



Curriculum Vitae: Reed Ferber PhD ATC

Education

Year Completed	Education	Institution
2004	Post Doctoral Research Fellow	University of Calgary, AB
2003	Post Doctoral Research Fellow	University of Delaware, Newark, Delaware, USA
2001	PhD	University of Oregon, Eugene, Oregon, USA
1998	MSc	University of Oregon, Eugene, Oregon, USA
1993	BPhEd	University of Calgary, AB

Licensure/Certification

Year Completed	Licensure/Certification	Institution
1997-Current	Athletic Trainer Certification	National Athletic Trainers Association
1997-2014	Certified Athletic Therapist	Canadian Athletic Therapists Association

Academic Appointments

Year of Appointment	Institution	Academic Rank
2017-present	University of Calgary	Professor
2013-present	Canadian Memorial Chiropractic College	Adjunct Professor
2008-present	Sports Performance Research Institute New Zealand	Research Associate

Administrative Appointments

Year of Appointment	Institution	Position
2004-present	University of Calgary, Running Injury Clinic	Director & Chief Scientific Officer

Teaching Experience

Dates	Institution	Title of Course	Course Level
2011-2013, 2016-2019	University of Calgary	KNES 260	Undergraduate
2014-2018	University of Calgary	KNES 460	Undergraduate
2010-2012, 2014-2018	University of Calgary	KNES 259	Undergraduate
2014	University of Calgary	KNES 503.61	Undergraduate

Scholarship

Scholarship of Discovery

Type	Project Title /Dates	Funding Source and Amount	Project Members/Roles	Peer-reviewed Scholarly Products Dissemination
D	Developing a Wearable Intervention to Prevent Lower Back Pain Among Nursing Students: a Pilot Study. 2017	University of Calgary, Faculty of Nursing Research Operating Grant \$25,000	PI: Duffett-Leger, L. Co-Is: Ferber, R. , Jacob C.	
D	Exploring Factors Contributing to Nursing Students' and Graduate Nurses' Risk for Lower Back Pain: a Pilot Study. 2017	University of Calgary, Faculty of Nursing Interdisciplinary Team Development Fund; matching funds received through the STiMM program (PI: Ferber, R.) funded through the Vice-President Research Office \$25,000	PI: Duffett-Leger, L. Co-Is: Ferber, R. , Jacob C.	
D	Sensor Technology in Monitoring Movement (STiMM). 2016-2020	University of Calgary, Vice-President Research \$200,000	PI: Ferber, R.	
D	Development of LiDAR Based Clinical Gait	Alberta Innovates: Technology	PI: Ferber, R.	

	Analysis. 2016-2018	Futures, r&D Associates Program \$124,000		
D	Wearable Technology to Monitor Running Injuries. 2016-2018	National Research Council, Industrial Research Assistance Program \$82,000	PI: Ferber, R.	<p>Journal Articles</p> <p>Benson, L. C., Clermont, C. A., Osis, S. T., Kobsar, D., & Ferber, R. (2018). Classifying running speed conditions using a single wearable sensor: Optimal segmentation and feature extraction methods. <i>Journal of Biomechanics</i>, 71, 94-99. doi:10.1016/j.jbiomech.2018.01.034</p> <p>Benson, L. C., Clermont, C. A., Bošnjak, E., & Ferber, R. (2018). The use of wearable devices for walking and running gait analysis outside of the lab: A systematic review. <i>Gait and Posture</i>, 63, 124-138. doi:10.1016/j.gaitpost.2018.04.047</p> <p>Kobsar, D., Osis, S. T., Boyd, J. E., Hettinga, B. A., & Ferber, R. (2017). Wearable sensors to predict improvement following an exercise intervention in patients with knee osteoarthritis. <i>Journal of Neuroengineering and Rehabilitation</i>, 14(1), 94. doi:10.1186/s12984-017-0309-z</p>
D	Methods to Determine Subject-Specific Movement Gait Patterns Using Wearable Technology. 2016-2017	Natural Sciences & Engineering Research Council, Idea-2- Innovation Grant \$125,000	PI: Ferber, R. Co-Investigator: Kuo, A.	
D	Methods to Determine Subject-Specific Movement Gait Patterns Using 3D Accelerometry Signals. 2016-2017	University of Calgary, Faculty of Kinesiology Seed Grant \$50,000	PI: Ferber, R.	

