

# COMPENDIUM – THE PHYSIOLOGY & BIOMECHANICS OF AGING

York University Centre for Aging Research and  
Education (YU-CARE)

The research produced by YU-CARE members and associates\* along the theme of the physiology and biomechanics of aging are impactful at the individual, organizational, and societal levels. Research spans from topics including:

Pain and aging .....	2
Physiology & biomechanics and aging .....	6
Physical activity and aging .....	11

\*Authors shown in bold indicate a YU-CARE committee or associate member.

Please click the hyperlink (content highlighted and underlined in blue) at each citation to find each article or abstract.

For more information or trouble accessing links, please contact the YU-CARE Coordinator at [yu\\_care@yorku.ca](mailto:yu_care@yorku.ca).

## PAIN AND AGING

1. Adeyinka BO, Gatti AA, **Chopp-Hurley JN**. (2023). Investigating the relationship between physical activity and self-reported outcomes in adults with rotator cuff related shoulder pain. *Physiotherapy Theory and Practice*, (Online ahead of print) [doi: 10.1080/09593985.2023.2250438](https://doi.org/10.1080/09593985.2023.2250438)
2. Azoulay L, St-Jean A, Dahl M, Quail J, Aibibula W, Brophy JM, Chan AW, Bresee L, Carney G, Eltonsy S, **Tamim H**, Paterson JM, Platt RW; Canadian Network for Observational Drug Effect Studies (CNODES) Investigators. Hydrochlorothiazide use and risk of keratinocyte carcinoma and melanoma: A multisite population-based cohort study. *J Am Acad Dermatol*. 2023 Aug;89(2):243-253. doi: 10.1016/j.jaad.2023.04.035. Epub 2023 Apr 25. PMID: 37105517. <https://doi.org/10.18103/mra.v11i7.2.4131>
3. Bulanov V, Zakharov A, **Sergio LE**, Lebedev M (2021) Post-Stroke Rehabilitation with a P300 Brain-Computer Interface Combined with Robotics and Virtual Reality. A Case Series Report. *International Journal of Neural Systems special issue on Brain/Neural-assistive technologies*, May 2021: <http://dx.doi.org/10.2139/ssrn.3811232>
4. Bunch M, Johnson M, Moro S, Adams MS, **Sergio LE** (2021) Language Games of Disability and Cure: Recommendations for Neurorehabilitation Research from a Critical Disability Studies Perspective. *Disability and Rehabilitation* DOI: 10.1080/09638288.2021.1982024
5. Gabriel GA, **Harris LR**, Gnanasegaram J, Cushing S, Gordon K, Haycock B, Pichora-Fuller MK, Campos JL. Vestibular Perceptual Thresholds in Older Adults with and without Age-Related Hearing Loss. *Ear and Hearing*. 2021 Sep 15. doi: 10.1097/AUD.0000000000001118. Online ahead of print.
6. Patelia, S., Fraser-Thomas, J., & **Baker, J**. (2021). Coaching for psychosocial assets and life skills in Masters sport. In B. Callary, B. Young and S. Rathwell (Eds.) *Coaching masters sport*. Routledge.

7. Stone, R., Gage, W. & **Baker, J.** (2021). The intersecting influence of age and performance stereotypes on physical and psychological aspects of stair navigation in older adults. *Journal of Applied Gerontology*, 40, 1865-1875.
  
8. Dormuth CR, Fisher A, Hudson M, Austin PC, Ernst P, Bresee L, Chateau D, **Tamim H**, Paterson JM, Lafrance JP, Taylor-Gjevre RM, Platt RW, Canadian Network For Observational Drug Effect Studies Cnodes Investigators. Impact of using concomitant conventional DMARDs on adherence to biologic DMARD treatment in rheumatoid arthritis: Multi-centre, population-based cohort study. *Semin Arthritis Rheum*. 2021 Aug 19:S0049-0172(21)00156-6. doi: 10.1016/j.semarthrit.2021.08.002.
  
