Additional file 1. Reasoning underpinning the selection of clinical and demographic characteristics

Clinical and demographic characteristics	Reasons for inclusion
Age	Degenerative changes are known to be age-related [1, 2]
Sex	Ankylosing spondylitis is associated with male gender [3]. Furthermore, the anatomy and load-distribution through the axial skeleton vary between genders [4], with a possible influence on the prevalence of load-related MRI findings.
Regular employment (being employed without public benefits and not a student or retired)	Severe spinal degeneration or spondyloarthritis may be associated with reduced work capacity [5, 6].
Sick leave due to back pain in the last 3 months for patients with regular employment	Severe spinal degeneration or spondyloarthritis may be associated with reduced work capacity [5, 6].
Being overweight (BMI ≥25)	Being overweight has been associated with vertebral endplate signal changes [1] and disc degeneration [7].
Smoking (one or more cigarettes daily)	Smoking is known to delay healing and thus smoking might influence the presence of MRI findings linked to tissue damage such as bone marrow oedema and/or disc herniations. Smoking has also been shown to be a risk factor for vertebral endplate signal changes [1, 8].
General health, (EuroQol visual analogue scale [9])	Hypothesis: Severe spinal degeneration or spondyloarthritis may be associated with low general health.
Activity limitation (RMDQ [10] calculated as a proportional score (0% = no activity limitation; 100% = maximum activity limitation [11])	Hypothesis: Severe spinal degeneration or spondyloarthritis may be associated with activity limitation. LBP patients with vertebral endplate signal changes have previously been reported to have more activity limitation at one year follow-up than LBP patients without vertebral endplate signal changes [6].
Previous LBP episode(s)	A previous study has reported an association between disc degeneration and previous episodes of LBP [12]. Furthermore, spondyloarthritis is most often a chronic disease, and patients with MRI findings related to spondyloarthritis might be more likely to have previous LBP episodes.
LBP intensity (averaged on 0–10 Numerical Rating Scales of present LBP, worst LBP last 14 days and typical LBP last 14 days [13])	Hypothesis: Severe spinal degeneration or spondyloarthritis may be associated with higher LBP intensity.
Buttock pain (yes/no to the question : 'Have you had buttock pain)	Hypothesis: Patients with severe MRI findings at the SIJ may be more likely to have buttock pain, as SIJ are known to produce referred leg pain [14].
Leg pain (indicated on pain drawing)	Patients with disc herniations might have leg pain as a result of nerve root compression or somatic referred leg pain. Furthermore, the SIJ are known to produce referred leg pain [14].
Severe leg pain (Intensity of leg pain measured the same way as for LBP intensity, with a score >3)	Hypothesis: The intensity of leg pain may vary with the cause of leg pain (referred pain from the SIJ, nerve root compression due to herniation, or somatic referred leg pain).

Table continued

Clinical and demographic characteristics	Reasons for inclusion
Pain in other areas (yes/ no to the question: Over the last 2 weeks, have you been bothered by pain in body parts other than you have marked on the previous drawing?)	Hypothesis: Degeneration/osteoarthritis might be a widespread condition affecting various anatomical regions.
Pregnancy related LBP (yes/ no to the question: Was the onset of your low back pain or leg pain (sciatica) associated with a recent or current pregnancy?)	Pregnancy-related changes of the pelvic girdle have been suggest to cause changes that can be visualised with MRI [15].
High sensitive C-reactive protein	C-reactive protein has been associated with vertebral endplate signal changes [16]. Furthermore, elevated CRP levels are included in the diagnosis of spondyloarthritis [17].
HLA-B27	HLA-B27 are central in the diagnosis of spondyloarthritis [17].

SIJ: Sacroiliac joint, BMI: Body mass index, MRI: Magnetic resonance imaging, VAS: Visual analogue scale, RMDQ: Roland Morris Disability Questionnaire (calculated as a proportional score (0% = no activity limitation; 100% = maximum activity limitation), LBP: Low back pain, HLA: Human leukocyte antigen

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