INTRODUCTION
Although recent studies have shown that heredity is a dominant factor in disc degeneration (1), a common notion that occupational physical loading is the major risk factor remains. However, it is unlikely that the differences in degeneration between disc levels are explained by systemic effects of ageing or genetics, which should influence all levels similarly, or that physical activities of work and leisure are responsible for differences in degeneration between disc levels. Furthermore a substantial inter-individual variation in disc degeneration remains unexplained. The objective was to examine the relative influences of body anthropometrics, disc size, lifting strength, lifetime physical demands and age on disc degeneration in a population sample of men.

METHODS
A cross-sectional study design was used. Univariate methods and stepwise multiple regression modeling were used to estimate associations of body height, weight, fat content, axial disc area, isokinetic lifting performance and lifetime routine physical activities at work and leisure with disc height narrowing and disc signal based on lumbar MRIs. These data were available from a population sample of 600 male twins, 35-70 years of age.

RESULTS
Lower age, higher body mass and lifting strength, and smaller axial disc areas were associated with higher disc signal. Of the variance explained in disc signal, representing hydration, age explained 8.0% (p<0.001), body weight/axial disc area 3.9% (p<0.001), isokinetic lifting work 2.3% (p<0.002) and occupational lifting 1.3% (p<0.01), additionally. Greater disc narrowing was associated with higher age, larger axial disc area, and higher occupational physical loading. Of the variance in disc narrowing, age accounted for 3.8% (p<0.001), disc area 1.9% (p<0.004) and occupational loading 1.3% (p<0.007), additionally.

DISCUSSION
Body weight, strength, and disc size (diameter) were more highly associated with disc degeneration than occupational and leisure physical activity, although all had very modest influences on disc narrowing and signal. More loading had harmful effects on disc narrowing, but unlike current views, routine loading appear to have beneficial effects, delaying disc desiccation associated with aging.

REFERENCE

Keywords: Tendon, Spine, Biomechanics