9. Cressman EK, Salomonczyk D, Constantin A, Miyasaki J, Moro E, Chen R, Strafella A, Fox S, Lang AE, Poizner H, **Henriques DYP**. Proprioceptive recalibration following implicit visuomotor adaptation is preserved in Parkinson’s disease. *Exp Brain Res*, 2021. doi: 10.1007/s00221-021-06075-y
  
10. Eggert T, **Henriques DYP**, ’t Hart BM, Straube A. Modeling inter-trial variability of pointing movements during visuomotor adaptation. *Biol Cybern*, 2021. doi: 10.1007/s00422-021-00858-w
  
11. Gauthier, L.R., Dworkin, R.H., Warr, D., Pillai Riddell, R., Macpherson, A., Rodin, G., Zimmermann, C., Librach, S.L., Moore, M., Shepherd, F.A., & **Gagliese, L.** (April, 2018). Age-related patterns in cancer pain and its psychosocial impact: investigating the role of variability in physical and mental health quality of life. *Pain Medicine*, 19(4):658-676. (6 citations)
  
12. Goodall, S., Gauthier, L.R., Li, M., Connor, M., Chan, V., Easson, A., **Gagliese, L.** (May, 2018). The impact of inflammatory cytokines and biopsychosocial factors on acute pain after breast cancer surgery. *39th Annual Scientific Meeting of the Canadian Pain Society*, Montreal, QC. *Canadian Journal of Pain*, 2(1): A165.
  
13. **Gagliese, L.**, Gauthier, L. R., Narain, N., & Freedman, T. (2018). Pain, aging and dementia: Towards a biopsychosocial model. [Progress in Neuro-Psychopharmacology and Biological Psychiatry](#), 87, 207-215.

14. Caraiscos, V. B., Rodin, G., Mischitelle, A., Yuen, D., Khan, S., Minden, M., Schimmer, A., **Gagliese, L.**, Rydall, A., Zimmermann, C. (June, 2014). Pain and its management in inpatients with acute leukemia. *Annual Meeting of the Multinational Association of Supportive Care in Cancer*, Miami, Florida. *Journal of Palliative Care* 30(3): 236
15. Gauthier, L. R., Dworkin, R. H., Warr, D., Riddell, R. P., Macpherson, A. K., Rodin, G., ... **Gagliese, L.** (2017). Age-Related Patterns in Cancer Pain and Its Psychosocial Impact: Investigating the Role of Variability in Physical and Mental Health Quality of Life. [Pain Medicine, 19\(4\), 658-676.](#)
16. **Gagliese, L.**, Gauthier, L. R., Narain, N., & Freedman, T. (2017). Pain, aging and dementia: Towards a biopsychosocial model. [Progress in Neuro-Psychopharmacology and Biological Psychiatry.](#)
17. Mah, K.\*, Tran, K.T.\*, Gauthier, L.R., Rodin, G., Zimmermann, C., Warr, D.G., Librach, S.L., Moore, M.J., Shepherd, F.A., & **Gagliese, L.** (2017). Psychometric evaluation of the Pain Attitudes Questionnaire-Revised for younger and older people with advanced cancer. Submitted to [The Journal of Pain](#). \*Co-first authors
18. Gauthier, L.R., Dworkin, R.H., Warr, D., Pillai Riddell, R., Macpherson, A., Rodin, G., Zimmermann, C., Librach, S.L., Moore, M., Shepherd, F.A., & **Gagliese, L.** (2017) Age-related patterns in cancer pain and its psychosocial impact: investigating the role of variability in physical and mental health quality of life. Submitted to [Pain Medicine](#).
19. Hochman, J.R., Davis, A.M., Elkayam J., **Gagliese, L.**, & Hawker G.A., (2013) Neuropathic pain symptoms on the Modified painDETECT correlate with signs of central sensitization in knee osteoarthritis. [Osteoarthritis and Cartilage 21\(9\) S1: 1236-1242.](#)
20. **Gagliese, L.**, Katz, L., Gibson, M., Clark, A. J., Lussier, D., Gordon, A., & Salter, M. W. (2012). A brief educational intervention about pain and aging for older members of the community and health care workers. [Journal of Pain, 13\(9\), 849-856.](#)
21. **Gagliese, L.**, & Melzack, R. (2003). Age-related differences in the qualities but not the intensity of chronic pain. [Pain, 104, 597-608.](#)
22. **Gagliese, L.**, & Melzack, R. (1997). Chronic pain in elderly people. [Pain, 70, 3-14](#)
23. **Gagliese, L.**, & Melzack, R. (1997). Lack of evidence for age differences in pain beliefs. [Pain Research and Management, 2, 19-28.](#)
24. **Gagliese, L.**, & Melzack, R. (1997). Age differences in the quality of chronic pain. [Pain Research and Management, 2, 157-162.](#)

