

# REVIEWING EFFECTIVENESS OF ANKLE ASSESSMENT TECHNIQUES FOR USE IN ROBOT-ASSISTED THERAPY BY

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## × Aim

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- + Provide comprehensive review of studies that investigated ankle assessment techniques.

## × Relevance

- + Better understand techniques that can be used in real-time monitoring of rehabilitation progress for implementation in conjunction with robot-assisted therapy.

# Method

- Selected 76 publications (published Jan 1980–Aug 2013) from 8 databases.
- Divided publications into 2 main categories:
  - 16 qualitative and 60 quantitative studies.
  - 13 goniometer, 18 dynamometer, and 29 innovative technique studies.

# Results

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- 465 subjects participated in 29 quantitative studies of innovative measurement techniques that may potentially be integrated in real-time monitoring device.
- Qualitative ankle assessment methods are not suitable for real-time monitoring in robot-assisted therapy, though they are reliable for certain patients.
- Quantitative ankle assessment methods show great potential.

# **CONCLUSION**

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- ✘ Majority of quantitative techniques reliably measure ankle kinematics and kinetics but are usually available only for use in sagittal plane.
- ✘ Limited studies determine kinematics and kinetics in sagittal, transverse, and frontal planes, where motions of ankle joint and subtalar joint actually occur.