D	Treatment of Recalcitrant Patellofemoral Pain Using Synvisc Injection: a Randomized Controlled Trial. 2015-2017	Sanofi Canada Inc. \$15,750	Co-Investigator: Ferber, R.	<p>Journal Articles</p> <p>Watari, R., Osis, S., & Ferber, R. (2018). Use of baseline pelvic acceleration during running for classifying response to muscle strengthening treatment in patellofemoral pain: A preliminary study. <i>Clinical Biomechanics</i>, 57, 74-80. doi:10.1016/j.clinbiomech.2018.06.010</p> <p>Fox, A., Saunders, N., Bonacci, J., Ferber, R., & Osis, S. (2018). Gait kinematics in individuals with acute and chronic patellofemoral pain. <i>Medicine & Science in Sports & Exercise</i>, 50(3), 502-509. doi:10.1249/MSS.0000000000001465</p> <p>Earl-Boehm, J. E., Bolgla, L. A., Emory, C., Hamstra-Wright, K. L., Tarima, S., & Ferber, R. (2018). Treatment success of hip and core or knee strengthening for patellofemoral pain: Development of clinical prediction rules. <i>Journal of Athletic Training</i>. doi:10.4085/1062-6050-510-16</p> <p>Hamstra-Wright, K. L., Earl-Boehm, J., Bolgla, L., Emory, C., & Ferber, R. (2017). Individuals with patellofemoral pain have less hip flexibility than controls regardless of treatment outcome. <i>Clinical Journal of Sport Medicine</i>, 27(2), 97-103. doi:10.1097/JSM.0000000000000307</p> <p>Hamstra-Wright, K. L., Aydemir, B., Earl-Boehm, J., Bolgla, L., Emory, C., & Ferber, R. (2017). Lasting improvement of patient-reported outcomes 6 months after patellofemoral pain rehabilitation. <i>Journal of Sports Rehabilitation</i>,</p>
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				<p>26(4), 223-233. doi:10.1123/jsr.2015-0176</p> <p>Watari, R., Kobsar, D., Phinyomark, A., Osis, S., & Ferber, R. (2016). Determination of patellofemoral pain sub-groups and development of a method for predicting treatment outcome using running gait kinematics. <i>Clinical Biomechanics</i>, 38, 13-21. doi:10.1016/j.clinbiomech.2016.08.003</p> <p>Bolgia, L. A., Earl-Boehm, J., Emery, C., Hamstra-Wright, K., & Ferber, R. (2016). Pain, function, and strength outcomes for males and females with patellofemoral pain who participate in either a hip/core-or knee-based rehabilitation program. <i>International Journal of Sports Physical Therapy</i>, 11(6), 926-935. Retrieved from https://spts.org/docs/default-source/v11n6/ijspt-11_6-08-bolgia_abs.pdf?sfvrsn=ea2aea64_2</p> <p>Ferber, R., Bolgia, L., Earl-Boehm, J. E., Emery, C., & Hamstra-Wright, K. (2015). Strengthening of the hip and core versus knee muscles for the treatment of patellofemoral pain: A multicenter randomized controlled trial. <i>Journal of Athletic Training</i>, 50(4), 366-377. doi:10.4085/1062-6050-49.3.70</p> <p>Bolgia, L. A., Earl-Boehm, J., Emery, C., Hamstra-Wright, K., & Ferber, R. (2014). Comparison of hip and knee strength in males with and without patellofemoral pain. <i>Physical Therapy in Sport</i> 16(3), 215-221. doi:10.1016/j.ptsp.2014.11.001</p>
D	Dysfunctional Breathing in Pediatric	Canadian Physiotherapy Association:	Co-Investigator: Ferber, R.	

	Asthma: a Case For Physiotherapy Intervention? 2015-2017	Clinical Research Innovation Grant \$10,700		
D	run3 Opportunity Assessment. 2015-2016	National Research Council – Business Innovation Access Program \$38,448	PI: Ferber, R.	
D	Methods to Improve the Reliability of Biomechanical Gait Kinematic Data. 2014-2019	Natural Sciences and Engineering Research Council, Discovery Grant \$195,000	PI: Ferber, R.	<p>Journal Articles</p> <p>Phinyomark, A., Petri, G., Ibáñez-Marcelo, E., Osis, S. T., & Ferber, R. (2018). Analysis of big data in gait biomechanics: Current trends and future directions. <i>Journal of Medical and Biological Engineering</i>, 38(2), 244-260. doi:10.1007/s40846-017-0297-2</p> <p>Jafarnezhadgero, A., Madadi Shad, M., & Ferber, R. (2018). The effect of foot orthoses on joint moment asymmetry in male children with flexible flat feet. <i>Journal of Bodywork and Movement Therapies</i>, 22(1), 83-89. doi:10.1016/j.jbmt.2017.04.007</p> <p>Macaulay, C. A. J., Osis, S. T., Clermont, C., & Ferber, R. (2017). The use of real-time feedback to improve kinematic marker placement consistency among novice examiners. <i>Gait and Posture</i>, 58, 440-445. doi:10.1016/j.gaitpost.2017.08.040</p> <p>Osis, S. T., Hettinga, B. A., & Ferber, R. (2016). Predicting ground contact events for a continuum of gait types: An application of targeted machine learning using principal component analysis. <i>Gait and Posture</i>, 46, 86-90. doi:10.1016/j.gaitpost.2016.02.021</p>

