Association between lumbar spine radiographic features and low back pain: A systematic review and meta-analysis

Joachim Raastad, PT, MSc1, Michael Reiman, PT, DPT2, Remy Coeytaux, MD, PhD3, Leila Ledbetter, MLIS4 and Adam P. Goode DPT, PhD2

1Bergen University College, Bergen, Norway; 2Duke University Medical Center, Durham, NC; 3Duke Clinical Research Institute, Durham, NC; 4Duke University Medical Center Library, Durham, NC

Objectives

• To systematically review the literature on the association between lumbar spine radiographic features and low back pain
• To determine if associations differ by community or occupational based populations

Methods

• 3-stage process including duplicate screening, eligibility and inclusion
• Quality assessment conducted by duplicate reviewers using the IBERPOSE
• Quality scores stratified by selection, information, confounding and reporting bias

Results

• Significant strong associations were found between radiographic identified DSN and spondylosis and low back pain among community based studies
• Significant strong association was found between radiographic identified spondylolisthesis and DSN and low back pain among occupational based studies.
• A significantly stronger association between spondylolisthesis and low back pain was found among occupational based studies compared to community based studies

Quality assessment of community based studies by number of sufficiently answered questions “Yes”

Quality assessment of occupational based studies by number of sufficiently answered questions “Yes”

Conclusions

• Significant strong associations were found between radiographic identified DSN and spondylosis and low back pain among community based studies
• Significant strong association was found between radiographic identified spondylolisthesis and DSN and low back pain among occupation based studies.
• A significantly stronger association between spondylolisthesis and low back pain was found among occupation based studies compared to community based studies