



Northeastern University

Bouvé College of Health Sciences

Physical Therapy, Movement, and Rehabilitation Sciences

2016-2017 Annual Research Report

Completed May 8, 2017

Research Productivity for 2016

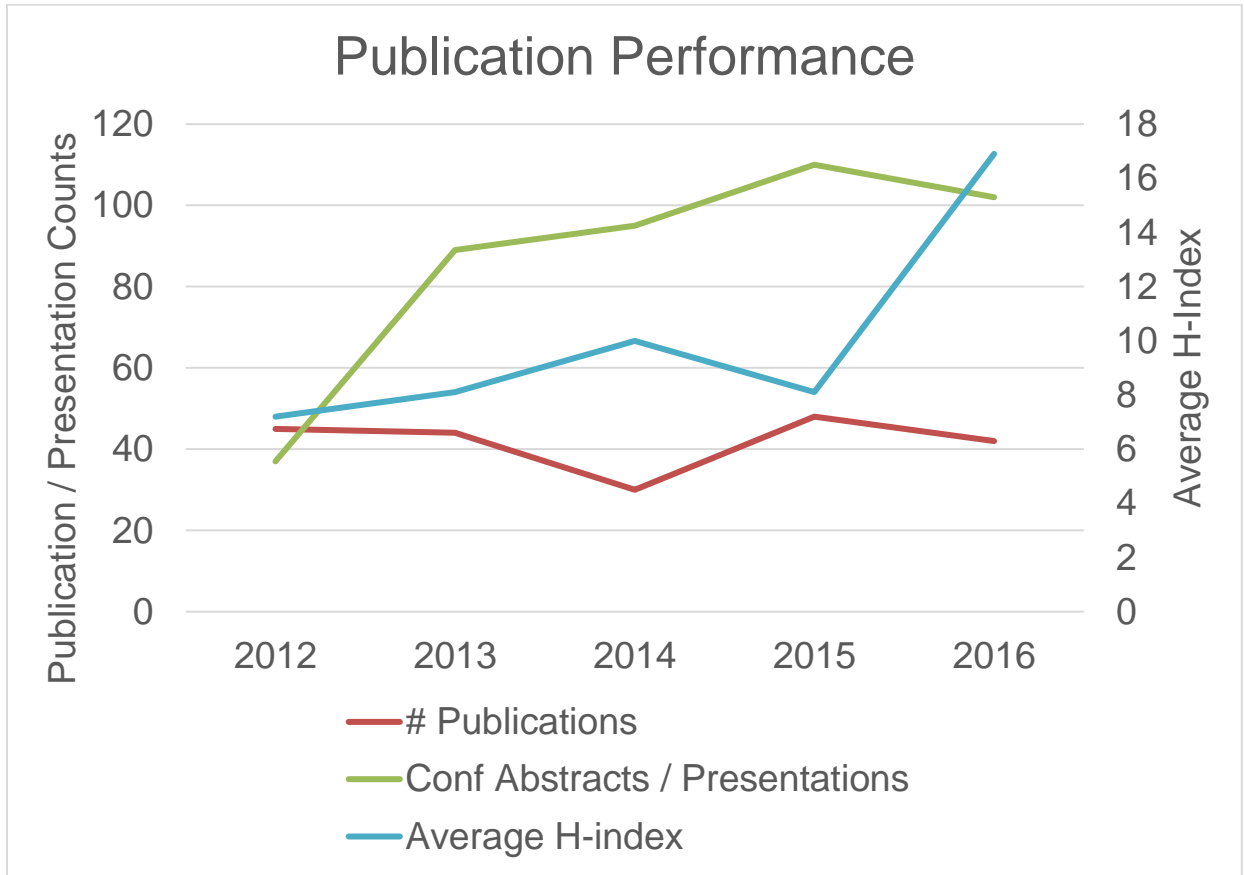
Mission

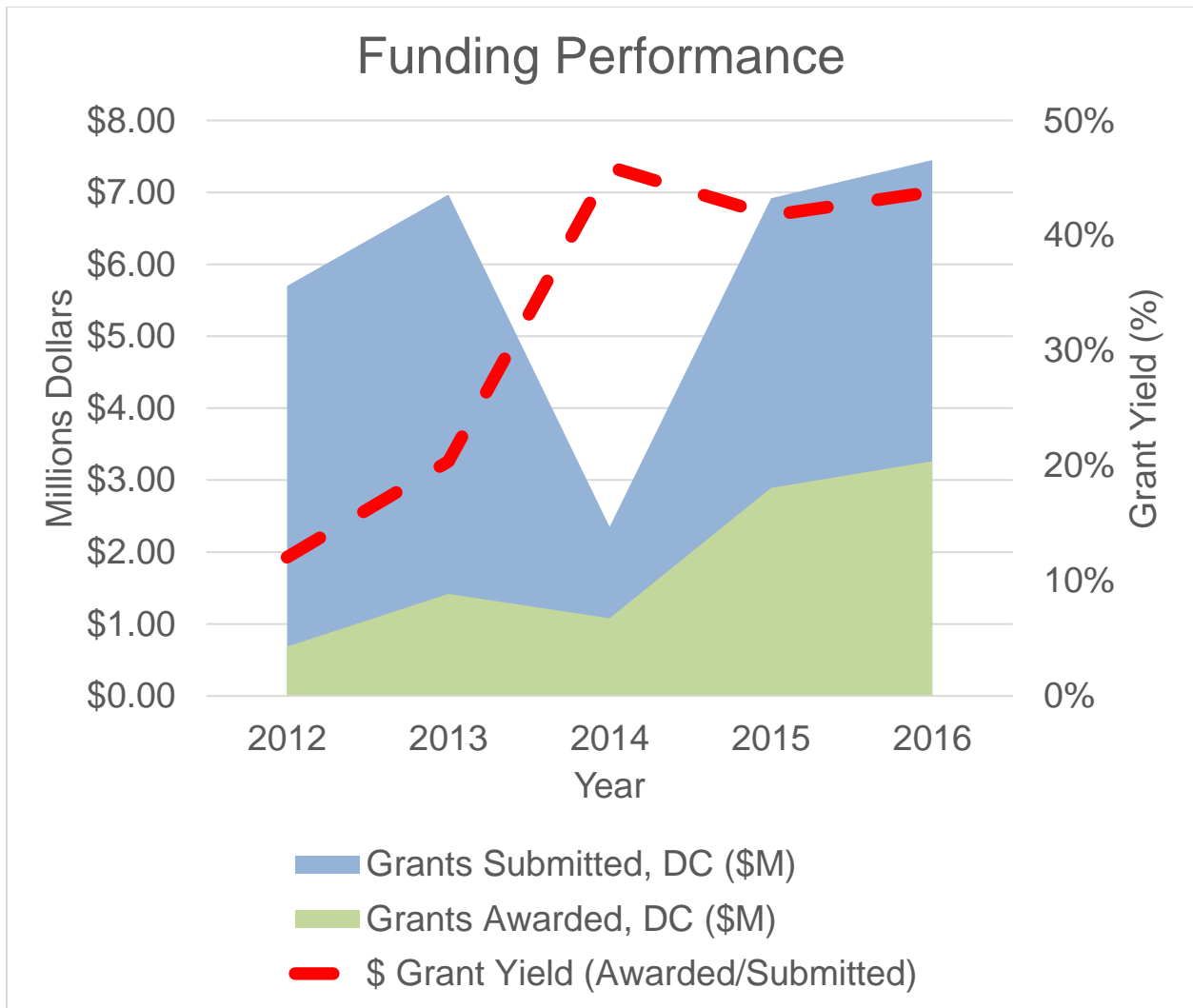
The Department of Physical Therapy, Movement and Rehabilitation Sciences' research mission is to build the evidence for best practices to maintain and improve the health and wellbeing of the local, national, and global community members.

