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Message From The Chair: "Culture of Excellence"

"Change is the only constant," the old aphorism says.

The ability to respond to change is a test to the greatness of any organization. A clear vision and resilience in the face of change are hallmarks of organizations that have developed a "culture of excellence".

Within Physical Therapy and Rehabilitation Science (PTRS) at the University of Iowa, two of our outstanding faculty members retired this year. Within months, existing faculty, committed to our vision, stepped up and assumed new roles. Talented new faculty members, eager to help build our "culture of excellence", [joined our academic ranks](#). Our department intensified its focus on novel research capabilities, innovative educational opportunities, and unique inter-professional collaborative partnerships.

Change has a way of catalyzing new opportunities for growth and development when it occurs in an environment that is committed to excellence. Developing a culture of excellence requires talented and dedicated people. However, I believe the "active ingredients" are the values that define a true professional. In an upcoming article in the *Journal of Allied Health* (47:2, *in press*), Marcie Becker, Shauna Dudley-Javoroski, and I describe the annual 360-degree peer assessment of professionalism undertaken by all faculty and staff in our department. We keep our professional values of Honesty, Communication, Teamwork, Respect, and Responsibility at the forefront of our interactions. Our faculty and staff are

consummate professionals who portray outstanding values; so when change occurs, our foundation is secure.

We are fortunate to have a physical therapy community that invests in excellence at the University of Iowa. Thank you for your unwavering support. Please enjoy this update on recent news from our ever-changing, ever-growing Department.

Rich Shields, PT, PhD, FAPTA

Dr. Jason Wilken Joins Faculty



Jason Wilken PT, PhD

The Department is pleased to announce that Jason Wilken, PT, PhD has joined our faculty this year as an Associate Professor.

Dr. Wilken received his PT degree from Iowa in 2001, followed by a PhD in Rehabilitation Science, also through our department. Since then he has published 72 scientific articles and been key to procuring research grants totaling \$20.5 million.

Most recently, Dr. Wilken served as the Director of the Military Human Performance Laboratory at the Center for the Intrepid in San Antonio, Texas. His research focuses on lower extremity biomechanics with emphasis on human movement analysis, walking

stability, virtual reality based training, and prosthetics and orthotics.

In his new position, Dr. Wilken will teach Radiology and Imaging, assist with the Kinesiology/Biomechanics curriculum, and contribute to the evidence-based research components of the DPT and PhD curricula. He will direct a state-of the art laboratory that features an immersive 3D virtual reality system with multi-directional treadmills, force-measurement systems, and motion-capture cameras.

Our Department extends a warm welcome to Dr. Wilken. We eagerly anticipate the contributions to physical therapy that he will make as a member of our team.

Faculty Members Yack, Bork Retire

In fall of 2016, our Department bid farewell to two long-serving faculty members, H. John Yack, PT, PhD and Byron Bork, PT, MA.

Dr. Yack joined our faculty in 1994 and achieved tenure in 1999. He directed the Orthopaedic Gait Analysis Laboratory, focusing his research on gait pathology in a number of patient populations. He conducted pioneering work on gait biomechanics of trans-tibial amputees and patients with obesity and diabetic neuropathy.

Dr. Yack mentored 7 PhD graduates, all of whom have gone on to serve as faculty

members in physical therapy education programs. In the DPT curriculum, Dr. Yack taught Kinesiology & Pathomechanics, a foundational course taken by 1st-semester students. Dr. Yack was an early adopter of "student-centered" instruction, in which teams of learners take responsibility for delivering selected components of the curriculum.

Dr. Yack's approach helped students transition from undergraduate-style passive learning to the more question-driven, independent mode required by contemporary PT practice. In this way, Dr. Yack's course went far beyond fundamentals of biomechanics. For over 20 years he helped equip our graduates with the critical thinking skills they needed for clinical success.

Byron Bork joined our faculty in 1976 and served as Academic Coordinator of Clinical Education (ACCE) throughout his career. In this role, Byron oversaw the placement of our students in clinical internships in every corner of the state. He made hundreds of visits to clinical affiliation sites and became one of our most widely-known and respected faculty members.

Byron was a key contributor to our recruitment and admissions processes, which facilitated his uncanny knack for remembering the hometowns of past graduates. He made lasting contributions to our curriculum as the course instructor for Professional Issues and Ethics, Management and Administration, and Psychosocial Aspects of PT.

We owe both Byron and John a tremendous debt of gratitude for their decades-long commitment to educating the next generation of physical therapists. They shepherded our transition from an MPT to a DPT degree and ensured our students were equipped for a rapidly-changing field. We wish John and Byron all the best in retirement and look forward to seeing them in the future at graduation and other department events.

