**Supplementary File 1 Bibliography of Full Text Articles Excluded**

Title: Sedentary behaviour and bone health in older adults: a systematic review

Authors: Lauren McMichan\*, Michael Dick, Dawn A. Skelton, Sebastien F.M. Chastin, Neville Owen, David W. Dunstan, William D. Fraser, Jonathan C.Y. Tang, Carolyn A. Greig, Sandra Agyapong-Badu, Alexandra Mavroeidi\*.

\*Affiliation: Department of Physical Activity for Health, School of Psychological Sciences and Health, University of Strathclyde, Glasgow, United Kingdom

\* Email Address: [lauren.mcmichan@strath.ac.uk](mailto:lauren.mcmichan@strath.ac.uk) / [alexandra.mavroeidi@strath.ac.uk](mailto:alexandra.mavroeidi@strath.ac.uk)

1. Abobului M, Berghea F, Vlad V, Balanescu A, Opris D, Bojinca V, Kosevoi Tichie A, Predeteanu D, Ionescu R (2015) Evaluation of adherence to anti-osteoporosis treatment from the socio-economic context. J Med Life 8 Spec Issue:119-123

2. Adami S, Maugeri D, Toscano V, Topa G, Carminiti M, Brancati A, Massarotti M, Osella G, Malavolta N, Iolascon G, Cagnoni C, Camozzi V, Corradini C, Nardi A, Migliaccio S, Ulivieri FM, Resmini G, Valle D, Tauchmanova L, Silvestri S, Isso Study Group I (2011) Baseline characteristics of the population enrolled in the Italian Observational Study on Severe Osteoporosis (ISSO). Clin Exp Rheumatol 29 (3):477-484

3. Aggio D, Papachristou E, Papacosta O, Lennon LT, Ash S, Whincup PH, Wannamethee SG, Jefferis BJ (2019) Twenty-Year Trajectories of Physical Activity Types from Midlife to Old Age. Med Sci Sports Exerc 51 (3):481-489. doi:10.1249/MSS.0000000000001802

4. Aguado Henche S, Rodriguez Torres R, Clemente de Arriba C, Gomez Pellico L (2008) Total and regional bone mineral content in healthy Spanish subjects by dual-energy X-ray absorptiometry. Skeletal Radiol 37 (11):1025-1032. doi:10.1007/s00256-008-0519-3

5. Aguirre L, Napoli N, Waters D, Qualls C, Villareal DT, Armamento-Villareal R (2014) Increasing adiposity is associated with higher adipokine levels and lower bone mineral density in obese older adults. J Clin Endocrinol Metab 99 (9):3290-3297. doi:10.1210/jc.2013-3200

6. Al Senany S, Al Saif A (2015) Assessment of physical health status and quality of life among Saudi older adults. Journal of Physical Therapy Science 27 (6):1691–1695

7. Andreoli A, Celi M, Volpe SL, Sorge R, Tarantino U (2012) Long-term effect of exercise on bone mineral density and body composition in post-menopausal ex-elite athletes: a retrospective study. Eur J Clin Nutr 66 (1):69-74. doi:10.1038/ejcn.2011.104

8. Armamento-Villareal R, Aguirre L, Napoli N, Shah K, Hilton T, Sinacore DR, Qualls C, Villareal DT (2014) Changes in thigh muscle volume predict bone mineral density response to lifestyle therapy in frail, obese older adults. Osteoporos Int 25 (2):551-558. doi:10.1007/s00198-013-2450-2

9. Asikainen TM, Suni JH, Pasanen ME, Oja P, Rinne MB, Miilunpalo SI, Nygard CH, Vuori IM (2006) Effect of brisk walking in 1 or 2 daily bouts and moderate resistance training on lower-extremity muscle strength, balance, and walking performance in women who recently went through menopause: a randomized, controlled trial. Phys Ther 86 (7):912-923

10. Aspray TJ, Prentice A, Cole TJ (1995) The bone mineral content of weight-bearing bones is influenced by the ratio of sitting to standing height in elderly Gambian women. Bone 17 (3):261-263. doi:10.1016/8756-3282(95)00216-z

11. Bakhireva LN, Barrett-Connor E, Kritz-Silverstein D, Morton DJ (2004) Modifiable predictors of bone loss in older men: a prospective study. Am J Prev Med 26 (5):436-442. doi:10.1016/j.amepre.2004.02.013

12. Balboa-Castillo T, Leon-Munoz LM, Graciani A, Rodriguez-Artalejo F, Guallar-Castillon P (2011) Longitudinal association of physical activity and sedentary behavior during leisure time with health-related quality of life in community-dwelling older adults. Health Qual Life Outcomes 9:47. doi:10.1186/1477-7525-9-47

13. Bayramoglu M, Sozay S, Karatas M, Kilinc S (2005) Relationships between muscle strength and bone mineral density of three body regions in sedentary postmenopausal women. Rheumatol Int 25 (7):513-517. doi:10.1007/s00296-004-0475-8