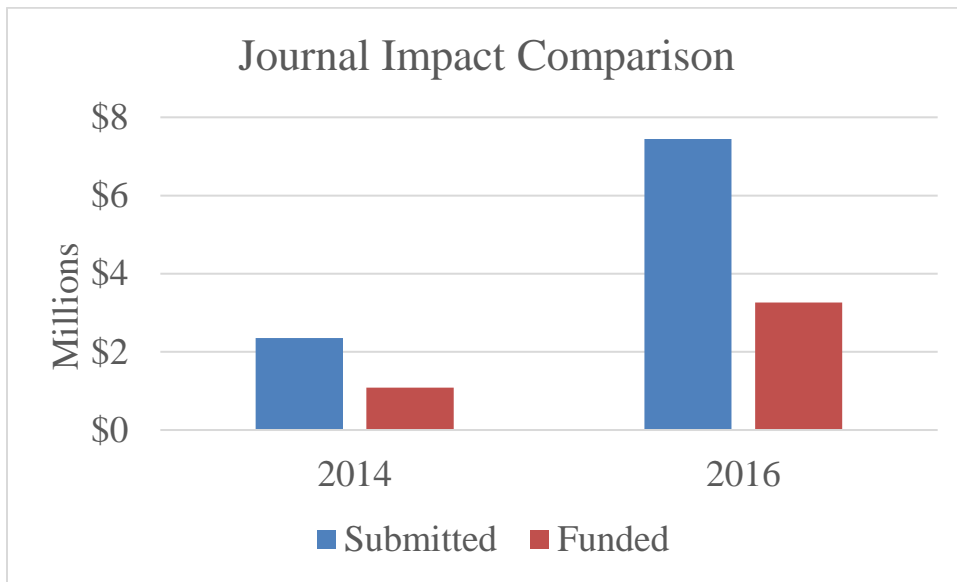
Overview

Books	2
Book Chapters	5
Peer-Reviewed Publications	35
Abstracts and Presentations	102
Grants Submitted in 2016:	\$7,448,718 requested
Funded Grants Active in 2016 direct costs	\$3,262,717 funded

Historical Perspective







Publications

Books

1. Corkery, M., Fitzpatrick, DF., Hensley, C., Markowski, AM. (in press). Lumbar Spine Interventions for the Aging and Older Adult. In Carole B. Lewis (Ed.), *Geriatric Rehabilitation ebookeBook* (1st ed.). Riverwoods, IL: Lippincott Williams and Wilkins division of Wolters Kluwer Health, Inc. 2016.
2. Day, LJ., ~~Pilcher, J.~~, Pilcher, J. Digital Author component. In: Shier D, Butler J, Lewis R. Essentials of *Hole's Human Anatomy and Physiology*. 13th ed. New York, NY: McGraw-Hill Companies, Inc.; 2017.

Book Chapters

1. Berkson, E., Nolan, DC., ~~Fleming, K.~~, Fleming, K., Spang, R., Wong, J., Asnis, P., Kawadler, J. Chapter 20 Knee: Ligamentous and Patellar Tendon Injuries. In: Magee, Zachazewski, Quillen, Manske. *Musculoskeletal Rehabilitation Series, Volume 3 Pathology and Intervention, Second Edition*. 2016.
2. Corkery, MB., Iversen, MD. Management of Osteoarthritis and Rheumatoid Arthritis. *Pathology and Intervention in Musculoskeletal Rehabilitation*. 2ed. Magee DJ, Zachazewski JE, Quillen WS, Manske, RC (editors). 2016.
3. Day, LJ., Pilcher, J. Digital Author component. In: Shier D, Butler J, Lewis R. *Hole's Human Anatomy and Physiology*. 14th ed. New York, NY: McGraw-Hill Companies, Inc.; 2016.
4. Iversen, MD. Arthritis patient education and adherence. In: Hochberg M, Silman A, Smolen, J., Weinblatt, M., Weisman MM, editors. *Rheumatology, 7th Edition*, Elsevier. 2016.
5. Iversen, MD. Introduction to physical medicine, physical therapy, and rehabilitation. In: GS Firestein et a (EDs) *Kelley's Textbook of Rheumatology*. 10th ed. Elsevier. 2016: ISBN: ~~9780323316965~~-9780323316965.

Peer Reviewed Journal Articles

1. Archambault-Ezenwa, L., Brewer, J., Markowski, AM. A comprehensive physical therapy approach including visceral manipulation after failed biofeedback therapy for ~~constipation~~. *Techniquesconstipation. Techniques in Coloproctology/ Springer*, 20(8),5. 2016.
<http://link.springer.com/article/10.1007/s10151-016-1489-4?no-access=true>
2. Crossley, KM., Stefanik, JJ., Selfe, J., Collins, NJ., Davis, IS., Powers, CM., McConnell, J., Vicenzino, B., Bazett-Jones, DM., Escullier, JF., Morrissey, D., Callaghan, MJ. Patellofemoral pain: Consensus statement from the 4th International Patellofemoral Pain Research Retreat, Manchester September 2015: Terminology, definitions, clinical examination, natural history, patellofemoral osteoarthritis and patient-reported outcome measures. *British Journal of Sports Medicine (Impact Factor 6.7)*, 50(14), 839-843. 2016.
3. Day LJ. Effective teaching and learning: Overview of research and tools to use to reach the millennial student. *HAPS Educator*. 20: 84-89. 2016. Doi: 10.21692/haps.2016.018
4. Levac, D., Kelly, A., Polizzano, M., Saffee, S. Do user motivation and attention influence performance of a postural reaching task in a virtual environment? Proceedings of the