Weekend Coverage Program Enriches Student Experience

Our DPT students benefit from our department's strong relationship with the Department of Rehabilitation Therapies at the University of Iowa Hospitals and Clinics (UIHC). Twenty-four UIHC clinicians serve as adjunct professors in our Department, contributing an essential vein of clinical expertise to our curriculum. In the past two years, our partnership with UIHC has expanded to include a weekend clinical coverage program for 2nd-year DPT students. This program has proven to be of tremendous benefit for our students and has been well-received by UIHC clinical staff.

Twelve students each year receive training as Rehabilitation Aides in the Department of Rehabilitation Therapies. The students provide weekend or holiday coverage on one day per month and receive financial aid to offset educational costs. Students are selected by the Department on the basis of financial need, educational achievement, and strong performance on practical skills testing.

Student workers assist UIHC clinicians with patient mobilization and other hands-on interventions. Key patient populations served by the weekend coverage program

include orthopaedic joint replacement patients, medical/surgical patients, and patients in the UIHC cystic fibrosis inpatient unit. Under the guidance of UIHC clinicians, our students begin to practice fundamental clinical skills like transfers, gait training, and other modes of mobilization. They become familiar with the UIHC electronic medical record and learn the logistics of the UIHC inpatient system.

As importantly, our students gain valuable experience in navigating the "intangible" aspects of inpatient care; the sights, sounds, and culture of busy inpatient units. 2nd-year student Rachel Zhorne said, "For me, the opportunity to work at UIHC as a weekend aide has been one of the most influential components of my DPT education. I've gained confidence working with patients that no simulated patient experience could have provided." Rachel added that the experience "reminded me why I care so much about this profession."

Kelly Sass Completes PhD



Kelly Sass PT, PhD

In April of 2016, faculty member Kelly Sass completed a PhD in Psychological and Quantitative Foundations through the Graduate College at the University of Iowa. Her dissertation was entitled "Use of The Isolated Elements Effect to Teach Observational Gait Analysis: The Effects on Cognitive Load and Learning Outcomes."

Dr. Sass' research focuses on educational theory and instructional methods in physical therapy education. She developed a new instructional model for teaching observational gait analysis to physical therapy students. Dr. Sass also played a key role in implementing the Iowa Readiness Instrument for Students (IRIS), the assessment tool our department uses to gauge student readiness for clinical affiliations.

Dr. Sass will continue in her role as Academic Coordinator of Clinical Education (ACCE), a position she shares with faculty member Marcie Becker, DPT, GCS. Dr. Sass assumed a full-time appointment in our Department and continues teaching, advising, and mentoring DPT students in our curriculum.

Congratulations, Class of 2016!



Commencement exercises for our department's 73rd graduating class took place on December 18, 2016. Patricia Winokur, MD, Executive Dean of the Carver College of Medicine provided opening remarks, congratulating the students on their achievements. Dr. Shields' closing comments reminded students of the power of individuals to create change in healthcare. Faculty members Marcie Becker, Amy Kimball, Kelly Sass, Carol Vance and David Williams presented the students with certificates commemorating the completion of their DPT coursework. The students were formally "hooded" later that evening at the Graduate College commencement exercises.

A number of students received recognition for honors and awards earned during their time in the Department:

- Alumni Scholarships: Chelsea Moore, Cody Walkup
- Frank Hazelton Memorial Scholarships: Jared Gerber, Cody Walkup
- IEND Traineeships: Amanda Clark, Danielle Greiner
- Louis & Dorothy Laubenthal Memorial Scholarship: Katherine Bird, Clare Goeken
- Marilyn M. McCoid Scholarship: Amanda Paulson
- Mary Lou Fairchild Clinical Excellence Award: Jonathan Arnold
- Rock Valley Physical Therapy Scholarship: Justin Rumpza
- Tracy Dahl Memorial Scholarships: Laura Boraas, Molly King, Derek Klein, Andrew Voss

- Leadership/Mentor Recognition Awards: Megan Albee, Katelyn Bakey, Katherine Bird, Brent Corum, Carmen Ertz, Erica Geerdes, Robert Hess, Colleen Bouchard, Amanda Clark, Alfred Crone, Andrew Gibson, Molly King, Emily McKeever, Nicholas Mergen, Chelsea Moore, Tony Naber, Amanda Paulson, Justin Rumpza, Jacqueline Wells
- Byron E. Bork Dedication to Education & Service Award: Derek Klein
- Advancement of Kinesiology & Research Award (honoring Dr. John Yack): Erica Geerdes
- Inspiration, Perseverance & Excellence Award (honoring Dr. David Nielsen): Katherine Bird

Jacqueline Wells received the 6th-annual Judy Biderman Professionalism Award, commemorating Judy's legacy through 50 years as an administrator in our department. Spanning six directors, several changes of location and for nearly 2,000 students, Judy was the core of our team. The award is given to the graduating DPT student who best exemplifies the principles of professionalism and teamwork on which Judy built her career.

