



Supplementary Material

10.1302/2046-3758.910.BJR-2019-0368.R2

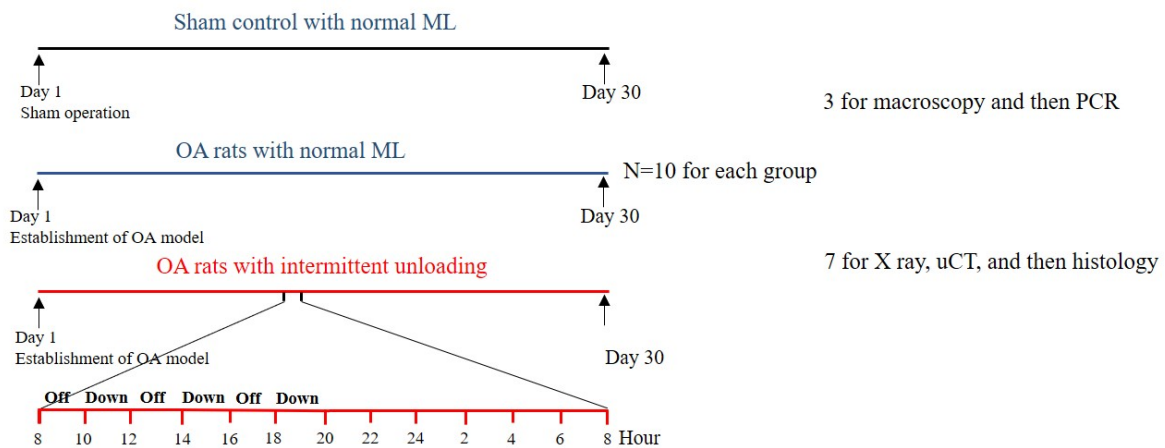


Fig. a. A descriptive figure for the protocol of unloading and grouping. The rats were divided into three groups ($n = 10$ in each group): one sham control group with normal mechanical loading (ML), one positive control group with osteoarthritis (OA) rats being treated with normal ML, and one less ML group with OA rats being treated with intermittent unloading. 'Off' means the hind limbs were lifted off the ground by tail suspension and 'down' means the hind limbs lay down on the ground. The rats in the less ML group were subjected to 'off' for two hours and then 'down' for two hours (repeated three times each day). The whole experimental period was 30 days. PCR, polymerase chain reaction; μ CT, micro-CT.

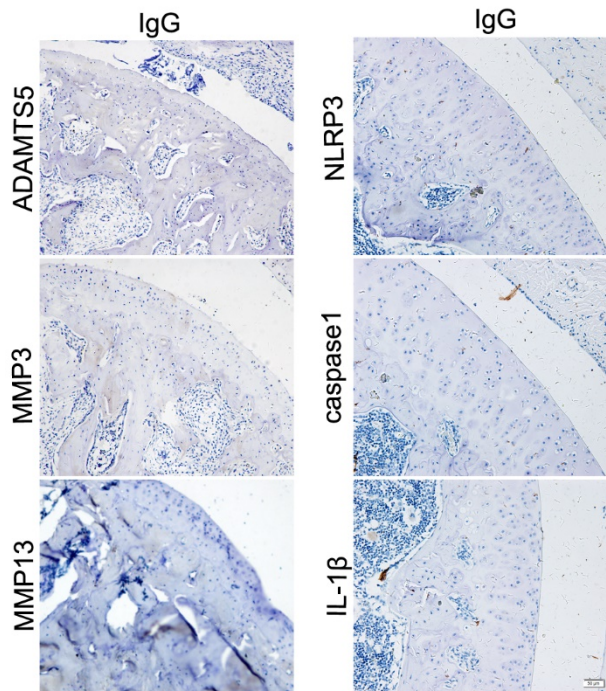


Fig. b. The negative controls for all the immunohistochemical examinations. The negative control for the ADAMTS, MMP3, MMP13, NLRP3, Caspase1, and IL-1 β staining are presented. The stain was IgG for negative control staining. The magnification was 200 \times . ADAMTS5, α -disintegrin and metalloproteinase with thrombospondin motifs 5; IgG, immunoglobulin G; IL-1 β , interleukin 1 β ; MMP, matrix metalloproteinase; NLRP3, NACHT, LRR, and PYD domains-containing protein 3.

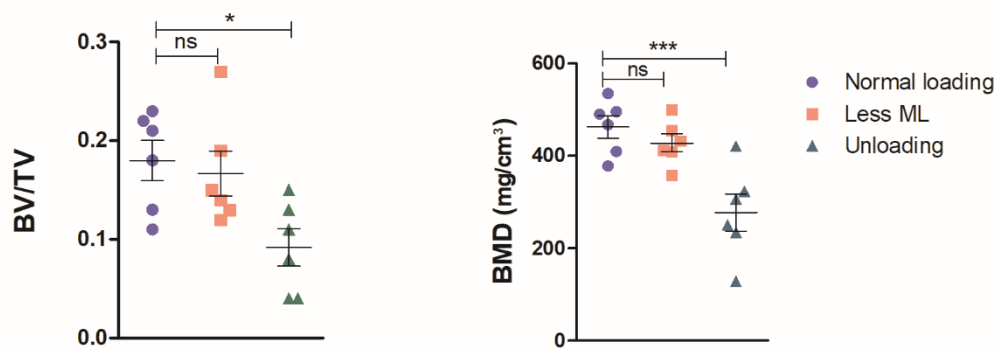


Fig. c. The microarchitectural indices of rats treated with intermittent weight unloading and full-time weight unloading. Before the modelling surgery for osteoarthritis (OA), the microarchitectural indices of rats treated with intermittent weight unloading (less mechanical loading (ML) group) and full-time weight unloading (unloading group) were compared with rats treated with normal loading. Data show that the bone mineral density (BMD) and bone volume/tissue volume (BV/TV) of rats with intermittent unloading was comparable with that of rats treated with normal loading, while significantly greater than that of rats with full-time weight unloading. One-way analysis of variance (ANOVA) was used to examine the difference among groups and Dunnett's test was used to compare difference between groups. * $p < 0.01$; *** $p < 0.001$, between rats with normal and less mechanical loading. ns, not significant; unloading, non-weight loading by full-time suspension.

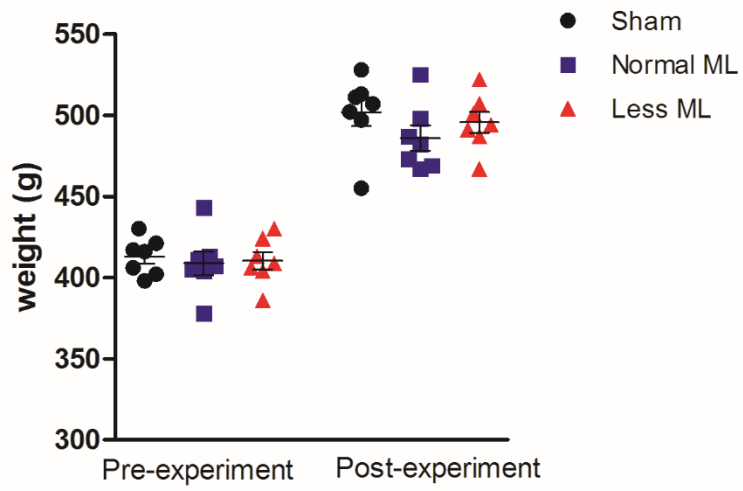


Fig d. The weight of rats at the beginning and endpoint of the experiment. The weight of rats was comparable among the three groups both at the beginning and endpoint of the experiment. ML, mechanical loading.