- International Conference for Disability, Virtual Reality and Rehabilitation, LA, USA. In press. September 20-22nd 2016.
5. Levac, D., Nawrotek, J., Deschenes, E., Giguere, T., Serafin, J., Bilodeau, M., Sveistrup, H., Development and Reliability Evaluation of the Movement Rating Instrument for Virtual Reality Video Game Play. *JMIR Serious Games*. 2016. 4(1):e9 doi:10.2196/games.5528
 6. Fluet, G., Patel, J., Qiu, Q., Yarossi, M., Masood, S., Adamovich, S., Tunik, E., Merians, A. Motor skill changes and neurophysiologic adaptation to recovery-oriented virtual rehabilitation of hand function in a person with subacute stroke: a case study. *Disabil Rehabil*, 27, 1-8. 2016.
 7. Gunn, AH., Schwartz, TA., Arbeeve, LS., Callahan, LF., Golightly, Y., Goode, A., Hill, CH., Huffman, K., Iversen, MD., Pathak, A., Taylor, SS., Allen, KD. The frequency of and patient characteristics associated with fear of movement in adults with symptomatic knee osteoarthritis. *Arthritis Care Res* (Accepted, 2016).
 8. Hayward, LM., Fragala-Pinkham, M., Johnson, K., Torres, AA. Community-Based, Adaptive Soccer Program for Children with Autism: Design, Implementation, and Evaluation. *PALESTRA*. 2016. 30(4):44-50.
 9. Hayward, LM., Meleis, W., Mahanna, J., Ventura, SH. An Innovative Partnership Between Physical Therapy, Speech Language Pathology, and Engineering Faculty and Students: "Enabling" Undergraduates to Collaboratively Solve Global Health Care Needs with Low Cost Technology *Options-Options. J-PhysJ Phys Ther Ed*. 2016. 30(4):24-31.
 10. Iversen, MD., Harve, W., Wang, CC., Price, LL., von Heideken, J. Physical examination findings and their relationship with performance-based function in adults with knee osteoarthritis. *BMC Musculoskeletal*. 2016. 17:273. Doi: 10.1186/s12891-016-1151-3.
 11. Iversen, MD., Kiami, S., Singh, K., Masiello, V., von Heideken, J. Prospective, randomized, controlled trial to evaluate the effect of smart glasses on vestibular examination. *BMJ Innov*. Published online. March 30, 2016. Doi: 10.1136/bmjinnov-2015-000094.
 12. Iversen, MD., von, Heideken, J., Frits, M., Weinblatt, M., Shadick, N. Correlates of Physical Activity Participation over 3 years in adults with rheumatoid arthritis. *Arthritis Care Res*. 2016. 18. Doi: 10.1002/acr.23156.
 13. Kirwin, J., Greenwood, K., Rico, J., Romesh, N., Divall, M. Interprofessional curbside Consults to Develop Team Communication and Improve Student Achievement of Learning Outcomes. In press. *American Journal of Pharmaceutical Education*. 2016.
 14. Levac, D., Glegg, SMN., Miller, P., Colquhoun, H. How do the perspectives of clinicians with and without virtual reality/active video game experience differ about its use in practice? Proceedings of the International Conference for Disability, Virtual Reality and Rehabilitation. LA, USA. In press. September 20-22nd, 2016.
 15. Levac, D., Glegg, SMN., Sveistrup, H., Colquhoun, H., Miller, P., Finestone, H., Harris, J., DePaul, V. A knowledge translation intervention to enhance clinical application of a virtual reality system in stroke rehabilitation. *BMC Health Serv Res*. 2016. 16:557 Doi: 10.1186/s12913-016-1807-6.
 16. Levac, D., Glegg, SMN., Sveistrup, H., Colquhoun, H., Miller, P., Finestone, H., Harris, J., DePaul, V. Promoting therapists' use of motor learning strategies within virtual reality-based stroke rehabilitation. *PLOS One*. 2016. Doi: 11(12):e0168311. doi:10.1371/journal.pone.0168311.
 17. Levac, D. How Can Therapists Enhance Children's Engagement in Home-Based Rehabilitation Interventions? Commentary. *Physical & Occupational Therapy in Pediatrics*. Nov, 2016. 36(4):359-62. ~~De~~doi: 10.1080/01942638.2016.

18. Lin, Y., Breugelmans, J., Iversen, MD., Schmidt, D. An Adaptive Interface Design (AID) for enhanced computer accessibility and rehabilitation. *Int J Human-Computer Studies* 09/2016; Doi: 10.1016/j.ijhcs.2016.09.012.
19. Loof, E., Andriese, H., Andre, M., Bohm, S., Iversen, MD., Brostrom, EW. Gross motor skills in children with idiopathic clubfoot and the association between gross motor skills, foot involvement, gait and foot mobility. (Accepted, 2016).
20. Lufler, R., Stefanik, JJ., Niu, J., Sawyer, F., Hoagland, T., Gross, K. (Accepted, in press). The association of forefoot varus deformity with patellofemoral cartilage damage in older adult cadavers. *The Anatomical Record (Impact Factor 1.5)*. 2016.
21. Macri, E., Stefanik, JJ., Kahn, K., Crossley, KM. Is knee alignment and morphology associated with patellofemoral joint osteoarthritis? A systematic review. *Arthritis Care and Research (Impact Factor 3.2)*. 2016. 68(10), 1453-1470.
22. Moe, R., Iversen, MD. Active approach to hand osteoarthritis. *Rheumatol*. 2016. 55(3): 389-390 Doi:10.1093/rheumatology/kev396
23. Naili, JE., Iversen, MD., Esbjornsson, A., Hedstrom, M., Schwartz, MH., Hager, CK., Brostrom, EW. Deficits in functional performance and gait one year after total knee replacement despite improved self-reported function. *Knee Surg, Sport Tr, A*. 2016. Doi: 10.1007/500167-016-4324-7.
24. O'Brien, K., Colquhoun, H., Levac, D., Baxter, L., Tricco, A., Straus, S., Wickerson, L., Nayar, A., Moher, D., O'Malley, L. Advancing Scoping Study Methodology: A web-based survey and consultation of perceptions on terminology, definitions and methodological steps. *BMC Health Services Research*. 2016. Doi: 10.1186/s12913-016-1579-z
25. Patel, J., Qiu, Q., Yarossi, M., Merians, A., Masood, S., Tunik, E., Adamovich, S., Fluet, G. Exploring the impact of visual and ~~movement-based~~movement-based priming on a motor intervention in the acute phase post-stroke in persons with severe hemiparesis of the upper extremity. *Disabil Rehabil*, 16, 1-9. 2016.
26. Saleh, S., Yarossi, M., Manuweera, T., Adamovich, S., Tunik, E. Network interactions underlying mirror feedback in stroke: A dynamic causal modeling study. *Neuroimage: Clinical*, 13, 46-54. 2016.
27. Sheehy, L., Taillon-Hobson, A., Sveistrup, H., Bilodeau, M., Fergusson, D., Levac, D., Finestone, H. Does the addition of virtual reality training to a standard program of inpatient rehabilitation improve sitting balance ability and function after stroke? Protocol for a single-blind randomized controlled trial. *BMC Neurology*. Mar 31, 2016. 16:42. Doi: 10.1186/s12883-016-0563-x
28. Stefanik, JJ., Gross, KD., Guerhazi, A., Felson, DT., Roemer, FW., Niu, J., Lynch, J. A., Segal, N. A., Lewis, CE., Lewis, CL. The relation of step length to MRI detected structural damage in the patellofemoral joint: The Multicenter Osteoarthritis Study. *Arthritis Care & Research (Impact Factor 3.2)*, 68(6), 776-783. 2016.
29. Stefanik, JJ., Guerhazi, A., Roemer, F., Peat, G., Niu, J., Segal, N. A., Lewis, CE., Nevitt, MC., Felson, D. Changes in patellofemoral and tibiofemoral joint cartilage damage and bone marrow lesions over 7 years: The MOST Study. *Osteoarthritis and Cartilage (Impact Factor 4.2)*, 24(7), 1160-1166. 2016.
30. Tricco, AC., Lillie, E., Zarin, W., O'Brien, K., Colquhoun, H., Kastner, M., Levac, D., Ng, C., Sharpe, JP., Wilson, K., Kenny, M., Warren, R., Wilson, C., Stelfox, H., Straus, SA. Scoping review on the conduct and reporting of scoping reviews. *BMC Medical Research Methodology*. 2016, 16:15 Doi: 10.1186/s12874-016-0116-4
31. Ukachukwu, V., Duncan, R., Belcher, J., Marshall, M., Stefanik, JJ., Crossley, KM., Peat, GM. (Accepted, in press). Clinical significance of medial vs. lateral compartment patellofemoral osteoarthritis: cross-sectional analyses in an adult population with knee pain. *Arthritis Care and Research (Impact Factor 3.2)*. 2016.