Congratulations to all our graduates! Thank you for the contributions you made to our Department, and all the best as you begin your careers in physical therapy.

Talented People Assume New/Enhanced Roles in Department

Marcie Becker, DPT, GCS assumed a full-time position in our department and serves as one of our Academic Coordinators of Clinical Education (ACCE). She oversees the Curriculum and Instruction Committee and continues with key teaching, advising, and mentoring roles within our DPT curriculum.

Shauna Dudley-Javoroski, PT, PhD oversees the Inter-Professional Education Program, in which DPT2 students teach anatomy to first-semester medical students. She serves as the liaison to the Committee on Accreditation in Physical Therapy (CAPTE) and oversees the annual newsletter.

Michael Petrie, BSE, DC, PhD oversees the Pathology Case Discussions and coordinates the Research in PT course for the DPT students. Mike also developed and oversees the Curriculum and Instruction Course Objectives Database that maps the content of our curriculum through well-formulated objectives.

Amy Kimball, MPT, ATC, PhD(c) teaches Kinesiology/Pathomechanics and draws upon her experience as a former private practice owner to teach the PT Management & Administration I and II courses. Amy chairs the Review and Promotion Committee, serves on the Admissions Committee, and provides selective lectures in women's health within the curriculum.

Ruth Chimenti, PT, PhD teaches Radiology and Imaging for Physical Therapists in

Year 2 of the DPT curriculum. She has an active research program as a post-doctoral scholar within the department.

Kim Streeby serves as the primary administrator for the PhD program in Rehabilitation Science. She also serves as the chief grants management specialist and assists Carol Leigh, our chief department administrator, with day to day management.

Elizabeth Buettner, BA serves as the chief financial analyst for the department. She coordinates clinical education outcome data management and assists Carol Leigh with day to day financial management in the department.

These talented people allow us to sustain our long-standing history for excellence within the Physical Therapy and Rehabilitation Science Department. They are all seasoned professionals who have seamlessly taken on new or expanded roles to meet the ever-changing demands of our highly-ranked academic programs. We're fortunate to have them as part of our team.

Students and Faculty Attend CSM

Department faculty members, research staff, and the 2nd-year DPT class attended the APTA Combined Sections Meeting (CSM) from February 15-18 in San Antonio, TX.



CSM is the main professional forum for presentation of physical therapy research

discoveries. This year more than 11,000 PTs and PT students gathered to attend poster and platform presentations, keynote speeches and educational sessions.

Students Receive PhD Degrees

We are proud to announce that three of our students received their PhD degrees in the 2016 academic year:

MAJ Shannon Merkle, PhD, OTR/L, CHT, was mentored by Laura Frey Law PT, PhD. Her dissertation was entitled "Exploring pain & movement relationships: Is greater physical activity associated with reduced pain sensitivity & does endogenous muscle pain alter protective reflexes in the upper extremity?" Dr. Merkle has accepted a research position with the US Army Research Institute of Environmental Medicine in Natick, MA.

Michael Petrie, BSE, DC, PhD was mentored by Richard Shields, PT, PhD, FAPTA. His dissertation was entitled: "Assessment of low-force exercise in human paralyzed muscle." Dr. Petrie will remain with our Department as a research scientist and as an instructor in the DPT curriculum.

Chu-Ling Yen, PT, PhD was mentored by Richard Shields, PT, PhD, FAPTA. Her dissertation was entitled: "Influence of age, physical activity, and motor cortical excitability on neuromuscular control of the wrist in humans." Dr. Yen is a post-doctoral fellow in the department of Neurology, Chang Gung Memorial Hospital, Taiwan.

Congratulations to our graduates and best wishes for your academic careers!

