of fall in the sampled kilns were high. The musculoskeletal disorder related pain and discomfort was experienced by 73 per cent of working children in Bhaktapur and 58 per cent in Sarlahi. It was identified that work related injuries in young workers majorly affected upper and lower limbs. The odds ratio suggests that young workers were 8 times more likely to experience trouble or body pain compared to non-working children.

Discussion This study finds that presence of inferior physical environment, working conditions and practices has contributed to musculoskeletal injuries and problems exposing young workers to risks and hazards. This study was based on a small sample; nevertheless it portrays an overview of musculoskeletal disorders in the brick kilns focusing on young workers.

283 REAL-TIME BIOFEEDBACK AND ITS ABILITY TO AFFECT CHANGES IN SPINAL POSTURE DURING REPETITIVE LIFTING

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Introduction Low back pain (LBP) is the leading cause of disability globally. Occupational risk factors associated with LBP include heavy, repetitive lifting, and awkward and flexed postures. Studies suggest younger people may be at an increased risk of LBP compared to older individuals. Postural feedback as an early intervention may provide a viable preventative approach for reducing the risk of LBP in the workplace.

Methods Thirty-four healthy, young participants were randomly allocated biofeedback (BF) or no biofeedback (NBF). Participants lifted a box weighing 13 kg at a frequency of 10 lifts per minute for up to 20 min. Real-time biofeedback on lumbar posture was provided using two wireless inertial sensors attached to the lumbar spine and sacrum. The BF group received an audible cue when lumbar flexion exceeded 80% maximum flexion. Three-dimensional motion analysis and ground reaction forces were used to estimate moments at the base of the spine and on the passive structures of the lumbar spine. Participants rated perceived exertion throughout the task using Borg’s scale.

Results Both the BF and NBF groups increased lumbar flexion over the duration of the lifting task, although the rate of change (slope) of peak lumbar flexion with BF was significantly less compared to NBF (p=0.009). Normalised bending moments resisted by passive structures of the spine were higher in the NBF group (0.7 Nm/kg) compared to the BF group (0.12 Nm/kg) at 20 min. The BF group demonstrated lower levels of perceived exertion.

Discussion Real-time biofeedback provides a viable approach to increase spinal postural awareness during repetitive lifting tasks, helping to reduce loads on the passive structures of the lumbar spine. A simple wireless inertial system for monitoring posture has potential for use in the work environment, and further evaluations should be undertaken to determine the long-term effectiveness of this approach.