D	Consequences of Knee Joint Injury in Youth Sport: Implications for Knee Osteoarthritis and Other Health Outcomes. 2014-2017	Canadian Institutes of Health Research, Operating Grant \$519,999	PI: Emery, C. Co-Is: Brussoni, M., Doyle-Baker, P., Ezzat, A., Ferber, R. , Jaremko, J, Kang, J., Krawetz, R., Marshall, D., Mckay, C., Ronsky, J., Whittaker, J., Wiley, P., Woodhouse, L.	
D	Methods to Improve the Reliability of Biomechanical Gait Kinematic Data. 2014-2017	Natural Sciences and Engineering Research Council, Accelerator Award \$120,000	PI: Ferber, R.	<p>Journal Articles</p> <p>Floria, P., Sanchez-Sixto, A., Ferber, R., & Harrison, A. J. (2018). Effects of running experience on coordination and its variability in runners. <i>Journal of Sports Sciences</i>, 36(3), 272-278. doi:10.1080/02640414.2017.1300314</p> <p>Clermont, C. A., Benson, L. C., Osis, S. T., Kobsar, D., & Ferber, R. (2018). Running patterns for male and female competitive and recreational runners based on accelerometer data. <i>Journal of Sports Sciences</i>, 1-8. doi:10.1080/02640414.2018.1488518</p> <p>Clermont, C. A., Phinyomark, A., Osis, S. T., & Ferber, R. (2017). Classification of higher- and lower-mileage runners based on running kinematics. <i>Journal of Sport and Health Science</i>. doi:10.1016/j.jshs.2017.08.003</p> <p>Clermont, C. A., Osis, S. T., Phinyomark, A., & Ferber, R. (2017). Kinematic gait patterns in competitive and recreational runners. <i>Journal of Applied Biomechanics</i>, 33(4), 268-276.</p>

				<p>doi:10.1123/jab.2016-0218</p> <p>Ahamed, N. U., Benson, L., Clermont, C., Osis, S. T., & Ferber, R. (2017). Fuzzy inference system-based recognition of slow, medium and fast running conditions using a triaxial accelerometer. <i>Procedia Computer Science, 114</i>, 401-407. doi:10.1016/j.procs.2017.09.054</p> <p>Watari, R., Hettinga, B., Osis, S., & Ferber, R. (2016). Validation of a torso-mounted accelerometer for measures of vertical oscillation and ground contact time during treadmill running. <i>Journal of Applied Biomechanics, 32</i>(3), 306-310. doi:10.1123/jab.2015-0200</p> <p>Osis, S. T., Hettinga, B. A., Macdonald, S., & Ferber, R. (2016). Effects of simulated marker placement deviations on running kinematics and evaluation of a morphometric-based placement feedback method. <i>PloS One, 11</i>(1), e0147111. doi:10.1371/journal.pone.0147111</p> <p>Fukuchi, R. K., Stefanyshyn, D. J., Stirling, L., & Ferber, R. (2016). Effects of strengthening and stretching exercise programmes on kinematics and kinetics of running in older adults: A randomised controlled trial. <i>Journal of Sports Sciences, 34</i>(18), 1774-1781. doi:10.1080/02640414.2015.1137343</p> <p>Phinyomark, A., Hettinga, B. A., Osis, S., & Ferber, R. (2015). Do intermediate- and higher-order principal components contain useful information to detect subtle changes in lower extremity biomechanics during running?</p>
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				<p><i>Human Movement Science</i>, 44, 91-101. doi:10.1016/j.humov.2015.08.018</p> <p>Phinyomark, A., Hettinga, B. A., Osis, S. T., & Ferber, R. (2014). Gender and age-related differences in bilateral lower extremity mechanics during treadmill running. <i>PLoS One</i>, 9(8), e105246. doi:10.1371/journal.pone.0105246</p> <p>Osis, S. T., Hettinga, B. A., Leitch, J., & Ferber, R. (2014). Predicting timing of foot strike during running, independent of striking technique, using principal component analysis of joint angles. <i>Journal of Biomechanics</i>, 47(11), 2786-2789. doi:10.1016/j.jbiomech.2014.06.009</p> <p>Fukuchi, R. K., Stefanyshyn, D. J., Stirling, L., Duarte, M., & Ferber, R. (2014). Flexibility, muscle strength and running biomechanical adaptations in older runners. <i>Clinical Biomechanics</i>, 29(3), 304-310. doi:10.1016/j.clinbiomech.2013.12.007</p> <p>Eslami, M., Damavandi, M., & Ferber, R. (2014). Association of navicular drop and selected lower-limb biomechanical measures during the stance phase of running. <i>Journal of Applied Biomechanics</i>, 30(2), 250-254. doi:10.1123/jab.2011-0162</p>
D	LiDAR Based Clinical 3D GAIT Analysis System. 2014-2015	National Research Council, Industrial Research Assistance Program \$146,000	PI: Ferber, R.	<p>Journal Article Kobsar, D., Osis, S. T., Hettinga, B. A., & Ferber, R. (2014). Classification accuracy of a single tri-axial accelerometer for training background and experience level in runners. <i>Journal of Biomechanics</i>, 47(10), 2508-2511. doi:10.1016/j.jbiomech.2014.04.017</p>