32. Venkatesh, KR., Greenwood, K., Bibi, K., Lowe, S. The functional status score for the intensive care unit (FSS-ICU) scale: Is it reliable in the intensive care unit? Can it be used to determine discharge placement? *Journal of Acute Care Physical Therapy*. 2016. 7 (3):93-100.
33. Wang CC, Schmid CH, Iversen MD, et al. Comparative effectiveness of Tai Chi versus physical therapy for knee osteoarthritis: a randomized trial. *Ann Intern Med*. 2016. 165(2): 77-86. DOI:10.7326/M15-2143.
34. Widjajahakim, R., Roux, M., Jarraya, M., Guermazi, A., Roemer, F., Neogi, T., Lynch, J., Lewis, C., Torner, J., Felson, D., Stefanik, JJ. (Accepted, in press). The relation of patellofemoral joint alignment and trochlear morphology to superolateral Hoffa's fat pad edema: The MOST Study. *Radiology (Impact Factor 6.8)*. 2016.
35. Yen, SC., Corkery, MB., Donohoe, A., Grogan, M., Wu, YN. Feedback and Feedforward Control During Walking in Individuals ~~w~~With Chronic Ankle Instability. *J Orthop Sport Phys Ther.* 2016. 46(9):775-783. Doi:10.2519/jospt.2016.6403.

Abstracts Published

1. Colebourn, J., Paez, A., Golub-Victor, A. Developing Overhand Throwing Skills for a Child with Autism: A Collaborative Interdisciplinary Approach in School-based Therapy. *Archives of Physical Medicine and Rehabilitation*. 2016. 97(10) e31.
Doi: <http://dx.doi.org/10.1016/j.apmr.2016.08.089>
2. Iversen, MD., Demmelmaier, I. Use of theory in self-management interventions for exercise and physical activity in adults with rheumatoid arthritis. *Ann Rheum Dis*. 2016;75(Suppl2): 1304.
3. Iversen MD, Frits M, von Heideken J, Cui J, Iannaccone C, Shadick N. Three year trends in physical activity in adults with rheumatoid arthritis. *Ann Rheum Dis*. 2016;74(Suppl2): 1289.
4. Manuweera, T., Yarossi, M., Saleh, S., Adamovich, S., Tunik, E. Structural-Functional Interactions Underlying Mirror Feedback in Cortical and Non-Cortical Stroke. *Society for Neuroscience*. 2016.
5. Tunik, E., Schettino, L., Adamovich, S. Interactions between grasp and transport components during reach-to- grasp actions. *Neural Control of Movement*. 2016.
6. Yarossi, M., Patel, J., Qiu, Q., Fluet, G., Merians, A., Adamovich, S., Tunik, E. Functional and Neurophysiological Effects of Intensive Hand Retraining in the Acute Phase Post Stroke: A Pilot Study. *Society for Neuroscience*. 2016.

Conferences Abstracts and Presentations

International

1. Colquhoun, H., O'Brien, K., Levac, D., Tricco, A., Zarin, W., Lillie, E., Straus, S. "current best practices for the conduct of scoping reviews." Canadian Association of Occupational Therapists National Conference Banff, AB. 2016.
2. Corkery, M., Cohen, E., Esposito, M., Newton, R., Rogazzo, M., Rudnick, C., Salanitro, B., Santilli, R., Yen, SC. "Trunk kinematics and motor control in athletes with and without patellofemoral pain during a lateral step-down test." *Man Ther*. 2016a;25. Presented at the International Federation of [Orthopaedic](#) [Orthopaedic](#) Manipulative Physical Therapists, World Conference, Glasgow, Scotland. July 2016.
3. Corkery, M., Hazel, K., Cesario, C. "Student physical therapist clinical practice, decision making and utilization of thrust joint manipulation during clinical education experiences."

- Man Ther. 2016b;25(September):e163. Presented at the International Federation of Orthopaedic Manipulative Physical Therapists, World Conference, Glasgow, Scotland. July 2016.
4. Glegg, SMN., Levac, D., Miller, M., Colquhoun, H., Wright, V. Virtual reality use and learning needs among Canadian therapists." Canadian Association of Occupational Therapists National Conference, Banff, AB. 2016.
 5. Iversen, MD. "Use of theory in self-management interventions for exercise and physical activity in adults with rheumatoid arthritis." EULAR, London, England. June 10, 2016.
 6. Iversen, MD., Shadick, N., Weinblatt, M., Frits, M. "Correlates of physical activity participation over 3 years in adults with rheumatoid arthritis." EULAR, London, England. June 10, 2016.
 7. Jarraya, M., Guerhazi, A., Felson, DT., Romer, FW., Nevitt, MC., Torner, J., Lewis, C. E., Stefanik, JJ. International Workshop on Osteoarthritis Imaging, "The relation of superolateral Hoffa's fat pad edema and synovitis to cartilage damage and bone marrow lesions in the patellofemoral and tibiofemoral joints: The MOST Study," Oulu, Finland. June 2016.
 8. Levac, D., Miller, P., Glegg, SMN., Colquhoun, H., Wright, V. "A survey of physical and occupational therapists' virtual reality use and learning needs." Canadian Physiotherapy Association Conference, Victoria BC. 2016.
 9. Markowski, AM. (Author & Presenter), Greenwood, KC. (Author). International Federation of Manual Physiotherapist Conference, 2016. "Evaluation of an Active Learning Experience for Educating Physical Therapists Students on Oral Health Screening for Health Promotion." IFOMPT, Glasgow, Scotland. July 2016.
 10. Markowski, AM. (Author & Presenter), Watkins, M. (Author). International Federation of Manual Physiotherapist Conference, 2016. "Development of an Injury Risk Assessment Workplace Wellness Screening Tool." IFOMPT, Glasgow, Scotland. July 2016.
 11. Naili, JE., Iversen, MD., Esbornsson, AC., Hedstrom, M., Schwartz, MH., Hager, CK., Brostrom, EW. "Challenging the effect of hip and knee replacement for osteoarthritis: a prospective one year follow-up study of 64 patients." OARSI Conference, Amsterdam, Netherlands. March 16, 2016
 12. Naili, JE., Iversen, MD., Wretenberg, P., Hedstrom, M., Lindgren, V., Brostrom E. "No change in knee biomechanics in patients reporting little improvement in knee related quality of life post-arthroplasty." ESMAC, Sevilla, Spain. September 30, 2016.
 13. Stefanik, JJ., Felson, DT., Niu, J., Clancy, M., Apovian, C., LaValley, MP., Neogi, T. Osteoarthritis Research Society International. "Changes in knee pain and sensitization after bariatric surgery." Amsterdam, Netherlands. April 2, 2016.
 14. Ukachukwu, V., Duncan, RC., Belcher, J., Marshall, M., Stefanik, JJ. Crossley, KM., Peat, G., Osteoarthritis Research Society International. "Comparative frequency of medial versus lateral compartment patellofemoral joint osteoarthritis and associations with risk factors and clinical outcomes: Cross-sectional analyses in an adult population with knee pain." Amsterdam, Netherlands. April 2, 2016.
 15. Widjajahakim, R., Guerhazi, A., Jarraya, M., Roemer, F., Neogi, T., Lynch, J., Lewis, CE., Torner, JDF., Stefanik, JJ., Osteoarthritis Research Society International. "The relation of patellofemoral joint alignment and trochlear morphology to superolateral hoffa's fat pad edema: The MOST Study." Amsterdam, Netherlands. April 2, 2016.