25. **Meisner, B. A.**, Linton, V., Séguin, A., & Spassiani, N. A. (2017). Examining chronic disease, pain-related impairment, and physical activity among middle-aged and older adults in Canada: Implications for current and future aging populations. [Topics in Geriatric Rehabilitation, 33\(3\), 182-192.](#)
26. Mah, K., Tran, K. T., Gauthier, L. R., Rodin, G., Zimmermann, C., Warr, D., ... & **Gagliese, L.** (2018). Do Correlates of Pain-Related Stoicism and Cautiousness Differ in Younger and Older People With Advanced Cancer?. [Journal of Pain, 19\(3\), 301-316.](#)
27. **Gagliese, L.** (2009). Pain and aging: The emergence of a new subfield of pain research. [Journal of Pain 10\(4\):343-53.](#)
28. **Gagliese, L.**, Jovellanos, M., Zimmermann, C., Shobbrook, C., Warr, D., Rodin, G. (2009) Age-related patterns in adaptation to cancer pain: A mixed-method study. [Pain Medicine 10\(6\): 1050-1061.](#)
29. **Gagliese, L.**, Gauthier, L., & Rodin, G.M., (2007). Cancer pain and depression: A systematic review of age-related patterns. [Pain Research and Management, 20\(3\), 205-211](#)
30. **Gagliese, L.**, Weizblit, N., Ellis, W. & Chan, V. (2005). The measurement of postoperative pain: A comparison of intensity scales in younger and older surgical patients. [Pain, 117, 412-20.](#)

## PHYSIOLOGY & BIOMECHANICS AND AGING

1. Triolo, Oliveira, A. N., Kumari, R., & Hood, D. A. (2022). The influence of age, sex, and exercise on autophagy, mitophagy, and lysosome biogenesis in skeletal muscle. *Skeletal Muscle*, 12(1), 13–13. <https://doi.org/10.1186/s13395-022-00296-7>
2. Di Bacco, Kiriella, J. B., & Gage, W. H. (2022). The Influence of the Relative Timing between Pole and Heel Strike on Lower Limb Loading among Young and Older Naïve Pole Walkers. *Translational Sports Medicine*, 2022. <https://doi.org/10.1155/2022/3938075>
3. Memme, J.M., Erlich, A.T., Phukan, G., & **Hood**, D.A. (2021). Exercise and Mitochondrial Health. *The Journal of Physiology*, 599(3), 803-817. <https://doi.org/10.1113/JP278853>
4. Triolo, M., & **Hood**, D.A. (2021). Manifestations of Age on Autophagy, Mitophagy and Lysosomes in Skeletal Muscle. *Cells* (Basel, Switzerland), 10(5), 1054-. <https://doi.org/10.3390/cells10051054>
5. Kathnelson, J.D., Kurtz Landy, C.M., **Tamim**, H., Ditor, D.S., & **Gage**, W.H. (2021). Utilizing the Delphi Method to Assess Issues of Sexuality for men Living with Spinal Cord Injury. *Sexuality and Disability*, 39(1), 33-54. <https://doi.org/10.1007/s11195-020-09673-w>
6. Verschoor, C.P., & **Tamim**, H. (2019). Frailty is inversely related to age at Menopause and elevated in women who have had a Hysterectomy: An analysis of the Canadian longitudinal study on aging. *The Journals of Gerontology. Series A, Biological and Medical Sciences*, 74(5), 675-682. <https://doi.org/10.1093/gerona/gly092>