14. Belavy DL, Beller G, Armbrecht G, Perschel FH, Fitzner R, Bock O, Borst H, Degner C, Gast U, Felsenberg D (2011) Evidence for an additional effect of whole-body vibration above resistive exercise alone in preventing bone loss during prolonged bed rest. Osteoporos Int 22 (5):1581-1591. doi:10.1007/s00198-010-1371-6

15. Berg HE, Eiken O, Miklavcic L, Mekjavic IB (2007) Hip, thigh and calf muscle atrophy and bone loss after 5-week bedrest inactivity. Eur J Appl Physiol 99 (3):283-289. doi:10.1007/s00421-006-0346-y

16. Berkemeyer S, Schumacher J, Thiem U, Pientka L (2009) Bone T-scores and functional status: a cross-sectional study on German elderly. PLoS One 4 (12):e8216. doi:10.1371/journal.pone.0008216

17. Blain H, Jaussent A, Thomas E, Micallef JP, Dupuy AM, Bernard P, Mariano-Goulart D, Cristol JP, Sultan C, Rossi M, Picot MC (2009) Low Sit-to-Stand Performance is Associated with Low Femoral Neck Bone Mineral Density in Healthy Women. Calcified Tissue International 84 (4):266-275

18. Booth FW, Laye MJ, Roberts MD (2011) Lifetime sedentary living accelerates some aspects of secondary aging. J Appl Physiol (1985) 111 (5):1497-1504. doi:10.1152/japplphysiol.00420.2011

19. Braun SI, Kim Y, Jetton AE, Kang M, Morgan DW (2017) Sedentary Behavior, Physical Activity, and Bone Health in Postmenopausal Women. J Aging Phys Act 25 (2):173-181. doi:10.1123/japa.2016-0046

20. Brecher LS, Pomerantz SC, Snyder BA, Janora DM, Klotzbach-Shimomura KM, Cavalieri TA (2002) Osteoporosis prevention project: a model multidisciplinary educational intervention. J Am Osteopath Assoc 102 (6):327-335

21. Buttros Dde A, Nahas-Neto J, Nahas EA, Cangussu LM, Barral AB, Kawakami MS (2011) [Risk factors for osteoporosis in postmenopausal women from southeast Brazilian]. Rev Bras Ginecol Obstet 33 (6):295-302. doi:10.1590/s0100-72032011000600006

22. Calderon-Garcia JF, Lavado-Garcia JM, Martin RR, Moran JM, Canal-Macias ML, Pedrera-Zamorano JD (2013) Bone ultrasound and physical activity in postmenopausal Spanish women. Biol Res Nurs 15 (4):416-421. doi:10.1177/1099800412459800

23. Cavalli L, Guazzini A, Cianferotti L, Parri S, Cavalli T, Metozzi A, Giusti F, Fossi C, Black DM, Brandi ML (2016) Prevalence of osteoporosis in the Italian population and main risk factors: results of BoneTour Campaign. BMC Musculoskelet Disord 17 (1):396. doi:10.1186/s12891-016-1248-8

24. Chen PH, Lin MS, Huang TJ, Chen MY (2017) Prevalence of and factors associated with adopting bone health promoting behaviours among people with osteoporosis in Taiwan: a cross-sectional study. BMJ Open 7 (9):e015980. doi:10.1136/bmjopen-2017-015980

25. Chirchir H, Ruff CB, Junno JA, Potts R (2017) Low trabecular bone density in recent sedentary modern humans. Am J Phys Anthropol 162 (3):550-560. doi:10.1002/ajpa.23138

26. Cosman F (2005) The prevention and treatment of osteoporosis: a review. MedGenMed 7 (2):73

27. Dallanezi G, Freire BF, Nahas EA, Nahas-Neto J, Corrente JE, Mazeto GM (2016) Physical Activity Level of Post-menopausal Women with Low Bone Mineral Density. Rev Bras Ginecol Obstet 38 (5):225-230. doi:10.1055/s-0036-1583757

28. Daly RM, Ahlborg HG, Ringsberg K, Gardsell P, Sernbo I, Karlsson MK (2008) Association between changes in habitual physical activity and changes in bone density, muscle strength, and functional performance in elderly men and women. J Am Geriatr Soc 56 (12):2252-2260. doi:10.1111/j.1532-5415.2008.02039.x

29. Eisman J, Clapham S, Kehoe L, Australian BoneCare S (2004) Osteoporosis prevalence and levels of treatment in primary care: the Australian BoneCare Study. J Bone Miner Res 19 (12):1969-1975. doi:10.1359/JBMR.040905

30. Gauthier P, Laflamme L, Deshaies P, Picard D (1992) The relationship of physical activity to bone mineral content in postmenopausal women. Arch Gerontol Geriatr 15 Suppl 1:173-183. doi:10.1016/s0167-4943(05)80017-2