National

1. Carey, J., Footer, C., Hartman, J., Hayward, LM., Landry, M., Magnusson, D., Mulligan, N., Sawyer, K. "Benefit or Burden – Guidelines for Responsible Global Health

- Experiences." Two hour session. APTA Combined Sections Meeting. Anaheim, CA. February, 2016.
2. Cesario, C. (Author & Presenter), Bangs, D. (Author & Presenter), Education & Leadership Conference. "Creation of Digital Content to Facilitate Clinical Instructor Development." Poster - APTA, Phoenix, AZ. October 7, 2016.
 3. Cleveland, R.J., Barbour, KE., Renner, JB., Jordan, JM., Iversen, MD., Callahan, LF. "Individuals with Hip or Knee Osteoarthritis and Low Socioeconomic Status are less likely to be physically active." American College of Rheumatology Annual Scientific Meeting, Washington, DC. November 15, 2016.
 4. Day, LJ. "Effective Teaching and Learning: Overview of Research and Tools to Use to Reach the Millennial." Human Anatomy and Physiology Society (HAPS) Annual Conference. Atlanta, GA. May 21-25, 2016.
 5. ~~Dunne, Dunne~~, M., Iversen, MD., Hickey, K., Roberts, J., Hennessey, K., Nippins, M., Greenwood, K. "A new measure to assess interprofessional roles and communication: Development and psychometric properties of the AIRC." APTA Combined Sections Meeting. Anaheim, CA. February 18, 2016.
 6. Fitzpatrick, D., Golub-Victor, A. "Liability and Learning in Community Based Partnerships." American Physical Therapy Association (APTA) NEXT Conference and Exposition. Nashville, Tennessee. June, 2016.
 7. Fitzgerald, C. (Author & Presenter), Riley, E. (Author & Presenter), Cesario, C. (Author & Presenter), KS. (Author & Presenter). Combined Sections Meeting. "A Knowledge Transfer System via Social Media: ~~Collaboration~~, Collaboration." Poster – APTA. Anaheim, CA. February 19, 2016.
 8. Golub-Victor, A., Boyce, B., Brown, J., LaMarca, A., Oates, J., Wong, H. "DPT student learning outcomes of a community-campus partnership to develop and implement a health promotion curriculum for urban youth." Combined Section Meeting, APTA. Anaheim, CA. February 2016.
 9. Greenwood, K., Hartnet, K., Lacey, I., Lunny, C., Hickey, M. "The Effects Simulation Education on Self-Reported Confidence in DPT Students Early in Their Curriculum". Poster presentation at American Physical Therapy Association Combined Sections. Anaheim, CA. 2016.
 10. Greenwood, K. (Author & Presenter), Kiami, S. (Author & Presenter), Markowski, AM. (Author), Hickey, MJ. (Author), Canali, AA. (Author), Iversen, MD. (Author), Education Leadership Conference. "Beyond Acute Care: Interprofessional Simulation in a DPT curriculum. Platform presentation at Education Leadership Conference October 2016." APTA. Phoenix, AZ. October 2016.
 11. Greenwood, K., Stewart, E., Hake, M., Mitchell, L., Milton, E., Sanders, B. "Entry- level Competence in Acute Care Required to Meet Patient Care Needs in the 21st Century -90 minute Educational Session." APTA NEXT Conference. Nashville, TN. 2016.
* recorded for online educational module through APTA MyLearning center
<http://learningcenter.apta.org/default.aspx>.
 12. Gross, K., Hillstrom, H., Brown, C., Jones, R., Stefanik, JJ., Nevitt, M., Lewis, C., Torner, J., Felson, D. ACR/ARHP Annual Meeting. "Relation of Foot Pronation During Walking to Risk of Worsening Lateral Patellofemoral and Medial Tibiofemoral Cartilage Damage: The MOST Study." November 2016.
 13. Gunn, AH., Schwartz, TA., Arbeeva, LS., Callahan, LF., Golightly, Y., Goode, A., Hill, CH., Huffman, K., Iversen, MD., Pathak, A., Taylor, SS., Allen, KD. "The frequency of and patient characteristics associated with fear of movement in adults with symptomatic knee osteoarthritis." American College of Rheumatology Annual Scientific Meeting. Washington, DC. November 15, 2016.