7. Yoo, S.A., **Rosenbaum**, R.S., Tsotsos, J.K., Fallah, M., & Hoffman, K.L., (2020). Long-term memory and hippocampal function support predictive gaze control during goal-directed search. *Journal of Vision* (Charlottesville, Va), 20(5), 10-10. <https://doi.org/10.1167/jov.20.5.10>
8. Oliveira, A.N., Karmanova, L., Murugavel, S., Yanagawa, B., & **Hood**, D.A. (2020). Enhanced Mitochondrial Turnover in Aged Human Right Atrial Tissue. *The FASEB Journal*, 34(S1), 1-1.
9. Picca, A., Saini, S.K., Mankowski, R.T., Kamenov, G., Anton, S.D., Manini, T.M., Buford, T.W., Wohlgemuth, S.E., Xiao, R., Calvani, R., Coelho- Junior, H.J., Landi, F., Bernabei, R., **Hood**, D.A., Marzetti, E., & Leeuwenburgh, C. (2020). Altered Expression of Mitoferrin and Frataxin, Larger labile Iron Pool and Greater Mitochondrial DNA Damage in the Skeletal Muscle of Older Adults. *Cells* (Basel Switzerland), 9(12), 2579-. <https://doi.org/10.3390/cells9122579>
10. Bury, N. A., Jenkins, M.R., Allison, R.S., & **Harris**, L.R. (2020). Perceiving jittering self-motion in a field of lollipops from ages 4 to 95. *PloS One*, e0241087-e0241087. <https://doi.org/10.1371/journal.pone.0241087>
11. Stone, R.C., **Gage**, W.H., & Baker, J. (2020). The Intersecting Influence of Age and Performance Stereotypes on Physical and Psychological Aspects of Stair Navigation in Older Adults. *Journal of Applied Gerontology*, 733464820965340-733464820965340. <https://doi.org/10.1177/0733464820965340>
12. Kiriella, J.B., Di Bacco, V.E., Hollands, K.L., & **Gage**, W.H. (2020). Evaluation of the Effects of Prescribing Gait Complexity Using Several Fluctuating Timing Imperatives. *Journal of Motor Behaviour*, 52(5), 570-577. <https://doi.org/10.1080/00222895.2019.1654971>
13. D. Kathnelson, J., Kurtz Landy, C.M., S. Ditor, **Tamim**, H., & **Gage**, W. (2020). Examining the psychological and emotional experience of sexuality for men after spinal

cord injury. *Cogent Psychology*, 7(1),  
1722355-. <https://doi.org/10.1080/23311908.2020.1722355>

14. Kathnelson, J.D., Kurtz Landy, C.M., Ditor, D.S., **Tamim**, H., & **Gage**, W.H. (2020). Supporting sexual adjustment from the perspective of men living with spinal cord injury. *Spinal Cord*, 58(11), 1176-1182. <https://doi.org/10.1038/s41393-020-0479-6>
15. Curtis, A.F., **Turner**, G.R., **Park**, N.W., & **Murtha**, S.J.E. (2019). Improving visual spatial working memory in younger and older adults: effects of cross-modal cues. *Aging, Neuropsychology, and Cognition*, 26(1), 24-43. <https://doi.org/10.1080/13825585.2017.1397096>
16. Yu, W.W., Randhawa, A. K., Blair, S. N., Sui, X., & **Kuk**, J.L. (2019). Age- and Sex-specific all-cause mortality risk greatest in metabolic syndrome combinations with elevated blood pressure from 7 U.S. Cohorts. *PloS One*, 14(6), e0218307-e0218307. <https://doi.org/10.1371/journal.pone.0218307>
17. Al-Khalidi, B., **Kuk**, J.L., & Ardern, C.I. (2019) Lifetime risk of cardiometabolic mortality according to vitamin D status of middle and older- aged adults: NHANES III mortality follow-up. *The Journal of Steroid Biochemistry and Molecular Biology*, 186, 34-41. <https://doi.org/10.1016/j.jsbmb.2018.09.007>
18. **Hood**, D.A., Memme, J.M., Oliveira, A.N., & Triolo, M. (2019) Maintenance of Skeletal Muscle Mitochondria in Health, Exercise, and Aging. *Annual Review of Physiology*, 81(1), 19-41. <https://doi.org/10.1146/annurev-physiol-020518-114310>
19. Verniba, D., & **Gage**, W. (2020). A comparison of balance-correcting responses induced with platform-translation and shoulder-pull perturbation methods. *Journal of Biomechanics*, 112, 110017-110017. <https://doi.org/10.1016/j.jbiomech.2020.110017>



