Manchester Metropolitan University

e-space

Manchester Metropolitan University's Research Repository

Please cite the Published Version

Montgomery, Gallin, Tobias, Jon, Paskins, Zoe, Khera, Tarnjit, Clark, Emma and Ireland, Alex (2020) Vertebral fractures and daily pain are associated with lower physical activity in post-menopausal women with back pain. In: Bone Research Society Annual Meeting 2020, 06 July 2020 - 08 July 2020, Virtual.

Publisher: Bone Research Society (BRS)

Downloaded from: https://e-space.mmu.ac.uk/627877/

Usage rights: © In Copyright

Enquiries:
If you have questions about this document, contact openresearch@mmu.ac.uk. Please include the URL of the record in e-space. If you believe that your, or a third party's rights have been compromised through this document please see our Take Down policy (available from https://www.mmu.ac.uk/library/using-the-library/policies-and-guidelines)

Vertebral fractures and daily pain are associated with lower physical activity in postmenopausal women with back pain

Gallin Montgomery[1], Jon H Tobias[2], Zoe Paskins[3], Tarnjit K Khera[2], Emma M Clark[2], Alex Ireland[1]

[1]Musculoskeletal Science and Sports Medicine Research Centre, Manchester Metropolitan University, Manchester, United Kingdom. [2]Musculoskeletal Research Unit, University of Bristol, Bristol, United Kingdom. [3]School of Primary, Community and Social Care, Keele University, Staffordshire, United Kingdom

Abstract

Around 12% of women have vertebral fractures (VFs), and many of these individuals also have back pain which limits physical activity (PA). PA is important for health, but little is known about how VFs affect PA, and if so how this compares with individuals with back pain due to other causes.

Therefore, we recruited 37 postmenopausal women from primary care with back pain, in whom the presence or absence of VFs was ascertained by spine radiographs. To provide an objective PA measure, vertical accelerations were recorded at 100 Hz for 7 days using a hip-worn GT3X+ accelerometer (Actigraph, USA). The number of low (0.5g-<1g), medium (1 g-<2g) and high impacts (>2g) was recorded. Participants also recorded their average back pain each day using a 10-point Likert scale. Linear mixed-effects models were used to assess group differences (fracture/no-fracture cases) in low, medium and high-impact PA, and associations between daily pain and different PA impact levels. Daily PA and pain data had non-normal distributions and were log-transformed.

12 women were found to have previously sustained VFs. These participants had lower levels of low-impact PA (regression coefficient -0.64, 95%CI -1.03 to -0.25, P=0.002) but not medium or high-impact PA (both P>0.2). Across all participants, higher daily pain was associated with lower high-impact PA levels (-0.08, 95%CI -0.14 to -0.02, P=0.014) and weakly with medium–impact PA (-0.1, 95%CI -0.22 to 0.02, P=0.081) but not low-impact PA (P=0.25).

These results suggest that VFs and daily pain are associated with lower levels of low and high-impact PA respectively, shown previously to differentially affect components of health. Low levels of low-impact PA in women with VFs may impair weight control in these women. In contrast, reduced PA, in particular high-impact PA, in women with higher daily pain levels may increase the risk of sarcopenia and osteoporosis.