, and 3) implementation. Data during implementation (Period 3) was compared to the two preceding time periods (Periods 1 and 2). The OB clinic’s information technology staff extracted data from the electronic health record, including patient encounters and EPDS scores. No patient identifying data was included. Quantitative data analyzed included PND screening rate and EPDS scores, using Microsoft Excel and SPSS Statistics. Qualitative data evaluated pre-implementation surveys given to the OB providers, and post-implementation surveys given to the OB providers, nurses, and clerical staff. The purpose of the surveys was to evaluate attitudes of the project participants towards standardized PND screening.

Results: PND screening rates were determined by the number of EPDS screenings completed out of the total number of patient encounters for each time period, and are as follows: Period 1=0% (0/3,725), Period 2=1.8% (64/3,562), Period 3=11.1% (346/3,110). The screening frequency increased by 622% from Period 2 to 3. A tabulation of EPDS score frequency for Period 2 and 3 was determined, ranging from 0 to 30. EPDS scores were as follows: Period 2 (min=0, max=21, mean=3.6, scores ≥10=8), Period 3 (min=0, max=25, mean=4.8, scores ≥10=47). Qualitative data identified 4 distinct themes: 1) OB clinic staff are willing to screen for PND, 2) they intend to continue screening, 3) improved communication with mental health
resources likely contributed to more positive attitudes toward screening, and 4) barriers still exist to standardized PND screening.

**Conclusion:** Standardized screening identifies more patients with possible PND compared to individual provider discretion. During implementation, there was an increase in PND screening frequency, average EPDS score, and the number of women scoring ≥10. This suggests that standardized screening is more sensitive in detecting patients who may have PND, than clinical judgement alone. Improving consistency of PND screening practices by healthcare providers may identify affected women sooner, leading to earlier initiation of treatment.

**Keywords:** Perinatal Depression (PND), Perinatal Depression Screening, Edinburgh Postnatal Depression Scale (EPDS)
EVEN THOUGH IT ISN’T A REAL PERSON, YOU HAVE TO TREAT IT LIKE IT IS: NEW GRADUATES’ PERCEPTIONS OF HIGH-FIDELITY SIMULATION

Ashlee Fettig, BSN, RN
Nurse Educator Student
University of Mary
Bismarck, North Dakota

Current healthcare environments demand that newly graduated nurses practice safely and assume required registered nurse responsibilities within weeks of graduation. In contrast to this workplace reality, many new graduate nurses perceive that they were not prepared to transition to the registered nurse role at this rapid pace. This phenomenological qualitative study examined the perceptions of six registered nurses who graduated from four baccalaureate nursing programs within the last two years, regarding the influence of high-fidelity simulation experiences that they received during their undergraduate education to prepare them to enter clinical practice. Semi-structured interviews were completed. Categories identified from coded data included: Safe Environment to Practice, Applicability to the Real World, and Recommendations. The data revealed that participation in high-fidelity simulation was perceived as beneficial and contributed to the preparedness of the interviewees to enter clinical practice secondary to hands-on practice experiences in the clinical settings. The interviewees stressed that students should view high-fidelity simulation experiences as high priority learning opportunities. Recommendations included incorporating basic and critical high-fidelity simulations scenarios in nursing curricula; increasing the number of high-fidelity simulations in the senior level curricula; incorporating and correlating high-fidelity simulation scenarios prior to participating in specialty clinical rotations; assigning letter grades to high-fidelity simulations; and the development of best practice policies for the use of high-fidelity simulation in nursing education.
THE EFFECTIVENESS OF COPING STRATEGIES AMONG FAMILY CAREGIVERS OF PERSONS WITH DEMENTIA

Kelsie Burns, Ben Gailfus, Geena Leschisin, Catherine O’Connell, Sarah Redding
Occupational Therapy Students
University of Mary
Bismarck, North Dakota

The primary objective for this study was to determine the effectiveness of coping strategies utilized by family caregivers of persons with dementia. A cross-sectional survey design was used. Sixty-seven participants who care for a person with dementia participated in an online survey. Participants completed a 24 question Likert type scale researcher designed survey assessing the effectiveness of coping strategies. Demographic information was also collected, with space for additional comments. Effective coping strategies were determined using a Friedman 2 Way ANOVA. Based on the mean ranks, various coping strategies were identified as being effective. The participants identified that taking time for yourself, altering your values, researching or reading about dementia, seeking out solutions to problems, and taking control of the situation are most effective. The top five coping strategies identified by the participants as predominantly not effective based on mean rank included: utilizing aggression, giving up, blame self, denial of loved one’s condition, and avoidance of the situation. Mann-Whitney U and Kruskal Wallis tests were used to compare coping strategies with demographics, these included: gender, race, education level, relationship to person with dementia, residence of person with dementia, and length of time since diagnosis. This study highlights the various coping strategies utilized by caregivers of individuals with dementia, based on participants perceived effectiveness. This information can be used by practitioners as well as caregivers to aid in the support of caring for a person with dementia.
EFFECTS OF FOAM ROLLING ON HAMSTRING RANGE OF MOTION

Travis Smith, Brendon Ehrlich, Evan Morehead
Athletic Training Students
University of Mary
Bismarck, North Dakota

Context: The purpose of this study is to investigate the effects foam rolling has on flexibility of the hamstrings, by measuring hip range of motion changes of the lower extremities, in active and non-active collegiate population, ages 18-25 years old. Foam rolling technique is generally used on lower extremities; however it can also be used on the torso and back.

Objective: The objective of this study is to see if the intervention of a foam roller protocol will increase flexibility of the hamstring muscles, and increase range of motion of hip flexion.

Design: Basic Research.

Setting: NCAA Division II athletic training facility and an athletic training education program’s classroom.

Participants: Athletic and non-athletic students within the institution will be recruited, and included in the study, upon their volunteering for it. Exclusion criteria include participants with knee, hip, ankle, or spinal injuries within the past 9 months, anyone currently involved in a flexibility program, one whom is pregnant, anyone taking any medications for pain control or a prescription medication for musculoskeletal problems. Other exclusion criteria include anyone with conditions that may alter circulation (i.e. Diabetes), and anyone with neurological conditions that result in sensory motor impairment.