20. Verniba, D., & **Gage**, W.H. (2019). Stepping threshold with platform-translation and shoulder-pull postural perturbation methods. *Journal of Biomechanics*, 94, 224-229. <https://doi.org/10.1016/j.jbiomech.2019.07.027>
21. Erlich, A. T. and D. A. **Hood**. (2019). Mitophagy regulation in skeletal muscle: Effect of endurance exercise and age. *Journal of Science in Sport and Exercise*.
22. **Hood**, D.A., J.M. Memme, A.N. Oliveira and M. Triolo. (2019). Maintenance of skeletal muscle mitochondria in health, exercise, and aging. *Ann. Rev. Physiol.* 81:19-41.
23. Chen, C. C., Erlich, A. T., Crilly, M. J., & **Hood**, D. A. (2018). Parkin is required for exercise-induced mitophagy in muscle: Impact of aging. *American Journal of Physiology-Endocrinology and Metabolism*, 315(3).
24. Street BD, Adkin A, **Gage W**. (2018). Reported balance confidence and movement reinvestment of younger knee replacement patients are more like younger healthy individuals, than older patients. *Gait and posture*. 61:130-134.
25. Carter, H. N., Kim, Y., Erlich, A. T., Zarrin-Khat, D., & **Hood**, D. A. (2018). Autophagy and mitophagy flux in young and aged skeletal muscle following chronic contractile activity. *The Journal of Physiology*, 596(16), 3567-3584.
26. **Alkhalidi, B**, Kimball, SM, **Kuk JL** and Ardern CI.(2018). Lifetime risk of cardiometabolic mortality according to vitamin D status of middle and older-aged adults: NHANES III mortality follow-up (Journal of Steroid Biochemistry and Molecular Biology. pii: S0960-0760(18)30262-0. doi: 10.1016/j.jsbmb.2018.09.007.)
27. Street, B. D., & **Gage**, W. (2017). After total knee replacement younger patients demonstrate superior balance control compared to older patients when recovering from a forward fall. *Clinical Biomechanics*, 44, 59-66.
28. Huang J.H., A.-M. Joseph, V. Ljubicic, S. Iqbal, and D.A. **Hood**. Effect of age on the processing and import of matrix-destined mitochondrial proteins in skeletal muscle. *J. Gerontol. A Biol. Sci. Med. Sci.* 65:138-46, 2010.
29. **Scime**, A., Desrosiers, J., Trenz, F., Palidwor, G. A., Caron, A. Z., Andrade-Navarro, M. A., & Grenier, G. (2010). Transcriptional profiling of skeletal muscle reveals factors that are necessary to maintain satellite cell integrity during ageing. *Mechanisms of Ageing and Development*, 131, 9-20.
30. **Kuk**, J. I., Saunders, T. J., Davidson, L. E., & Ross, R. (2009). Age-related changes in total and regional fat distribution. *Ageing Research Reviews*, 8(4), 339-348.

31. **Kuk, J. L., & Arden, C. I.** (2009). Influence of age on the association between various measures of obesity and all-cause mortality. [American Geriatrics Society, 57, 2077-2084.](#)
32. **Kuk, J. L., Davidson, L. E., Hudson, R., Kilpatrick, K., Bacskai, K., & Ross, R.** (2008). Association between dietary fat intake, liver fat, and insulin sensitivity in sedentary, abdominally obese, older men. [Applied Physiology, Nutrition, and Metabolism, 32\(2\), 239-245.](#)
33. **Kuk, J. L., Lee, S., Heymsfield, S. B., & Ross, R.** (2005). Waist circumference and abdominal adipose tissue distribution: influence of age and sex. [American Society for Clinical Nutrition, 81, 1330-1334.](#)
34. **Brown, L., Gage, W., Polych, M., Sleik, R., & Winder, T.** (2002). Central set influences on gait: Age-dependent effects of postural threat. [Experimental Brain Research, 145\(3\), 286-296.](#)