31. Gerdhem P, Dencker M, Ringsberg K, Akesson K (2008) Accelerometer-measured daily physical activity among octogenerians: results and associations to other indices of physical performance and bone density. Eur J Appl Physiol 102(2):173–180

32. Hansen MA (1994) Assessment of age and risk factors on bone density and bone turnover in healthy premenopausal women. Osteoporos Int 4 (3):123-128. doi:10.1007/BF01623056

33. Hansen MA, Overgaard K, Riis BJ, Christiansen C (1991) Potential risk factors for development of postmenopausal osteoporosis--examined over a 12-year period. Osteoporos Int 1 (2):95-102. doi:10.1007/BF01880450

34. Hunter DJ, Sambrook PN (2000) Bone loss. Epidemiology of bone loss. Arthritis Res 2 (6):441-445. doi:10.1186/ar125

35. Jessup JV, Horne C, Vishen RK, Wheeler D (2003) Effects of exercise on bone density, balance, and self-efficacy in older women. Biol Res Nurs 4 (3):171-180. doi:10.1177/1099800402239628

36. Lindsey C, Brownbill RA, Bohannon RA, Ilich JZ (2005) Association of physical performance measures with bone mineral density in postmenopausal women. Arch Phys Med Rehabil 86 (6):1102-1107. doi:10.1016/j.apmr.2004.09.028

37. Maatta M, Terho E, Jokinen H, Pulkkinen P, Korpelainen J, Heikkinen J, Keinanen-Kiukaanniemi S, Jamsa T, Korpelainen R (2012) Lifestyle factors and site-specific risk of hip fracture in community dwelling older women--a 13-year prospective population-based cohort study. BMC Musculoskelet Disord 13:173. doi:10.1186/1471-2474-13-173

38. McMillan LB, Aitken D, Ebeling P, Jones G, Scott D (2018) The relationship between objectively-assessed physical activity and bone mineral density in older adults differs by sex and is mediated by body weight. Clinical Endocrinology 89:52-52. doi:10.1007/s00198-018-4446-4

39. Nitz JC, Stock L, Khan A (2013) Health-related predictors of falls and fractures in women over 40. Osteoporos Int 24 (2):613-621. doi:10.1007/s00198-012-2004-z

40. Oyster N, Morton M, Linnell S (1984) Physical activity and osteoporosis in post-menopausal women. Med Sci Sports Exerc 16 (1):44-50

41. Prior JC, Drayton B, Pedisic Z, Berger C, Goltzman D, Bauman A (2016) Is sitting time (sedentary behaviour) associated with bone mineral density? Results from the CaMos population based cohort. Journal of Bone and Mineral Research Conference

42. Sanfelix-Genoves J, Sanfelix-Gimeno G, Peiro S, Hurtado I, Fluixa C, Fuertes A, Campos JC, Giner V, Baixauli C (2013) Prevalence of osteoporotic fracture risk factors and antiosteoporotic treatments in the Valencia region, Spain. The baseline characteristics of the ESOSVAL cohort. Osteoporos Int 24 (3):1045-1055. doi:10.1007/s00198-012-2018-6

43. Sayed SA, Khaliq A, Mahmood A (2016) Evaluating The Risk Of Osteoporosis Through Bone Mass Density. J Ayub Med Coll Abbottabad 28 (4):730-733

44. Shokrollahi P, Rivaz M, Robatjaze M (2008) Prevalence of Risk Factors of Osteoporosis in Post-menopausal Women in Shiraz, Southern Iran. Iranian Red Crescent Medical Journal 10 (3):190-193.

45. Suominen H, Heikkinen E, Vainio P, Lahtinen T (1984) Mineral density of calcaneus in men at different ages: a population study with special reference to life-style factors. Age Ageing 13 (5):273-281. doi:10.1093/ageing/13.5.273

46. Tariq S, Lone KP, Tariq S (2016) Comparison of parameters of bone profile and homocysteine in physically active and non-active postmenopausal females. Pak J Med Sci 32 (5):1263-1267. doi:10.12669/pjms.325.10655

47. Turner LW, Leaver-Dunn D, Dibrezzo R, Fort I (1998) Physical activity and osteoporotic fracture among older women. J Athl Train 33 (3):207-210

48. Van Holle V, McNaughton SA, Teychenne M, Timperio A, Van Dyck D, De Bourdeaudhuij I, Salmon J (2014) Social and physical environmental correlates of adults' weekend sitting time and moderating effects of retirement status and physical health. Int J Environ Res Public Health 11 (9):9790-9810. doi:10.3390/ijerph110909790

49. Ye S, Song A, Yang M, Ma X, Fu X, Zhu S (2014) Duration of television viewing and bone mineral density in Chinese women. J Bone Miner Metab 32 (3):324-330. doi:10.1007/s00774-013-0504-3