Data collection and Analysis: Pre-post measuring hip ranges of motion will be completed before and after a foam rolling intervention of the active and non-active groups. 90-90 straight leg test and the sit and reach test will each be completed at the beginning and the end of the protocol foam rolling intervention. Average means and standard deviations will be described of the studies variables, of active and non-active participants, ages of participants, and hip flexion range of motions. Hip ranges of motion data (pre- and post-testing) will be analyzed with an ANOVA. Statistical significance will be set at $p \leq 0.05$.

Results: The study outcome is that by foam rolling, flexibility increases in the hamstrings will occur, causing an increase in range of motion of hip flexion. Foam rolling interventions have not completely been supported by the literature, but it is utilized in clinical practice for myofascial release.

Conclusion: The benefits of this study may provide evidence for athletic trainers, and other healthcare professionals that the implementation of foam rolling before, during, and or after stretching exercises may increase flexibility within the hamstring muscle group. This study may also benefit the tested population to show them that by foam rolling, they can help prevent injury by getting a better warm up, and increase flexibility within their warmup.
GLUCOSE DEPLETION AND LACTIC LEVELS AS A RESPONSE TO THE WANT, TEST UNTIL FAILURE, AND TEST RETEST IN TRAINED VS UNTRAINED MALE INDIVIDUALS

Victoria Brucker, Jordan Steen, Samantha Leingang
Exercise Science Students
University of Mary
Bismarck, North Dakota

**Purpose:** The aim of the study was to study the influence of 3 different modalities of the Wingate Anaerobic test on blood pressure, Lactate, blood Glucose and the mechanical indices.

**Methods:** 20 healthy trained and untrained man, ages 18-25 years volunteered to participate in this study. Each subject underwent three different modalities of the Wingate Anaerobic Test (test-retest, test until failure, and a “classic” Wingate).

Blood Glucose, heart rate, blood pressure, and Lactate were measured at baseline, immediate post-test, 5 minutes post, 10 minutes post, and 15 minutes post. During the test-retest modality the variables were also measured midway the recovery between tests.

**Results:** Immediate post lactate levels for the “classic” modality were significantly higher for the trained subject (9.58±3.06 vs 6.56±2.42 mmol/l, respectively, p = 0.036). Lactate levels were significantly higher for the untrained 15 minutes post the test-retest modality (15.01±3.03 vs 11.97±2.42 mmol/l, respectively, p = 0.036). Diastolic blood pressure was significantly higher in the untrained for both the midway recovery and immediate post second bout measures of the test-retest modality (79.33±8.66 vs 67.4±6.11 mmHg and 76.67±9.64 vs 64±8.11 mmHg, respectively, p = 0.003 and p = 0.006 respectively). All other comparisons between groups were insignificant. Within the groups, few significant findings were related to the modality itself.

**Conclusion:** The findings of this study contradict the expected outcomes regarding the mechanical outputs in comparison between trained and untrained subjects. It is possible that significant differences would be seen if trained subjects were specifically well-trained anaerobically.

**Key Words:** Wingate Anaerobic test; Glucose depletion; Lactate; Blood pressure; Heart rate; Test-retest, Test until failure; Peak power; Fatigue index; Anaerobic capacity
INVESTIGATING FAMILY EXPERIENCES AND SENSORY CORRELATIONS OF PICKY EATING BEHAVIORS IN CHILDREN

Tom Bogen, Kali France, Carson Lauf, Lisa Lowery, Amanda Sarrazin, Jake Valcourt
Occupational Therapy Students
University of Mary
Bismarck, North Dakota

**Purpose:** The intent of the study was to examine the relationship between picky eating and the Short Sensory Profile (SSP), and explore the lived experience of families with a child who has been identified as a picky eater.

**Methods:** A mixed methods study was conducted using SSP data and a questionnaire completed by ninety-two caregivers. A semi-structured interviews were completed with three caregivers, transcribed verbatim, and examined for common themes for the qualitative portion of the study. Statistics were utilized to analyze the quantitative data. A Kruskal-Wallis test explored the significant difference between picky eaters and non-picky eaters. A Spearman’s Rho test was utilized to find the correlation between subtests of the SSP and children identified as picky eaters.

**Results:** The significance threshold was set at $p \leq 0.05$. There was a significant difference between SSP scores of picky eaters and non-picky eaters for the following SSP subtests: Taste/Smell Sensitivity, Total Score, Tactile Sensitivity, and Auditory Filtering. Taste/Smell Sensitivity subtest was strongly correlated with picky eating ($r = -0.724$) and Total Score was moderately correlated ($r = -0.338$). Tactile Sensitivity ($r = -0.237$) and Auditory Filtering ($r = -0.239$) had weak correlations. Family impact, history, manifestation, and management were common themes found in the caregiver interviews.

**Conclusion:** This study found similarities between the SSP scores and caregiver’s lived experience. The SSP is a tool that may be used to identify children with picky eating behaviors. Early identification could lead to early intervention to possibly prevent negative consequences from prolonged picky eating behaviors.
A MOTIVATIONAL AND EDUCATIONAL TOOLKIT TO IMPROVE CPAP THERAPY ADHERENCE: FEASIBILITY OF ORGANIZATIONAL SYSTEM’S CHANGE

Jamie Slettedahl, BSN, RN & Andrew Yantes, BSN, RN
Doctorate Family Nurse Practitioner Students
University of Mary
Bismarck, North Dakota

Introduction: The gold standard in treating OSA, CPAP therapy, remains challenging for patients. Meeting adherence criteria in the first 30 days of CPAP therapy initiation is a strong predictor of sustained CPAP therapy adherence. The bridge between this key process measure and quality patient care and outcomes is a needed and often missing intervention in actual clinical practice. The objective of this study is to implement a motivational and educational program about CPAP using a novel multi-modal toolkit and assess its effect on CPAP usage.

Methods: On initiation of CPAP therapy, patients are enrolled in the program and database. Clinical staff receives training in motivational interviewing (MI) and use it in a follow-up phone call to the patient in the first 7 days of CPAP therapy. An automated and mobile SMS texting system delivers 6 educational messages to the patient during the critical first 30 days of CPAP therapy. The patient also receives printed educational material, a 30-page calendar for the critical period. CPAP usage data at 1 month and 3 months are monitored.