## PHYSICAL ACTIVITY AND AGING

1. Côté-Boucher, K., Daly, T., Chivers, S., Braedley, S., & Hillier, S. (2024). Counter-narratives of active aging: Disability, trauma, and joy in the age-friendly city. *Journal of Aging Studies*, 68, 101205–101205. <https://doi.org/10.1016/j.jaging.2023.101205>
2. Sibley, D., Bassett-Gunter, R. L., & Meisner, B. A. (2023). Promoting Lifespan Physical Activity Intentions... and Aging Anxieties? The Paradox of High-Risk and Loss-Framed Messages. *Journal of Adult Development*, 30(2), 216–223. <https://doi.org/10.1007/s10804-022-09420-9>
3. Setton, Mwilambwe-Tshilobo, L., Girn, M., Lockrow, A. W., Baracchini, G., Hughes, C., Lowe, A. J., Cassidy, B. N., Li, J., Luh, W.-M., Bzdok, D., Leahy, R. M., Ge, T., Margulies, D. S., Mistic, B., Bernhardt, B. C., Stevens, W. D., De Brigard, F., Kundu, P., ... Spreng, R. N. (2022). Age differences in the functional architecture of the human brain. *Cerebral Cortex (New York, N.Y. 1991)*. <https://doi.org/10.1093/cercor/bhac056>
4. Pfeiffer, Chen, Y., Gail, M. H., & Ankerst, D. P. (2022). Accommodating population differences when validating risk prediction models. *Statistics in Medicine*, 41(24), 4756–4780. <https://doi.org/10.1002/sim.9447>
5. Adil, Kuk, J. L., & Ardern, C. I. (2022). Associations between weight discrimination and metabolic health: A cross sectional analysis of middle aged adults. *Obesity Research & Clinical Practice*, 16(2), 151–157. <https://doi.org/10.1016/j.orcp.2022.02.006>
6. Triolo, M., Slavin, M., Kim, Y., Carter, N., & Hood, D.A. (2020). Lysosomal Alterations in Skeletal Muscle Plasticity- An Investigation of Age, Exercise and Disuse. *The FASEB Journal*, 24(S1), 1-1. <https://doi.org/10.1096/fasebj.2020.34.s1.04597>

7. Zhang, Y., Oliveira, A.N., & **Hood**, D.A. (2020). The Intersection of exercise and aging on mitochondrial protein quality control. *Experimental Gerontology*, 131, 110824-110824. <https://doi.org/10.1016/j.exger.2019.110824>
8. Dixon, J., Horton, S., Chittle, L., & **Baker, J.** (2020). *Relative age effects in sport: International perspectives*. Routledge/Taylor and Francis.
9. **Hood**, D.A., J.M. Memme, A.N. Oliveira and M. Triolo.(2019). Maintenance of skeletal muscle mitochondria in health, exercise, and aging. *Ann. Rev. Physiol.* 81:19-41.
10. Chen, C.C.W., A. T. Erlich, M. J. Crilly and **D. A. Hood**.(2018). Parkin is required for exercise-induced mitophagy in muscle: impact of aging. *Am. J. Physiol. (Endocrin. Metab.)* 315:E404-E415.
11. Chen C.C.W., A.T. Erlich and **D.A. Hood**.(2018). Role of Parkin and endurance training on mitochondrial turnover in skeletal muscle. *Skelet. Muscle* 8:10.
12. Kim, Y., Triolo, M., & **Hood**, D. A. (2017). Impact of Aging and Exercise on Mitochondrial Quality Control in Skeletal Muscle. [Oxidative Medicine and Cellular Longevity, 2017, 1-16.](#)
13. Carter, H. N., Chen, C. C., & **Hood**, D. A. (2015). Mitochondria, muscle health, and exercise with advancing age. [Physiology, 30\(3\), 208-223.](#)
14. Brown, R. E., Riddell, M. C., Macpherson, A. K., Canning, K. L., & **Kuk**, J. L. (2013). The association between frequency of physical activity and mortality risk across the adult age span. [Journal of Health and Aging, 25\(2\), 803-814.](#)
15. **Meisner**, B.A., Dogra, S., Logan, A.J., **Baker**, J., & Weir, P.L. (2010). Do or decline: Comparing the effects of physical inactivity on biopsychosocial components of successful aging. [Journal of Health Psychology, 15, 688-696.](#)
16. Davidson LE, Hudson R, Kilpatrick K, et al. Effects of Exercise Modality on Insulin Resistance and Functional Limitation in Older Adults: A Randomized Controlled Trial. [Arch Intern Med. 2009;169\(2\):122–131.](#)
17. **Baker**, J., **Meisner**, B., Logan, J. Kungl, A.M., & Weir, P. (2009). Physical activity and successful aging in Canadian seniors. [Journal of Aging and Physical Activity, 17, 223-235.](#)