Faculty Publications for 2016

Hughes WE, **Casey DP**. Aortic wave reflection during orthostatic challenges: Influence of body position and venous pooling. *Am J Hypertens*. 2017 Feb;30(2):166-172. PMID: 28077421

Harvey RE, Barnes JN, Hart EC, Nicholson WT, Joyner MJ, **Casey DP**. Influence of sympathetic nerve activity on aortic hemodynamics and pulse wave velocity in women. *Am J Physiol Heart Circ Physiol*. 2016 Dec 6:ajpheart.00447.2016. [Epub ahead of print] PMID: 27923789

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Hughes WE, Ueda K, **Casey DP**. Chronic endurance exercise training offsets the age-related attenuation in contraction-induced rapid vasodilation. *J Appl Physiol* (1985). 2016 Jun 1;120(11):1335-42. PMID: 27032899

Pierce GL, Harris SA, Seals DR, **Casey DP**, Barlow PB, Stauss HM. Estimated aortic stiffness is independently associated with cardiac baroreflex sensitivity in humans: role of ageing and habitual endurance exercise. *J Hum Hypertens*. 2016 Sep;30(9):513-20. PMID: 26911535

Frey Law L, Sluka KA. How does physical activity modulate pain? *Pain*. 2016 Dec 12. [Epub ahead of print]. PMID: 28135214

Hussain SJ, **Frey-Law L**. 3D strength surfaces for ankle plantar- and dorsi-flexion in healthy adults: An isometric and isokinetic dynamometry study. *J Foot Ankle Res*. 2016 Nov 10;9:43. PMID: 27843491

Felson DT, Niu J, Quinn EK, Neogi T, Lewis C, Lewis CE, **Frey Law L**, McCulloch C, Nevitt M, LaValley M. Multiple nonspecific sites of joint pain outside the knees develop in persons with knee pain. *Arthritis Rheumatol*. 2017 Feb;69(2):335-342. PMID: 27589036

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Woelfel JR, **Kimball AL**, Yen CL, **Shields RK**. Low-force muscle activity regulates energy expenditure after spinal cord injury. *Med Sci Sports Exerc*. 2016 Dec 22. [Epub ahead of print]. PMID: 28009786

Abode-Iyamah KO, Viljoen SV, McHenry CL, **Petrie MA**, Stoner KE, Dahdaleh NS, Grosland NM, Howard MA, **Shields RK**. Effect of surgery on gait and sensory motor performance in patients with cervical spondylotic myelopathy. *Neurosurgery*. 2016 Nov;79(5):701-707. PMID: 27759677

Oza PD, **Dudley-Javoroski S**, **Shields RK**. Dynamic fatigue does not alter soleus h-reflexes conditioned by homonymous or heteronymous pathways. *Motor Control*. 2016 Oct 13:1-27. PMID: 27736308

Petrie MA, Kimball AL, McHenry CL, Suneja M, Yen CL, Sharma A, **Shields RK**. Distinct skeletal muscle gene regulation from active contraction, passive vibration, and whole body heat stress in humans. *PLoS One*. 2016 Aug 3;11(8):e0160594. PMID: 27486743

Zhorne R, **Dudley-Javoroski S**, **Shields RK**. Skeletal muscle activity and CNS neuroplasticity. *Neural Regen Res*. 2016 Jan;11(1):69-70. PMID: 26981083

Littmann AE, **Shields RK**. Whole body heat stress increases motor cortical excitability and skill acquisition in humans. *Clin Neurophysiol*. 2016 Feb;127(2):1521-9. PMID: 26616546

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Hadlandsmyth K, Sabic E, Zimmerman MB, **Sluka KA**, Herr KA, Clark CR, Noiseux NO, Callaghan JJ, Geasland KM, Embree JL, Rakel BA. Relationships among pain intensity, pain-related distress, and psychological distress in pre-surgical total knee arthroplasty patients: a secondary analysis. *Psychol Health Med*. 2016 May 24:1-12. PMID: 27216314

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Teran-Yengle P, Cole KJ, **Yack HJ**. Short and long-term effects of gait retraining using real-time biofeedback to reduce knee hyperextension pattern in young women. *Gait Posture*. 2016 Oct;50:185-189. PMID: 27637090

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Rábago CA, **Wilken JM**. The prevalence of gait deviations in individuals with transtibial amputation. *Mil Med*. 2016 Nov;181(S4):30-37. PMID: 27849459

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Stanhope SJ, **Wilken JM**, Pruziner AL, Dearth CL, Wyatt M, Ziemke GW, Strickland R,

Milbourne SA, Kaufman KR. The Bridging Advanced Developments for Exceptional Rehabilitation (BADER) Consortium: Reaching in partnership for optimal orthopaedic rehabilitation outcomes. *Mil Med.* 2016 Nov;181(S4):13-19. PMID: 27849456