Results: Clinic staff are receptive of the motivational interviewing session and implemented the motivational/educational toolkit effectively into clinical practice. Staff express their eagerness to continue using motivational interviewing as a communication style. Patient response to the toolkit intervention has been positive, while CPAP therapy adherence data is being gathered.

Conclusion: A multi-modal intervention involving MI training in staff-patient encounters, educational SMS texting, and printed material is introduced into the operations of sleep clinical practice. Assessment of patient response to each mode of intervention as well as the cost-benefit ratio will determine long-term system’s change.
PERSONALITY AS A CORRELATE OF SUCCESS IN COLLEGIATE POLE VAULTERS

Amelia Maher
Sports and Physical Education Administration Student
University of Mary
Bismarck, North Dakota

Although past research has attempted to quantify the relationship between personality and success in sports, no previous studies have examined the relationship between distinct personality traits and personal accomplishment specifically in the pole vault. The current study utilized a sample of Division II collegiate pole vaulters to explore the relationship between the traits of conscientiousness, emotional stability, extraversion, impulsivity, and sensation seeking with the level of success achieved by the subjects. This study defines subject success as meeting or exceeding the national provisional qualifying mark for the 2017 NCAA Division II Indoor National Championships. Several existing personality measures were part of the questionnaire administered online via SurveyMonkey.com, including the Impulsive Sensation Seeking Scale from the short form of the Zuckerman-Kuhlman Personality Questionnaire and the Extraversion (Factor I), Conscientiousness (Factor III), and Emotional Stability (Factor IV) sub-scales from the International Personality Item Pool version of The Big Five model of personality. Spearman rank-order correlation coefficients were computed in an attempt to prove rank-order relationships exist between each personality trait and level of success. The results of this study could further our understanding of how facets of personality may contribute to success in a specific, high-risk activity such as the pole vault and could have implications for recruiting and athlete development.
IMPLEMENTATION OF A COLORECTAL CANCER SCREENING PROGRAM IN A RURAL UPPER MIDWEST FEDERALLY QUALIFIED HEALTH CENTER: AN EVIDENCE BASED PROJECT

Kayla M. Abrahamson, BSN, RN & McKenzie R. Peterson, BSN, RN
Doctorate Family Nurse Practitioner Students
University of Mary
Bismarck, North Dakota

Purpose: The purpose of the DNP capstone project is to improve colorectal cancer screening rates and surveillance at a rural, federally qualified community health center in North Dakota.

Methods: A baseline needs assessment was conducted and utilized to develop site-specific clinical interventions with the aim at improving colorectal cancer screening rates. An in-depth literature review was conducted to identify evidence-based methods to improve colorectal cancer screening rates. A set of multifaceted, evidence based project recommendations were implemented, including: an organizational specific policy and procedure incorporating colorectal cancer screening recommendations; workflow standardization of electronic health record documentation, tracking, and surveillance; implementation of a Flu/FIT campaign; integration of a colorectal screening eligibility clinical support rule; electronically generated provider screening recommendation communication to eligible patients; and colorectal cancer screening education for direct-patient-care staff. Baseline colorectal cancer screening compliance rates of the community health center’s total eligible patients were compared to post-project data to determine efficacy of such program.

Findings: The colorectal cancer screening rate, reported to the Uniform Data Service, at the rural, federally qualified community health center improved from 22% to 27.9%, indicating a 5.9% improvement rate. Calculated colorectal cancer screening rate throughout project implementation was found to be 10.29% for eligible patients.

Conclusion: Despite a short implementation interval, the project interventions suggest utilization of a colorectal screening program may help focus screening efforts and improve colorectal cancer screening rates among a rural community health center.
EFFECT OF REST INTERVAL ON ACUTE STRETCH SHORTEN CYCLE FUNCTION DURING MULTIPLE JUMP PLYOMETRIC

Dan Lensby, CSCS, USAW, FMS
MS Kinesiology Student
University of Mary
Bismarck, North Dakota

The objective of this research was to determine if there is a rest interval that allows maximal jumping performance during sets of multiple jump Plyometrics. The sample consisted of 24 healthy NCAA Division 2 collegiate athletes (ages 18-23). Subjects were male and female athletes from 8 different collegiate sports. A repeated measures design assessed multiple jump performance with different rest intervals dedicated to each data collection session. The experimental variables were the rest intervals of 15, 60, 90, and 120 seconds, respectively. Each session had a specific rest interval implemented in between 3 sets of 5 consecutive vertical jumps. Multiple jump performance was analyzed through Measurements of Peak Power (PP), Average Power (AP), and Rate of Power Development (RPD). AccuPower Software and a portable force plate (Version 2.0.3, Fortius, LLC) collected data in real time. A repeated measures ANOVA (a = 0.05) was conducted relative to rest interval (15/30/60/120 sec) and the resultant multiple jump performance measures: Peak Power (+/-), Rate of Force Development, and Average Power (+/-).
A TOBACCO CESSATION COUNSELING PROGRAM WITHIN THE PRENATAL POPULATION IN A MIDWESTERN OBGYN PRACTICE

Andrea Means, BSN, RN  
Doctorate Family Nurse Practitioner Student  
University of Mary  
Bismarck, North Dakota

Despite large bodies of evidence related to the harmful effects of tobacco use during pregnancy, cigarette smoking in this population continues to be a concern in the United States (American Congress of Obstetricians and Gynecologists (ACOG), 2010; Centers for Disease Control and Prevention (CDC), 2008). Smoking remains the leading cause of preventable morbidity and mortality in the United States (CDC, 2008). Cigarette use in women of reproductive age is not only the leading cause of preventable morbidity and mortality but also the most preventable factor affecting the intrauterine environment (Zheng et al., 2016). The prenatal period allows for frequent visits with the patient, leading to multiple opportunities for tobacco cessation counseling. While the guidelines are established to encourage prenatal tobacco cessation counseling, provider’s confidence and self-efficacy vary related to counseling techniques. A lack of appropriate resources and understanding of current tobacco cessation counseling techniques within a rural women’s health clinic led to the development of a tobacco cessation counseling program.