D	The Relationship Between Patellofemoral Pain Syndrome, Gait Biomechanics, and Muscular Strength. 2008-2015	Alberta Heritage Foundation for Medical Research, Population Health New Investigator Award \$325,000	PI: Ferber, R.	<p>Journal Articles</p> <p>Ferber, R., Osis, S. T., Hicks, J. L., & Delp, S. L. (2016). Gait biomechanics in the era of data science. <i>Journal of Biomechanics</i>, 49(16), 3759-3761. doi:10.1016/j.jbiomech.2016.10.033</p> <p>Pohl, M. B., Kendall, K. D., Patel, C., Wiley, J. P., Emery, C., & Ferber, R. (2015). Experimentally reduced hip-abductor muscle strength and frontal-plane biomechanics during walking. <i>Journal of Athletic Training</i>, 50(4), 385-391. doi:10.4085/1062-6050-49.5.07</p> <p>Phinyomark, A., Osis, S., Hettinga, B. A., Leigh, R., & Ferber, R. (2015). Gender differences in gait kinematics in runners with iliotibial band syndrome. <i>Scandinavian Journal of Medicine and Science in Sports</i>, 25(6), 744-753. doi:10.1111/sms.12394</p> <p>Phinyomark, A., Osis, S., Hettinga, B. A., & Ferber, R. (2015). Kinematic gait patterns in healthy runners: A hierarchical cluster analysis. <i>Journal of Biomechanics</i>, 48(14), 3897-3904. doi:10.1016/j.jbiomech.2015.09.025</p> <p>Osis, S. T., Hettinga, B. A., Macdonald, S. L., & Ferber, R. (2015). A novel method to evaluate error in anatomical marker placement using a modified generalized procrustes analysis. <i>Computer Methods in Biomechanics and Biomedical Engineering</i>, 18(10), 1108-1116. doi:10.1080/10255842.2013.873034</p> <p>Leigh, R. J., Pohl, M. B., & Ferber, R. (2014). Does tester experience influence the reliability with which 3D gait kinematics are collected in</p>
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				<p>healthy adults? <i>Physical Therapy in Sport</i> 15(2), 112-116. doi:10.1016/j.ptsp.2013.04.003</p> <p>Kendall, K. D., Emery, C. A., Wiley, J. P., & Ferber, R. (2014). The effect of the addition of hip strengthening exercises to a lumbopelvic exercise programme for the treatment of non-specific low back pain: A randomized controlled trial. <i>Journal of Science and Medicine in Sport</i>, 18(6), 626-631. doi:10.1016/j.jsams.2014.11.006</p>
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Scholarship of Teaching

Type	Project Title /Dates	Funding Source and Amount	Project Members/Roles	Peer-reviewed Scholarly Products Dissemination
T	Wearable Technology Research and Collaboration (We-TRAC) Training Program. 2018-2024	Natural Sciences and Engineering Research Council, Collaborative Research and Training Experience Program (CREATE) Program \$1.65 million	PI: Ferber, R. Co-Is: Boyd, J., Duffet-Leger, L., Edwards, B., El-Sheimy, N., Jacob, C., Leung, H., Liang, S., Saunders, C., Stefanyshyn, D., Yanushekevich, S.	