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Sheean AJ, Tennent DJ, Owens JG, **Wilken JM**, Hsu JR, Stinner DJ; Skeletal Trauma Research Consortium (STReC). Effect of custom orthosis and rehabilitation program on outcomes following ankle and subtalar fusions. *Foot Ankle Int.* 2016 Nov;37(11):1205-1210. PMID: 27521355

Pickle NT, **Wilken JM**, Aldridge Whitehead JM, Silverman AK. Whole-body angular momentum during sloped walking using passive and powered lower-limb prostheses. *J Biomech.* 2016 Oct 3;49(14):3397-3406. PMID: 27670646

Tennent DJ, Hylden CM, Johnson AE, Burns TC, **Wilken JM**, Owens JG. Blood flow restriction training after knee arthroscopy: A randomized controlled pilot study. *Clin J Sport Med.* 2016 Oct 5. [Epub ahead of print] PMID: 27749358

Aldridge Whitehead JM, Russell Esposito E, **Wilken JM**. Stair ascent and descent biomechanical adaptations while using a custom ankle-foot orthosis. *J Biomech.* 2016 Sep 6;49(13):2899-2908. PMID: 27451057

Ranz EC, Russell Esposito E, **Wilken JM**, Neptune RR. The influence of passive-dynamic ankle-foot orthosis bending axis location on gait performance in individuals with lower-limb impairments. *Clin Biomech (Bristol, Avon).* 2016 Aug;37:13-21. PMID: 27280325

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Amorelli CR, Baumann ML, Yancosek KE, Keizer BM, Stinner DJ, **Wilken JM**. Center for the Intrepid: Providing patients POWER. *US Army Med Dep J.* 2016 Jan-Mar;39-46. PMID: 26874096

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Russell Esposito E, Aldridge Whitehead JM, **Wilken JM**. Step-to-step transition work

during level and inclined walking using passive and powered ankle-foot prostheses. *Prosthet Orthot Int.* 2016 Jun;40(3):311-9. PMID: 25628378

Research Grant Support (Principal Investigators)

Laura Frey Law, PT, PhD

Associate Professor

NIH-R03, \$302,000

Phenotyping Evoked Central Sensitivity to Painful Stimuli

Darren Casey, PhD

Assistant Professor

NIH-R00, \$503,129

Impact of Aging on Skeletal Muscle Blood Flow Kinetics During Exercise

American Heart Association, \$71,500

Dietary Nitrates and Vascular Function in Patients with Peripheral Artery Disease

American Diabetes Association, \$302,862

Nitrate Supplementation and Exercise Tolerance in Patients with Type 2 Diabetes

Neogenesis Laboratories, \$12,207

Stacey DeJong, PT, PhD

Assistant Professor

NIH K-12: Multicenter Career Development Program for Physical and Occupational Therapy, \$125,620
Comprehensive Opportunities in Rehabilitation Research Training (CORRT): Cortical Mapping with Transcranial Magnetic Stimulation after Stroke

Carver Medical Research Initiative, \$30,000

Operant Conditioning to Decrease Hypertonia and Improve Wrist Motor Control after Stroke

Jason Wilken, PT, PhD

Associate Professor

Congressionally Directed Medical Research Programs (CDMRP), \$1,498,378

Maximizing Outpatient Rehabilitation Effectiveness (MORE)

CDMRP (Site PI), \$4,692,530

(Major limb trauma/amputation: 3 projects)

Joint Warfighter Medical Research Programs (Site PI), \$3,163,331

Improved Training Program for Fall Prevention of Warfighters with Lower Extremity Trauma

Kathleen Sluka, PT, PhD

Professor

NIH- R01, \$2,203,874

Central Mechanisms Involved in the Interactions Between Muscle Pain and Exercise

NIH-UM1, \$3,218,011

FAST: Fibromyalgia Activity Study with TENS

Gruenthal, \$75,327

Effectiveness of CRT6005 in Non-inflammatory Muscle Pain

Medtronic, \$118,245

Frequency-Related Mechanisms of Spinal Cord Stimulation in Rodent Model of Neuropathic Pain

Richard Shields, PT, PhD

Professor

NIH-R01, \$1,566,625

Musculoskeletal Plasticity after Spinal Cord Injury

NIH-R01, \$1,566,625

Long Duration Activity and Metabolic Control after Spinal Cord Injury

NIH-R01, \$1,161,732

Mechanical Stress and Skeletal Plasticity after Spinal Cord Injury in Humans



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Please send this newsletter to your classmates and remind alumni to update their contact information with Carol Leigh (carol-leigh@uiowa.edu).



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