This project implemented a provider education session related to the 5 A’s model of tobacco cessation counseling in prenatal care. This project utilized a pre/post implementation design. Outcomes were measures of data collection and prenatal provider reported questionnaires.

The results of the project showed a significant effect on prenatal providers perceptions of their ability to counsel patients. Data collection showed no statistical significance in decreasing the tobacco cessation rates within prenatal patients.

While the project sample was small and the duration of project implementation is limited, a larger time span may allow for greater tobacco cessation rates. If the providers feel better able to encourage smoking cessation, there is hope that this will eventually lead to increased cessation. Further research will be necessary to more fully support the use of the 5A’s model for tobacco cessation counseling.
PATIENT PERCEPTIONS REGARDING QUALITY OF CARE AND THE PATIENT EXPERIENCE IN A STUDENT-LED PRO-BONO CLINIC

Vanessa Hoff, Lexi Kudrna, Paige Rygg, Lacey Schulte, Samantha Schwartz
Physical Therapy Students
University of Mary
Bismarck, North Dakota

Study Design: Independent Sample Mann-Whitney U Test

Objective: To examine patient perceptions regarding quality of care and the patient experience in the University of Mary student-led pro-bono clinic.

Background: The MedRisk Instrument for Measuring Patient Satisfaction (MRPS) is used to measure patient satisfaction in outpatient physical therapy (PT) settings. After performing an in depth literature review, no studies were found that used the MRPS to evaluate student led clinics. The student led pro-bono physical therapy clinic has not been studied and there is a lack of evidence comparing private practice physical therapy clinics and student-led PT clinics.

Methods and Measures: Completing the survey were twenty-six participants from the student-led clinic and eight participants from the private practice clinic. Participants completed two surveys after at least one month or four PT visits. Surveys consisted of the MRPS survey and three open ended questions created by the authors.

Results: The student-led clinic’s satisfaction was assessed individually and was compared to the private practice clinic with age and gender being normally distributed. “Therapist advises me how to avoid future problems” was the only question found to have a significant difference between clinics.

Conclusion: Patients rated their experience at the student-led clinic very highly and was comparable to private practice clinic. Suggestions for improvement in the student-led clinic included having someone to welcome patients, having a sign-in sheet, and addressing student physical therapist accountability of patients by scheduling students so the patients see one familiar PT student each session.

Key Words: Student physical therapist, Student-run clinic, Free clinic, Patient satisfaction
THE EFFECT OF AQUATIC WALKING ON GAIT VELOCITY IN A HEALTHY ELDERLY FEMALE

Dakota Anderson, Catharine Bradley, Ashley Friedenfels, Nathan Gilmor, Griffon Jones, Magdalen Morris
Physical Therapy Students
University of Mary
Bismarck, North Dakota

Study Design: A case study design of an aquatic program and its effects on gait velocity.

Objective: To determine if an aquatic program will increase gait velocity.

Background: Literature supports the importance of gait speed, as well as the benefits to using the aquatic medium for exercise purposes. A large body of evidence is also devoted to increasing gait speed in the elderly population through land based exercises. However, current evidence is limited on whether aquatic exercises can provide the same outcome for this population.

Methods and Measures: A healthy 76-year-old female currently active in the Missouri Valley Family YMCA Active Adults (AA) aquatics exercise class volunteered to participate in the experimental walking program. The subject participated in the walking program two times per week for three weeks, although six weeks were planned. Walking speed was measured using the 10-meter and 400-meter walk tests prior to the walking program and re-assessed following the water walking intervention.

Results: The change in gait speed using the 10-meter walk test was 0.047 seconds. The 400-meter walk test improved by seven seconds. Neither test achieved the minimal detectable change for significance. There was no significant correlation between three weeks of water walking and gait speed.

Conclusion: Significant changes in gait speed were not found following a three-week intervention, however the lack of improvement may have been limited due to subject’s pain or may be contributed to the shortened period of time for intervention. Further research is needed to determine if water walking will increase gait speed.

Key Words: gait speed, ambulation, aquatic therapy, geriatrics, 10-Meter Walk Test
COMPARING HAMSTRING STRETCHING METHODS: A GROUP COMPARISON USING THE THERABAND™ FLEXBAR®

Alyssa Bruer, Samantha Anderson
Athletic Training Students
University of Mary
Bismarck, North Dakota

Context: TheraBand™ Flexbar® (TBF) is a rehabilitation tool that is a flexible, resistive device with a rigid surface that is used for resistive exercises and massage on the hamstring group. Studies show the effects of different stretching methods and protocols, and to what extent they increase ranges of motion (ROM). However, these researchers found minimal research available on the effectiveness of the TBF protocols.

Objective: The objective of this study is to investigate if there is an increase in hamstring range of motion (ROM) when using a TBF with heat after one treatment compared to two other protocols; one including heat and static stretching, and the other including heat.

Design: Basic Research

Setting: The study is being conducted in the athletic training room of a Division II University.

Participants: Participants include 15 faculty and staff members at a Division II institution, between the ages of 20-35, who have volunteered for the study.

Interventions: Random assignment of the following three protocols will be administered to the participants. Descriptions of the three protocol interventions are as follows: the heat protocol will exist of participants heating their hamstring muscle group with a moist heat pack for 15 minutes before the post hamstring ROM measurement; the static stretching protocol will have participants heating for 15 minutes, and then their hamstrings will be statically stretched by the researcher three times for thirty seconds before the post hamstring ROM measurement; and the TBF protocol will have participants heating for 15 minutes followed by the use of the TBF before the post hamstring ROM measurement.

Data analysis: This is a comparison of pre- and post-tests of hamstring ROMs between three different groups. The data will be analyzed using repeated measures of analysis of variance (ANOVA) to determine if there is a significant increase in immediate hamstring ROM using a TBF stretching protocol compared to the two protocols involving heat and static stretching and heat alone. Descriptive statistics will be stated for all variables. Statistical significance of this study will be set at p = ≤ 0.05.

Main Outcome Measures: The expected outcome of this study is that the TBF with heat will increase hamstring range of motion after one treatment.