14. Hayward, LM., Meleis, W., Ventura, S., Mahanna. "An Innovative Partnership Between Physical Therapy, Speech Language Pathology, and Engineering Faculty and Students: 'Enabling' Undergraduates to Collaboratively Solve Global Health Care Needs with Low Cost Technology Options." APTA Combined Sections Meeting. [Anaheim, CA](#). February, 2016.
15. Iversen, MD., Alvarez, C., Cleveland, RJ., Jordan, J., Callahan, LF. "The relationship between anxiety and physical activity participation in adults with persistent knee pain and the moderating effect of neighborhood social cohesion." Abstract. American College of Rheumatology Annual Scientific Meeting. Washington, DC. November 15, 2016.
16. Iversen, MD., Alvarez, C., Cleveland, RJ., Jordan, J., Callahan, LF. "The relationship between anxiety and physical activity participation in adults with persistent knee pain and the moderating effects of neighborhood social cohesion." Presentation. American College of Rheumatology Annual Scientific Meeting. Washington, DC. November 15, 2016.
17. Iversen, MD. "Analysis of psychosocial factors influencing outcomes in osteoarthritis." University of North Carolina Chapel Hill. Chapel Hill, North Carolina. April 26, 2016
18. Iversen, MD., Schwartz, TA., Callahan, LF., et al. "Sociodemographic and clinical correlates of physical therapy utilization in adults with symptomatic knee osteoarthritis." Abstract. American College of Rheumatology Annual Scientific Meeting. Washington, DC. November 16, 2016.
19. Iversen, MD., Schwartz, TA., Callahan, LF., et al. "Sociodemographic and clinical correlates of physical therapy utilization in adults with symptomatic knee osteoarthritis." Presentation. American College of Rheumatology Annual Scientific Meeting. Washington, DC. November 15, 2016.
20. Iversen, MD. "Three year trends in physical activity and predictors of physical activity participation in persons with rheumatoid arthritis." University of North Carolina Chapel Hill. Chapel Hill, North Carolina. March 22, 2016.
21. Jarraya, M., Guermazi, A., Felson, D., Roemer, F., Nevitt, M., Torner, J., Lewis, C., Stefanik, JJ. ACR/ARHP Annual Meeting. "The association of superolateral Hoffa's fat pad edema and synovitis with structural changes in the patellofemoral and tibiofemoral joints: The MOST Study." November 2016.
22. Jarraya, M., Guermazi, A., Felson, DT., Romer, FW., Nevitt, MC., Torner, J., Lewis, C. E., Stefanik, JJ., Radiological Society of North America. "The association of superolateral Hoffa's fat pad edema and synovitis with structural changes in the patellofemoral and tibiofemoral joints: The MOST Study." Chicago, IL. November 2016.
23. Levac, D., Glegg, SMN., Miller, P., Colquhoun, H. "How do the perspectives of clinicians with and without virtual reality/active video game experience differ about its use in practice?" International Conference for Disability, Virtual Reality and Rehabilitation. LA, USA. 2016.
24. Levac, D., Kelly, A., Polizzano, M., Saffee, S. "Do user motivation and attention influence performance of a postural reaching task in a virtual environment?" International Conference for Disability, Virtual Reality and Rehabilitation. CA, USA. 2016.
25. Levac, D., Lohse, K., Proffitt, R. "Maximizing motivation and engagement during motor learning: insights from practice in a virtual environment." American Congress of Rehabilitation Medicine Annual Congress. IL, USA. 2016
26. Markowski, AM. (Author & Presenter), Greenwood, KC. (Author & Presenter). Combined Sections Meeting. "An Educational Module and Simulation Experience to Promote Oral Health Screening and Interprofessional Collaboration in a Musculoskeletal Curriculum." APTA. [Anaheim, California](#). February 2016.

27. McCauley, J., Adrienne (Author), Wetherbee-McDevitt, E. (Author), Dupre, AM. (Author & Presenter), Cesario, C., Cusson, M. (Author), Holmes, MB. (Author), Kenney, D. (Author), Kucharski-Howard, J. (Author & Presenter). Education & Leadership Conference. "Student Readiness for First Full-time Clinical Experiences." Platform Presentation, APTA. Phoenix, AZ. October 9, 2016.
28. Nolan, DC. "Management of the Foot and Ankle Complex." (Invited Speaker). SUNY Orange. Middletown, NY. October 2016.
29. Nolan, DC. "Management of the Foot & Ankle Complex: Integrating Gait and Functional Rehabilitation." (Invited Speaker). Upstate Medical University. Syracuse, NY. March 2016.
30. Nolan, DC. "Normal Gait Kinetics and Kinematics." (Invited Speaker). Anaheim, CA. February 2016.
31. Nolan, DC., Drumheller P. "When the Feet Hit the Ground Everything Changes." (Invited Speaker). Illinois Bone and Joint Institute. Chicago, IL. April 2016.
32. Prado, M., Iversen, MD., Yu, Z., Sparks, J., Karlson, E. "Effectiveness of a web-based personalized rheumatoid arthritis risk tool with or without a health educator for knowledge of RA risk factors." American College of Rheumatology Annual Scientific Meeting. Washington. DC. November 14, 2016.
33. Sparks, JA., Iversen, MD., Yu, Z., et al. "A randomized controlled trial of personalized risk disclosure among unaffected first-degree relatives of patients with rheumatoid arthritis: the personalized risk estimator for RA (PRE-RA) family study." Abstract. American College of Rheumatology Annual Scientific Meeting. Washington, DC. November 14, 2016.
34. Sparks, JA., Iversen, MD., Yu, Z., Triedman, N., Prado, MG., Kroouze, RM., Kalia, SS., Mody, EA., Helfgott, SM., Todd, DJ., Dellaripa, PF., Bermas, BL., Deane, KD., Costenbader, KH., Lu, B., Green, RC., Karlson, EW. "A randomized controlled trial of personalized risk disclosure among unaffected first-degree relatives of patients with rheumatoid arthritis: the personalized risk estimator for RA (PRE-RA) family study." Presentation. American College of Rheumatology Annual Scientific Meeting. Washington, DC. November 14, 2016.
35. Wetherbee-McDevitt, E. (Author & Presenter), Holmes, MB. (Author & Presenter), McCauley, JA. (Author), Dupre, AM. (Author), Cesario, C., Cusson, M., Kenney, DK., Kucharski-Howard, J. Education & Leadership Conference. "Clinical Instructors' Interpretation of the Clinical Performance Definition of Entry-Level Performance: A Qualitative Analysis." Platform Presentation. APTA. Phoenix, AZ. October 8, 2016.
36. Wohlfahrt, A., Campos, A., Iversen, MD., Gagne, J., Massarotti, E., Boyden, S., Solomon, DH., Feldman, CH. "Development and implementation of a patient navigator intervention to improve medication adherence for rheumatology: A qualitative study." American College of Rheumatology Annual Scientific Meeting. Washington, DC. November 14, 2016.

Local/Regional

1. Asnis, PD., Nolan, DC., McInnis, KC. "Knee Examination." (Invited Speaker). Primary Care Orthopedics. Boston, MA. May 2016.
2. Bangs, D., "A survey of Physical Therapists' utilization of the Pilates Method in Rehabilitation." APTA of MA Annual Conference. Norwood, MA. November 5th, 2016.
3. Cesario, C. (Author & Presenter), Billich, R. (Author), Calderone, B. (Author), Nandkumar, A. (Author). Annual Conference, "Identifying low, medium, and high risk factors for anterior cruciate ligament tears among high school female soccer players." Poster - APTA of Massachusetts, Norwood, MA. November 5, 2016.