Scholarship of Application

Type	Project Title /Dates	Funding Source and Amount	Project Members/Roles	Peer-reviewed Scholarly Products Dissemination
A	Canadian MSK Rehab Research Network. 2016-2018	Canadian Institutes of Health Research, Catalyst Grant: Musculoskeletal Rehab and ME/CFS Network Grant \$599,979	Co-PIs: Astephen Wilson, J., Birmingham, T., Lyddiatt, A., Macdermid, J., Robinovitch, S., Roy, J-S. Co-Is: Ashe, M., Beaton, D., Beaupre, L., Begon, M.,	Journal Articles Osis, S. T., Kobsar, D., Leigh, R. J., Macaulay, C. A. J., & Ferber, R. (2017). An expert system feedback tool improves the reliability of clinical gait kinematics for older adults with lower limb osteoarthritis. <i>Gait and Posture</i> , 58, 261-267. doi:10.1016/j.gaitpost.2017.08.011 Phinyomark, A., Osis, S. T., Hettinga,

			<p>Bouyer, L., Carlesso, L., Choinière, M., Côté, J., Dahan-Oliel, N., Deluzio, K., Desmeules, F., Dionne, C., Emery, C., Feldman, F., Ferber, R. and 38 others</p>	<p>B. A., Kobsar, D., & Ferber, R. (2016). Gender differences in gait kinematics for patients with knee osteoarthritis. <i>BMC Musculoskeletal Disorders</i>, 17, 157. doi:10.1186/s12891-016-1013-z</p> <p>Park, S. K., Kobsar, D., & Ferber, R. (2016). Relationship between lower limb muscle strength, self-reported pain and function, and frontal plane gait kinematics in knee osteoarthritis. <i>Clinical Biomechanics</i>, 38, 68-74. doi:10.1016/j.clinbiomech.2016.08.009</p> <p>Leigh, R. J., Osis, S. T., & Ferber, R. (2016). Kinematic gait patterns and their relationship to pain in mild-to-moderate hip osteoarthritis. <i>Clinical Biomechanics</i>, 34, 12-17. doi:10.1016/j.clinbiomech.2015.12.010</p> <p>Kobsar, D., Osis, S. T., Phinyomark, A., Boyd, J. E., & Ferber, R. (2016). Reliability of gait analysis using wearable sensors in patients with knee osteoarthritis. <i>Journal of Biomechanics</i>, 49(16), 3977-3982. doi:10.1016/j.jbiomech.2016.11.047</p> <p>Kobsar, D., Osis, S. T., Hettinga, B. A., & Ferber, R. (2015). Gait biomechanics and patient-reported function as predictors of response to a hip strengthening exercise intervention in patients with knee osteoarthritis. <i>PloS One</i>, 10(10), e0139923. doi:10.1371/journal.pone.0139923</p>
A	Alberta Program in Youth Sport and Recreational Injury Prevention.	Alberta Innovates – Health Solutions, Collaborative Research	Co-PIs: Emery, C., Hagel, B. Co-Investigator: Ferber, R.	

	2013-2018	Innovation Opportunity Program \$2.5 million		
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Scholarship of Integration

Type	Project Title /Dates	Funding Source and Amount	Project Members/Roles	Peer-reviewed Scholarly Products Dissemination
I	Detecção automática de padrões de movimento associados a lesões de corrida. 2016		Fukuchi, R., & Ferber, R.	Chapter Fukuchi, R., & Ferber, R. (2016). Detecção automática de padrões de movimento associados a lesões de corrida. In Artmed (Ed.), <i>Fisioterapia esportiva e traumato-ortopédica</i> (Vol. 3, pp. 127-160). Santo André, Brazil: Sociedade Nacional de Fisioterapia Esportiva.
I	Human anatomy and physiology I and II lab manual. 2015		Ferber, R., & Nettleton, J.	Books Ferber, R., & Nettleton, J. (2015). <i>Human anatomy and physiology I lab manual</i> . Toronto, Canada: Wiley. Ferber, R., & Nettleton, J. (2015). <i>Human anatomy and physiology II lab manual</i> . Toronto, Canada: Wiley.
I	Running mechanics and gait analysis. 2014		Ferber, R., & Macdonald, S	Books Ferber, R., & Macdonald, S. (2014). <i>Running mechanics and gait analysis</i> . Champaign, IL: Human Kinetics.
	The science behind foot orthotics. 2014		Ferber, R.	Chapter Ferber, R. (2014). The science behind foot orthotics. In W. R., F. O'Connor, & E. Magrum (Eds.), <i>Running medicine</i> (2nd ed., pp. 2050-2074). Monterey, CA: Healthy Learning.

Professional Memberships

Date	Organization
1997-2014	Canadian Athletic Therapists Association
1997-present	National Athletic Trainers Association