Conclusions: The benefits of this study may provide evidence to athletic trainers on if the TBF has any effect to helping hamstring range of motion. This study may benefit the participants by increasing muscle flexibility, and knowledge of how to properly stretch hamstring muscle group.
PERCEPTIONS OF TEST ANXIETY AMONG NURSING STUDENTS TAUGHT TO PERFORM DIAPHRAGMATIC BREATHING

Emily M. Pankow Wieber, BSN, RN
Nurse Educator Student
University of Mary
Bismarck, North Dakota

Test anxiety is an emotional, cognitive, and physiological response that can arise during an evaluative situation in which a student’s intelligence, motivation, and/or social capabilities are exceeded by the situation’s possible negative consequences, whether real or imaginary. Test anxiety worsens as stakes attributed to an examination or evaluative situation heighten. This phenomenon becomes problematic during nursing school, because nursing students may be unable to perform a designated clinical skill, progress in the nursing program, or even graduate from the program entirely when they fail or perform badly on an exam. Diaphragmatic breathing is one method identified in the literature to increase the parasympathetic physiological response to test anxiety. The purpose of this quantitative study was to determine whether or not diaphragmatic breathing is an effective means to reduce self-reported test anxiety among junior-level nursing students who attended a public university located in the Midwestern United States. The sample for this study consisted of 42 junior-level nursing students. A quantitative pretest-posttest design was used for this quantitative study. Measurement of the dependent variable (test anxiety) was accomplished before and after the intervention (diaphragmatic breathing) through use of the TAI survey. The drug calculations test setting was chosen for this research study because of its high-stakes nature. The average total pretest TAI score among all participants was 45.6, while the average total posttest score was 40.2. These results indicated that the diaphragmatic breathing technique resulted in a statistically significant reduction in levels of total test anxiety among the student participants (p<0.05). Statistical significance was found in the reduction of test anxiety in both the worry and emotionality components of test anxiety as well (p<0.05). Based upon the results obtained, there was no significant difference among self-reported test anxiety between male and female nursing students. Nurse educators can implement diaphragmatic breathing into their teaching strategies to reduce students’ levels of test anxiety. Students can utilize the breathing technique to calm themselves prior to taking examinations.
THE IMPACT OF INTERNATIONAL SERVICE LEARNING ON CULTURAL INTELLIGENCE

Amy Freeberg, Ashli Hatfield, Allison Oestreich, Megan Petersen, Maria Veit, Kristen Wangler
Occupational Therapy Students
University of Mary
Bismarck, North Dakota

Cultural intelligence (CQ) is an individual’s ability to function in culturally diverse situations. Since the US healthcare system is increasingly becoming more diverse, it is important that healthcare students increase their CQ in order to meet the needs of their future clientele. One teaching strategy increasing in popularity in healthcare curricula is International Service Learning (ISL). ISL allows students to complete service in a different country and is combined with their curriculum. Unfortunately, there is a lack of quantifiable literature that measures CQ in healthcare students; particularly in the occupational therapy (OT) field. Therefore, the purpose of this study was to identify if there were statistically significant differences in CQ between OT students who completed an ISL experience in Peru and OT students who did not complete the ISL experience. Data was obtained from the Cultural Intelligence Scale (CQS), which is a 20 question, self-rating scale. The CQS was administered as a pretest (n=23) and post-test (n=22) to occupational therapy students in a graduate OT program in the Upper Midwest prior to and following an ISL experience in Peru. The results of this study indicated a statistically significant difference from the CQS pre and post-tests among OT students who completed an ISL experience in Peru. Therefore, the results of this study support that ISL contributes to one’s CQ. Further study should be completed in order to determine whether an increase in CQ as an occupational therapy student assists entry-level OT practitioners further meet the needs of their clients.
COMPARISON OF ACTIVE MUSCLE MASS AND MAXIMAL OXYGEN CONSUMPTION BY TREADMILL VS. ELLIPTICAL EXERCISE

Greg Aders, Logan Fisher, Alexa Hubbard, Isaiah Korver, Austin Lemieux, Seth Meide
Exercise Science Students
University of Mary
Bismarck, North Dakota

Creatinine, a breakdown product of creatine phosphate used as an indicator of active muscle mass, has not been studied in relation to maximal ramping elliptical and treadmill tests.

**Purpose:** The purpose of this study was, 1) to compare urine creatinine (mg/dL) following VO2max tests of elliptical verses treadmill ramping protocols, and 2) to compare heart rate, blood pressure, blood lactate, and respiratory responses between elliptical and treadmill ramping protocols.

**Methods:** Twenty physically active subjects (10 male, 10 female) ages 18-25 years, completed two VO2max tests, one week apart, in randomized order. Paired T-tests were used to look at the difference in urine creatinine (mg/dL), peak systolic and diastolic blood pressure (mmHg), peak heart rate (bpm), immediate post blood lactate (mmol/L), absolute VO2max (L/min), relative VO2max (ml/kg.min), peak respiratory exchange ratio (CO2/O2), and peak minute ventilation (L/min), comparing a ramping treadmill protocol (SportsArt Fitness Model 6320 HR) to elliptical protocol (Precor Model EFX 556i). Urine specific gravity, body mass index (kg/m2), percent body fat (%), and fat free mass (kg) were measured to control for confounding effects. Urine samples were obtained before max testing and within 15 minutes post. Creatinine Assay kit ab65340 was used with analysis completed by Enzyme-Linked ImmunoSorbent Assay (ELISA).

**Results:** Urine creatinine post VO2max test was not significantly different between treadmill and elliptical tests (0.87532 ± .765119 vs 0.82757 ± .548703, p=0.76). Peak heart rate, immediate post blood lactate, and absolute VO2peak were greater following the treadmill test (192.9 vs 189.7 bpm ± 5.30, p=.016; 12.1 vs 10.6 mmol/L ± 2.67, p=.026; 4.37 vs 4.21 ± 0.30 L/min, p=.032 respectively). Peak diastolic blood pressure was greater with the elliptical test (69.1 vs 64.7 mmHg ± 8.76, p=0.035). Other variables were not significantly different (p > .05).