4. Fitzpatrick, D., Golub-Victor, A. "Liability and Learning in Community Based Partnerships." New England Faculty Development Conference. Worcester, MA. November 2016.
5. Kiami, S. "Barriers to Participation in Falls Prevention Programs & Increased Fall Risk Among People with Chronic Health Conditions." Working Together ~~Foto~~ Prevent Falls Conference. Bedford, New ~~Hampshire~~Hampshire. September 2016.
6. Kiami, S. "Preventing Falls in the Home Care Setting." Partner's HealthCare at Home. Beverly, Massachusetts. February 2016.
7. Kiami, S., Iversen, MD., von Heideken, J. "Can Google Glass improve clinical examination skills?" NEFDC Spring Conference. Tufts University. Medford, MA. May 24, 2016.
8. Levac, D. "Ionta Symposium." Kinect'ing with Clinicians: Benefits and Challenges of Virtual reality and Active Video Game use in Rehabilitation. Spaulding Rehabilitation Hospital. Charlestown, MA. 2016.
9. McInnis, KC., Asnis, PD., Nolan, DC. "Musculoskeletal Knee Pathology Case-Based Discussion." (Invited Speaker). Primary Care Orthopedics. Boston, MA. May 2016.
10. Nolan, DC., Asnis, P., Berkson, E. 2016 Mass General Sports Medicine Conference: Managing the Athlete's Shoulder. (Course Director). Boston, MA. June 2016.
11. Nolan, DC. "Biomechanical Assessment of the Runner: Implications for Running Related Injury Prevention and Rehabilitation." (Invited Speaker) Mass General Department of Orthopaedics; Foot and Ankle Service Grand Rounds. Waltham, MA. June 2016.
12. Nolan, DC. "Elevating Practice in Orthopedic Physical Therapy: Foot and Ankle." Boston, MA. April 2016.
13. Nolan, DC. "Evaluation of Common Non-Operative Shoulder Conditions." (Invited Speaker). Primary Care Orthopedics. Boston, MA. May 2016.
14. Nolan, DC., Fleming, K., Wiater, A. "Movement Dysfunction in the Overhead Athlete." American Physical Therapy Association of Massachusetts 2016 Annual Conference. Norwood, MA. November 2016.
15. Nolan, DC. "Management of the Foot and Ankle Complex." (Invited Speaker). MetroWest Medical Center. Framingham, MA. October 2016.
16. Nolan, DC. "Patellofemoral Pain Syndrome: Implications of Top Down Mechanics." (Invited Speaker). New Hampshire Musculoskeletal Institute 23rd Annual Symposium. Bedford, NH. September 2016.
17. Nolan, DC., Price, MD. "Shoulder Examination." (Invited Speaker). Primary Care Orthopedics. Boston, MA. May 2016.
18. Nolan, DC. "Rehabilitation Considerations Following Ankle Fracture: Impact on Gait and Closed Kinetic Chain Function." (Invited Speaker). New Hampshire Musculoskeletal Institute 23rd Annual Symposium. Bedford, NH. September 2016.
19. Nolan, DC. "Rehabilitation Considerations for the Overhead Athlete." (Invited Speaker). Massachusetts General Hospital Primary Care Sports Medicine Grand Rounds. Boston, MA. May 2016.
20. Nolan, DC. "Rehabilitation Considerations for the Overhead Athlete." (Invited Speaker) Managing the Athlete's Shoulder. Boston, MA. June 2016.
21. Nolan, DC. "Rehabilitation Following Arthroscopic Bankart Repair." (Invited Speaker) Managing the Athlete's Shoulder. Boston, MA. June 2016.
22. Nolan, DC. "Rehabilitation Following Arthroscopic Bankart Repair." (Invited Speaker). APTA of MA Shoulder SIG Meeting. Boston, MA. December 2016.
23. Nolan, DC. "Rehabilitation Following Arthroscopic Rotator Cuff Repair." (Invited Speaker) Managing the Athlete's Shoulder. Boston, MA. June 2016.
24. Nolan, DC. "Rehabilitation following Latarjet." (Invited Speaker). APTA of MA Shoulder SIG Meeting. Boston, MA. December 2016.

25. Nolan, DC. "Rehabilitation of the Rotator Cuff: How Fast Should We Go?" (Invited Speaker) APTA of MA Shoulder SIG Meeting. Boston, MA. August 2016.
26. Nolan, DC. "Rehabilitation Principles Following Rotator Cuff Repair." (Invited Speaker). MA APTA Western District Fall Meeting. Springfield, MA. October 2016.
27. Nolan, DC. "Return to Throwing Progression." (Invited Speaker) Managing the Athlete's Shoulder. Boston, MA. June 2016.
28. Nolan, DC. "Shoulder Instability: Rehabilitation Following Primary Dislocation." (Invited Speaker) Managing the Athlete's Shoulder. Boston, MA. June 2016.
29. Price, MD., Nolan, DC. "Case-Based Discussions." (Invited Speaker). Primary Care Orthopedics. Boston, MA. May 2016.

At Northeastern:

1. Berkey, B. (Presenter), Roe, L. (Presenter), Begley, G. S. (Presenter), Golub-Victor, A. (Panelist). Center for Advancing Evidence-Based Teaching, First annual Conference. "Undergraduates as Innovation Partners in Teaching and Learning; Lessons from the Service-Learning Teaching Assistant Program." Northeastern University. Boston, MA. May 2015.
2. Day, LJ. "Student's Motivational Orientation and Learning Strategies in a Flipped-Classroom." Conference for Advancing Evidence-Based Teaching. Northeastern University. Boston, MA. May 3, 2016.
3. Greenwood, K., Pirozi-O'neil, T., Kirwin, J. "The Practicality of Using Simulation as an Educational Tool for Interprofessional Practice in Your Courses." Two sessions Spring 2016.
4. Hayward, L. "Examination of Health Professions Students' Motivation for Learning, Applying and Valuing Evidenced Based Practice." Conference for Advancing Evidenced-Based Teaching. NU CATLR. May 2016
5. Hayward, L., Hazel, K., Flood, L., Steinberger, J., Mehta, S., Larson, T., Agustin, S., Goldenberg, A., Cornelissen, M., Policastro, C., Foley, J., Duquette, L., Burgey, S., Wolson, L., Sanghvi, M. "Sensory Cube for Promoting Normal Development in Twins with Cerebral Palsy and Low Vision." NU Research Expo. April 2016.
6. Miami, S., von Heideken, J., Iversen, M. "Can Google Glass Improve Assimilation and Speed of Students' Learning New Psychomotor Skills?" Poster Presentation. Conference for Advancing Evidence-Based Teaching. Northeastern University. May 2016.
7. Kirwin, J., Divall, M., Greenwood, K., Brown, T., Matta, T., Rico, J., Rickels, N., Romesh, N., "Interprofessional Curbside Consults (ICC) to Improve Student Achievement of Learning Outcomes." Center for Advancement and learning Through Research Fair. Northeastern University. May 2016.
8. Nolan, DC. "Manual Therapy for the Runner." (Invited Speaker). Northeastern Sports Performance Summit: Improve the Method, Improve the Athlete. Northeastern University. Boston, MA. June 2016.
9. Nolan, DC., McCann, C. "When the Feet Hit the Ground Everything Changes." (Invited Speaker). Northeastern University. Boston, MA. May 2016.
10. Nolan, DC. "Running Biomechanics: Implications for Running Related Injury Prevention and Rehabilitation." (Invited Speaker) Northeastern Sports Performance Summit: Improve the Method, Improve the Athlete. Northeastern University. Boston, MA. June 2016.

On-Line / Webinars

1. Corkery MB. "Lumbar Spinal Stenosis: A Comprehensive Review for Rehabilitation Professionals, Updated 1st Edition." Western Schools Home Study Courses, www.westernschools.com. West Bridgewater, MA. February, 2016.
2. Day, LJ. "The Modern Classroom for Allied Health Students. Active A&P: Unlocking Student Potential Using Digital Resources!" Conference from McGraw-Hill Education. October 7, 2016.
3. Day, LJ. "The Modern Classroom: How to Teach and Learn within Hybrid, Flipped, Face to Face and Online Environments. [Keynote]." Unlocking Student Potential Digital Conference from McGraw-Hill Education. April 1, 2016
4. Nolan, DC. "Management of the Elbow Complex." (Invited Speaker). PhysicalTherapy.[com](http://www.physicaltherapy.com) online presentation. April 2016.
5. Nolan, DC. "Management of Patellofemoral Pain." (Invited Speaker). PhysicalTherapy.[com](http://www.physicaltherapy.com) online presentation. July 2016.
6. Nolan, DC. "Rotator Cuff Lesions: Conservative and Post-Operative Management." (Invited Speaker). PhysicalTherapy.[com](http://www.physicaltherapy.com) online presentation. June 2016.

