INTRODUCTION

Long-term damages after lower extremity amputation have previously been analysed in three systematic reviews showing that amputees have a higher risk for developing knee and hip osteoarthritis on the sound side. The altered gait pattern appears to increase the load on the sound side. This paper analysed the extent to which the above described assumption is supported by the scientific literature with specific focus on the risk of developing back pain and osteoarthritis in amputees.

METHODS

A systematic literature search (EMBASE, Medline, Journal of Prosthetics and Orthotics database) was conducted for publications that had investigated changes caused by amputations. Furthermore, the references of identified publications were also scanned for pertinent publications. All suitable articles were qualitatively analyzed and the available quantitative results were summarized.

RESULTS

The search identified 20 relevant studies, reporting back pain and 14 studies, on osteoarthritis. The prevalence of back pain is increased for amputees in comparison to the able-bodied population. Furthermore, amputees suffer more often from clinical signs of knee and hip osteoarthritis. Nevertheless, the prevalence of radiographic signs is increased for the sound knee of the amputees. There are different reasons given in the literature for this increased risks. The altered gait and leg length discrepancies seem to have a big influence on the back pain. For the increased prevalence of the osteoarthritis, these parameters as well as hopping and standing without the prosthesis are contributing factors.

CONCLUSION

It may be possible to reduce the risks of back pain and osteoarthritis with novel prosthetic components and by optimising prosthetic fitting. On one hand, an optimised prosthesis will be used more regularly. On the other hand, it will be exposed to greater loads and therefore the load to the locomotor system could be distributed more evenly amongst both legs. Both aspects would result in a more physiological loading of the locomotor system.

SIGNIFICANCE

It is often assumed that leg amputations result in a greater risk of degenerative changes to the locomotor system. Furthermore in one-on-one interviews amputees report on their fear of these changes. Therefore, this paper analysed the potential risk of various degenerative diseases in amputees.
REFERENCES


DISCLOSURE

Eva Pröbsting and Andreas Kannenberg are full time employees of the OttoBock Health Care GmbH.