**Conclusions:** Treadmill and elliptical maximal exercise efforts do not differ significantly in active muscle mass as determined by urine creatinine. Treadmill tests may result in higher VO2max results in trained healthy young adults. Elliptical may induce higher diastolic blood pressure responses, similar to that of upper body ergometer tests.

**Funding:** No grant funds
IMPLEMENTATION OF ELECTRONIC DATABASE TO IMPROVE PERCEIVED KNOWLEDGE OF EARLY INTERVENTION SERVICES IN RAMSEY COUNTY, NORTH DAKOTA

Carlee Thomson, BSN, RN & Jennifer Vandal, BSN, RN
Doctorate Family Nurse Practitioner Students
University of Mary
Bismarck, North Dakota

Background: Approximately one in every seven children in the United States faces a developmental and behavioral disability (Nelson, 2012). Only an estimated 50% of the children are identified before starting school. There is a strong emphasis from organizations such as the American Academy of Pediatrics (AAP) for children to be evaluated during well-child visits and referred to Early Intervention (EI) services within the first 36 months of life if developmental delay is suspected (Silverstein, Sand, Glascoe, Gupta, Tonniges, & O’Connor, 2006). In November 2015, the Early Explorers Head Start (EEHS) advisory committee stated frustration at the lack of information available regarding services available, lack of contact information, lack of information of eligibility of children to services, costs, and how to enroll or refer children for the various EI services.

Objective: To increase the knowledge of parents, providers, program directors of other EI services, and community members regarding EI services available in Ramsey County, North Dakota.

Methods: The DNP project was a performance improvement project directed at improved communication within Ramsey County. The project planners used a team-based approach with Plan-Do-Study-Act (PDSA) review cycles to document and verify completion of major tasks such as accurate information posted in the EEHS Parents Tab Portal under Community Resources, usability of information, ease of access to the EEHS Parents Tab Portal, etc.) and a final evaluation of whether improved perceived awareness of EI service availability in Ramsey County by the advisory committee members was achieved. Survey tools were used to compare advisory board member perception on improved awareness of programs being offered in Ramsey County and agreement of information posted within the Resource Tab. A beginning assessment was presented to the EEHS advisory committee members during the annual advisory committee meeting. The DNP project planners worked with the EEHS director as well as the advisory committee members to construct a list of EI services available in Ramsey County. Information regarding EI services in Ramsey County was gathered including contact information and services provided. This information was placed on the EEHS Parents Tab Portal under Community Resources. Another assessment was then sent to advisory committee members via email after the Resource Tab information was posted.
Conclusions: Of the 57% of respondents to the ending assessment survey, 13% stated now being aware of all EI services in Ramsey County, 86% stated awareness of most services, and 86% felt the online listing of EI services in Ramsey County, along with community services, was very helpful for referring children to appropriate services. Overall, there was a 22% increase in the perceived knowledge of most services available in Ramsey County by the EEHS advisory committee members. As EEHS covers several regions in North Dakota, future advancement of the project is possible by incorporating services available in the other regions of the EEHS organization.
HIGH SCHOOL ATHLETIC DIRECTORS’ SATISFACTION WITH ATHLETIC TRAINING SERVICES

Cassie Beseman, ATC
MS Kinesiology Student
University of Mary
Bismarck, North Dakota

**Purpose:** The purpose of this study was to determine whether high school athletic directors were satisfied with the athletic training services provided to their student-athletes.

**Subjects:** There were 73 Minnesota high school athletic directors who participated in this study.

**Methods:** This study used a modified version of the Dr. Scott Unruh’s study questionnaire (Unruh, 1998). Modifications were simple word changes. The athletic directors were selected based off of the National Athletic Trainers Association and Kory Stringer Institute CATCH-ON study. A total of 157 high school athletic directors were contacted and asked to complete a questionnaire consisting of 36 questions.

**Data Collection:** The questionnaires were scored cumulatively and compared with the results of Dr. Scott Unruh’s study. Descriptive statistics, such as means, medians, and modes of each question were compiled, so trends could be analyzed.

**Results:** This study had a response rate of 46.5%. The cumulative score of this study was 197, whereas Dr. Scott Unruh’s study had cumulative scores of 137.1394 and 130.6685 for males and females respectively. Athletic directors tended to report being very satisfied with topics such as safe environments, gender equality, and taping skills. Athletic directors were less satisfied with topics such as the location of the athletic trainer during practices, athletic training room hours, and the availability of the team physician. Overall, the athletic directors were very satisfied with the athletic training services at their high schools.
CULTURAL COMPETENCY EDUCATION TO IMPROVE PRIMARY CARE PROVIDERS’ IDENTIFICATION AND TREATMENT OF DEPRESSION IN AFRICAN IMMIGRANTS

Daniel O. Adewunmi, BSN, RN
Doctorate Family Nurse Practitioner Student
University of Mary
Bismarck, North Dakota

Background: A study found that 82.9% primary care providers in Lagos, Nigeria (Africa’s most populous city) believe that people “becoming depressed is a way that people with poor stamina deal with life difficulties” (Ola, Crabb, Adewuya, Olugbile, Olayinka, 2014, p. 239). 46.6% of the primary care providers in that study also believed that it was not rewarding to care for depressed patients. Stigmatization of mental health disorder accounts for one of the reasons African immigrants are reluctant to seek care for or accept a mental health diagnosis. Improving depression identification in primary care settings has been one of the cornerstones of reaching out to patients with mental health disorders as they are more likely to use primary care than outpatient mental health services.

Objective: To improve the identification of depression in African immigrants.

Method: This doctorate nursing practice (DNP) project is an evidence-based project aimed at addressing cultural competency among a population of primary care providers working in a federally qualified health center located in an urban location in the Midwest with the aim of improving the identification of depression in African immigrants. Pre-test and posttest surveys after implementation of cultural competency education were utilized.

Results: No significant increase in the numbers of newly diagnosed depression in African immigrants after cultural sensitive education. Three significant changes were recorded in the following areas: providers were more aware of how mental health is portrayed in African movies; providers were more likely to ask patients about what they perceive is the etiology of their mental disorder, and participants were more aware of the consequences of accepting depression diagnosis for African immigrants. There were no noticeable changes in other measured areas.