Awards

1. **Iversen, MD.** J William Fulbright US Research Scholar, European Program, 2016.
2. **Levac D.** Commendation, Best Short Paper, ICDVRAT, 2016.
3. **Levac D.** Outstanding student research award, Engineering and Technology, Northeastern University RISE 2016 (Do, Q. A sensor-based app for video game play). 2016.
4. **Levac D.** Provost Grant Research and Creative Endeavour Award. May 2016. Northeastern University Development of the Fun Interactive Therapy Board. Costs: \$1500 Role: Principal Investigator Percent effort: 5% (In kind) Roles of Others: Scudder C, Student Investigator.
5. **Markowski, A.M.** First Place Best 5 x5 Cervical / Thoracic Platform, AAOMPT. (Presented October 2016).
6. **Nolan DC.** Outstanding Achievement in Clinical Practice, American Physical Therapy Association of Massachusetts; November 2016.

News/Media

1. **Levac, D.** <http://www.northeastern.edu/regamevrlab/media/>

Grants Submitted in 2016 (\$7,448,718 requested)

Agency	Title	Direct Costs	Faculty	Status
NEU	A Model Experiential Education Program for Bouve Freshmen to Begin Developing	\$15,000	Day (Co-PI)	Denied
Eastern Bank Charitable Foundation	A Community Based Adaptive Sports Program for Strengthening Families in Metro West	\$5,000	Hayward (PI)	Pending
Deborah Monroe Noonan Memorial Research Fund	Development and Evaluation of a Model TOPSoccer Program for Children with Autism	\$80,000	Hayward (PI)	Pending
Charles H. Hood Foundation	Is Motor Learning Enhanced by Practice in a Virtual Environment for Children with Cerebral Palsy?	\$150,000	Levac (Co-PI)	Pending
NIH/NIAMS	The Relation of Altered Pain Processing to Impact Loading and Response to a Gait Retraining Treatment in Knee Osteoarthritis	\$766,500	Stefanik (PI)	Pending
NSF-BME	Collaborative Research: Understanding Motor Cortical Organization through Engineering Innovation to TMS-Based Brain Mapping	\$300,000	Tunik	Pending
NIH-NINDS	Neural Mechanisms of Mirror Feedback	\$3,066,109	Tunik	Denied
NIH-NINDS	Optimizing Hand Rehabilitation Post-Stroke Using Interactive Virtual Environments	\$3,066,109	Tunik	Pending

Funded Grants Active in 2016 total costs \$3,262,717

Agency	Title	2016 Direct	Faculty
NEU	A Comparison of the Immediate Effects of Gastrocnemius Stretching with and without Self-Myofascial Release on Ankle Kinematics and Range of Motion	\$970	Corkery, Yen
NEU	Using Real-Time Ultrasound Imaging to Enhance Learning and Clinical Application of Anatomy, Biomechanics, Motor Control and Patient Care Across the Physical Therapy Curriculum	\$15,000	Day (Co-PI)
NEU	Assessing Fall Risk in People with Intellectual Disabilities: A Community-Based Program	\$600	Golub-Victor (Co-PI)
NEU	Pilot Simulation Experience: Interprofessional Education Training for Motor Assessment	\$550	Golub-Victor (PI)
The Village Church Outreach Program	An Interdisciplinary Approach for Educating and Sustaining Communication and Mobility in Children with Disabilities	\$2,000	Hayward (PI)
NEU	An Innovative Engineering and Physical Therapy Student Partnership: "Enabling" Undergraduates to Collaboratively Solve Community Based Health Care Needs with Low Cost Technology	\$8,000	Hayward (Co-PI)
The Fund for Wellesley	Enabling Children with Disabilities to Connect within the Wellesley Community Through Sports and Peer Mentoring	\$10,000	Hayward (PI)
NEU	Lead Faculty Scholars Program	\$2,000	Hayward
Pzifer Pharmaceuticals	Utilizing a Patient Navigator to Improve Oral DMARD Medication Adherence Among Rheumatoid Arthritis Patients at an Academic Medical Center	\$160,700	Iversen
NIAMS-MCRC	Counseling for Persons at Risk to Develop Rheumatoid Arthritis	\$787,723	Iversen (Co-PI)

NIH/NIAMS	Research Center Grant for Research Dedicated to Methodologically Rigorous, Clinically Relevant Translational Research on Rheumatic and Musculoskeletal Conditions <u>Conditions</u>	?	Iversen
Boston CHMC Orthopedic Department	Development and Validation of a Shoulder and Elbow Survey for Children with Orthopedic Dysfunction	?	Iversen
PCORI	Physical Therapy Versus Internet-based Exercise Training for Patients with Knee Osteoarthritis	?	Iversen
NIAMS	Study of Physical Activity Rewards after Knee Surgery	\$150,000	Iversen
NIAMS	Vitamin D and Fish Oil for Autoimmune Disease, Inflammation and Joint Pain	\$386,732	Iversen
US Fulbright Research Scholar Program: European Division	Development and Psychometric Testing of Novel Patient-Oriented Outcome Measures in Arthritis	75,000SEK (\$8497.24)	Iversen
Society of Simulation in Healthcare	Development of an Innovative Educational Process to Educate Debriefs on Common Outcomes and Consistent Communication During Interprofessional Team Simulation Experiences	\$15,000	Iversen
Debrah Munroe Noonan Memorial Research Fund	Usability Evaluation of the FITBoard (Fun Interactive Therapy Board): A Motivating, Movement-Based Rehabilitation Tool for Children with Disabilities	\$80,000	Levac (PI)
Mutual Mentoring Advancement Program	Using Electroencephalography to Measure Attention, Motivation and Engagement in Motor Learning	\$3,000	Levac (PI)
Tufts CTSI Piolet Grant	Influence of Virtual Environment Complexity on Motor Learning in Children with Cerebral Palsy: Implications for Virtual Reality use in Rehabilitation	\$45,000	Levac (Co-PI)
NEU	Using Real-time Ultrasound Imaging to Enhance Learning and Clinical Application of Anatomy, Biomechanics, Motor Control and Patient Care Across the Physical Therapy Curriculum	\$15,000	Markowski, Watkins, Day (Co-PI)

Rheumatology Research Foundation	Identifying Cases of PFJ OA & Their hip Impairments	\$347,220	Stefanik
Osteoarthritis Research Society International Collaborative Scholarship	Population-based Norms of Measures of Patellofemoral Joint Osteoarthritis	\$6,000	Stefanik
NIH-NINDS	Brain Circuits in Motor Learning	\$25,414	Tunik
NIH-NINDS	Planning and Updating in Frontoparietal <u>Front Parietal</u> Networks for Grasping	\$238,318	Tunik
NEU	Real Time Ultrasound use in Physical Therapy Curriculum	\$15,000	Watkins