Discussion/Significance: Study findings have implications for the use of cultural competence education as an intervention for improving cultural sensitivity in primary care providers. Continued efforts to increase awareness about minority groups and the challenges that they face is an integral part of creating a healthcare system that is dedicated to improving treatment outcome in all patient population. Future projects should also focus on understanding the impacts of providing cultural competence education to African immigrants as well.

Keywords: African immigrants, mental illness, primary care providers, depression, cultural competence/sensitive, religion
MUSIC THERAPY IN CCNE ACCREDITED NURSING PROGRAMS:
A DESCRIPTIVE SURVEY STUDY

Tanya Russiff, BSN, RN
Nurse Educator Student
University of Mary
Bismarck, North Dakota

Background: Music therapy has been identified as an evidenced-based, integrative therapy, under the mind-body domain for holistic nursing. Music therapy is one non-pharmacological cognitive distraction technique used with health care clients for management of health care related issues such as pain and anxiety. Music therapists have provided active and passive music therapy in healthcare settings for stress relief, relaxation, psychological responses, and physiological responses. Whether music therapy education is integrated in traditional baccalaureate nursing education is currently unknown.

AIMS: The purpose of this study was to describe the current status of music therapy curriculum in traditional baccalaureate nursing programs across the United States that are accredited by the Commission on Collegiate Nursing Education (CCNE). A conceptual framework incorporating Jean Watson’s Theory of Human Caring guided the elements of this study.

Method: Survey research was utilized to investigate the population of CCNE accredited schools. Data was collected using a fifteen-question online survey. The target population of this research was chief nursing educators/administrators of CCNE accredited baccalaureate nursing programs. Eligible participants were identified through use of an electronic database provided by CCNE. The survey tool was distributed electronically and a two-week time frame was given for initial responses. After two week, a reminder email was sent to eligible participants.

Results: A total of 128 responses from eligible programs, representing 40 different states, were received. A continuum of small to large universities with nursing program enrollments of less than 100 students to program with greater than 300 students compromised the sample. Only 15% of participants responded that music therapy was included as part of the required coursework in their traditional baccalaureate nursing curriculum and more than 75% of participants decline the availability of music therapy in any elective traditional baccalaureate nursing coursework. However, over 80% of participants identified that currently utilized nursing textbooks in their program included music therapy.

Implications: The findings suggest CCNE accredited, traditional baccalaureate nursing education programs largely exclude music therapy education in nursing curricula. Future research is needed to establish the impact incorporation of music therapy may have on nursing student preparedness for work in a patient-centered environment.
MINIMALIST SHOES: A LITERATURE REVIEW

Anthony Sarne
Athletic Training Student
University of Mary
Bismarck, North Dakota

The purpose of this literature review was to find the most current research in the area of minimalist shoes being used for distance runners, so it can be used to provide knowledge for the practice of athletic training. Sources were found using databases such as Medline, Ebscohost, and CIHNAL. Key words used for this study include “minimalist shoes,” and “Minimalist running.” Studies were excluded if they included opinion pieces, were over five years old, or they lacked overall sufficient evidence. 52 studies were found, and after exclusion criteria were used, 8 studies were used. Results showed benefits such as increased stride rate, reduced stride length, increased running economy, and reduction of knee adduction movement. Disadvantages also include an increased risk of ankle and calf injury, as well as little effect on injury rates when compared to normal running shoes. Normal runners, based on the references seen, should use normal running shoes, unless an extended transition period is used to prevent any type of injury due to muscle weakness and lack of coordination. The best methods of effecting running efficiency depend on distance, velocity, altitude, stride length, and kinematics, which should all be considered by the runner when deciding a work out plan. Further research is needed to help find specific injury rate comparisons, as well as finding specific muscle adaptations seen in using these shoes.

Key Words: Minimalist Shoes, Minimalist Running
PALLIATIVE CARE IN RURAL NORTH DAKOTA

Laura Hoovestol, BSN, RN
Doctorate Family Nurse Practitioner Student
University of Mary
Bismarck, North Dakota

The demographics of an aging society, the growing prevalence of chronic illness, and skyrocketing healthcare costs magnify the need to identify solutions that promote quality of life and coordination of care. Nationally, palliative care is gaining ground as a potential solution to the challenges associated with chronic illness, fragmented care, and costs associated with common chronic conditions. Emphasis on value based purchasing by third party payers further substantiates the necessity for healthcare organizations to identify models of care that address chronic illness in earlier rather than later stages so that hospital admissions can be prevented and progression of disease limited (Centers for Medicare and Medicaid Services, 2016). Yet, in the U.S. only three states offer palliative care at 100% of their hospitals and thirty states provide palliative care in less than 75% of their hospitals. To inspire healthcare providers to implement palliative care services in rural populated areas, a three-point approach is taken to improve palliative care services. In a rural North Dakota clinic; a palliative care educational session, a palliative care algorithm and palliative care resources, and a community palliative care awareness intervention will be implemented to increase palliative care knowledge and promote palliative care consults. To evaluate the effectiveness and success of this DNP project a pre and post survey will be administered before and after the educational intervention. This survey will allow for the evaluation of the healthcare provider palliative care knowledge before the intervention and after the intervention to determine the effectiveness of the intervention. Another evaluation technique used to evaluate the effectiveness and success of this DNP project is a chart review. The chart review will be three months’ pre-installation and three months’ post-installation of the interventions. This will allow for the determination of the number of palliative care consults pre-installation and post-installation of the interventions. These outcomes will be compared and the outcomes measured to determine effective or ineffectiveness of the interventions.
ADDUCTOR CANAL BLOCK PLUS BUPIVACAINE WITH EPINEPHRINE VERSUS
ADDUCTOR CANAL BLOCK WITH EXPAREL (LIPOSOMAL BUPIVACAINE)
FOLLOWING UNILATERAL TOTAL KNEE ARTHROPLASTY

Tial Donovan, Mark Bau, Jordan Kosminskas
Physical Therapy Students
University of Mary
Bismarck, North Dakota

Study Design: Prospective, Double Blind, Randomized Controlled Trial

Objective: To determine the effects of whether patients who received an adductor canal block (ACB), plus injections of the local anesthetic Exparel, differ from patients who received injections of bupivacaine with epinephrine on the outcome measures of hospital length of stay (LOS), total ambulation distance, timed-up-and-go (TUG) test score, and Visual Analogue Scale (VAS) pain level following a unilateral total knee arthroplasty (TKA).

Background: Although results from the current research indicate that a femoral nerve block (FNB) is superior to an ACB in specific outcome measurements, there is little evidence to determine that an ACB alone is superior to an ACB with local anesthetic in a unilateral TKA.

Methods and Measures: Fourteen total subjects, 7 in Group A with a mean (SD) age of 69.0 (9.54) yrs and 7 in Group B with a mean (SD) age of 61.4 (10.77) yrs who had received a unilateral TKA with an ACB and met the inclusion criteria were recruited and randomly assigned to the experimental Group A (local anesthetic Exparel) or the control Group B (bupivacaine with epinephrine). The hospital LOS, total ambulation distance, TUG test score, and pain level were recorded.

Results: The mean (SD) hospital LOSs, total ambulation distances, TUG test scores, and pain levels were 1.73 (0.125) d and 1.87 (0.48) d, 165 (37.5) ft and 186.4 (23.2) ft, 26.2 (9.53) seconds and 25.1 (10.33) seconds, 3.8 (2.5) and 3.7 (1.97) for subjects in Groups A and B, respectively. There were no significant differences between means in the outcome measures of: length of stay (P=0.463), ambulation distance (P=0.223), TUG test score (P=0.851), and pain level (P=0.461) between Groups A and B.

Conclusions: There were no differences between the group receiving Exparel and the group receiving bupivacaine with epinephrine in the outcome measures of LOS, ambulation distance, TUG test score, and pain level. Due to the small sample size in the current study, a Type II statistical error may have been committed and further research may be needed using a larger sample size to determine if Exparel would have a greater influence on the outcomes tested in this study than bupivacaine plus epinephrine in patients with an ACB.

Key Words: Femoral Nerve Block (FNB), Length of Stay (LOS), total ambulation distance, Timed-Up-and-Go (TUG) test, and Visual Analogue Scale (VAS) pain level
EFFECTS OF SOCIAL PARTICIPATION ON QUALITY OF LIFE IN AN ASSISTED LIVING FACILITY

Abby Coleman, Emili Crowder, Kylie Gagnon, Clara Minder, Kaitlin Strever, Chelsey Yantzer
Occupational Therapy Students
University of Mary
Billings, Montana

In the United States, there are over one million elderly individuals residing in assisted living facilities (ALFs), and a total of 20,000 to 30,000 ALFs throughout the country (Cummings, 2003). Research on social participation among community dwelling older adults is replete; however, there is a deficiency in the literature on social participation for those living in ALFs (Park, 2009).

This qualitative study explored how social participation affected the quality of life (QOL) for those residing in an ALF in south central Montana. A total of six participants were interviewed using a semi-structured interview guide. Four themes were identified from the results of the interviews. These themes included: socializing with others, participation in meaningful activities, perspectives on least meaningful activities and personal limitations, and the impact of participation on QOL. Results indicate that participating in social activities provides residents meaning and improves their QOL while living in an ALF. Further research should be conducted to determine what types of social activities are preferred among residents of an ALF to improve QOL. Additional findings can assist occupational therapists (OTs) and other healthcare professionals in providing meaningful activities for this growing population in the ALF setting.
DOES SPECIALIZATION IN HOCKEY ENABLE YOU TO MAKE IT TO THE NEXT LEVEL IN HOCKEY?

Robert McIvor, Sheldon Greywater, Travis Mertens
Sports and Physical Education Administration Students
University of Mary
Bismarck, North Dakota

Specialization is the concentration in one sport excluding all other sports. Athletes who specialize in one sport often start at a young age and train year-round in hopes to become an elite athlete. To make it to the next level in sports, athletes must train longer, harder, study the game, and start at an early age. This type of training is considered extreme and could have long-term consequences. This type of training may also be rewarding for those who excel and may enable them to get a college scholarship or make it to the professional level. Many sports specialization studies focus on the negative aspects of specialization, such as injury, burnout, stress and neuromuscular growth. There are limited studies that prove specialization in sports is beneficial. The purpose of this study is to determine if there is a relationship between specialization and the advancement of hockey players to the next level. This study surveyed 100 hockey players (male/female) within the Devils Lake, North Dakota community, ages 14 – 25 years old. Subjects answered a series of questions in regards to athletic career sports participation. Data will be collected and compared to the number of sports participated in and the level of achievement in hockey. In this study, the researchers will evaluate if specialization can advance the hockey player to the next level in hockey.
SURGICAL INTERVENTION AND SUBSEQUENT REHABILITATION OF A FULL THICKNESS PECTORALIS MAJOR TEAR: A CASE STUDY

Tucker Benjamin
Athletic Training Student
University of Mary
Bismarck, North Dakota

The purpose of this case study was to assess the functional and clinical outcomes of utilizing surgical interventions and subsequent rehabilitation of a full thickness pectoralis major tear. Pectoralis major tears often occur with exercises that place a large eccentric load on the pectoralis major and then are followed by maximal contractions. Projected outcomes of this case study was that the surgical intervention and rehabilitation protocol would be sufficient for returning the athlete to physical activity. A comparison of the literature regarding selections of surgical techniques and rehabilitation protocols to the case was completed.

The participant was a collegiate aged male who had sustained a full thickness pectoralis major tear and who had undergone surgical repair for this injury. This case study documented dates and times of injury and surgical repair as well subsequent rehabilitative techniques used to treat the participant. Instruments of the study included the subject’s interview and review of medical records. Analysis of the data was done by comparing the subject’s functional and clinical progression with the data in the literature, and of the patient’s medical documentation of the primary care giver, the head athletic trainer. Triangulation of the data was completed to increase the validity of the case study by the researcher, the healthcare provider and the advisor of the project. This study is useful because it may provide clinicians with an example of rehabilitation options that they may use in their own practice.