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Instrumenting aids for compliance and rehabilitation monitoring

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Background

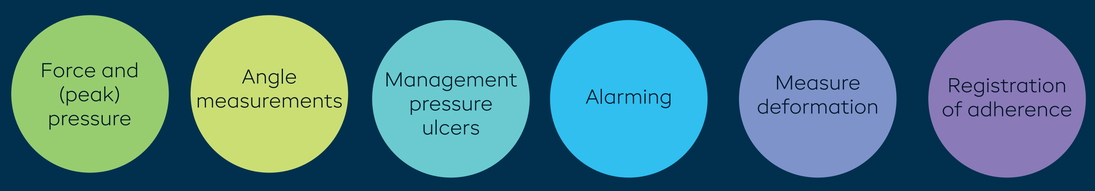
Sensors integrated into (custom-made) aids (e.g. orthoses, prostheses, wheelchairs, aids for activities of daily living, etc.), can measure objective parameters, reducing fitting iterations, enabling real-time adjustments in rehabilitation, and detect issues preventively. This enhances the likelihood of correct and consistent usage, supporting treatment goals.

This study investigates the conditions under which sensors can be integrated into aids, and how barriers can be lowered for therapists to be used in practice.

Method

A survey distributed by a patient association and a hospital assessed acceptance of sensors in orthoses and orthopedic shoes.

Six cases were elaborated based on questions from (health)care organizations, orthopedic companies or technological companies.



Results questionnaire

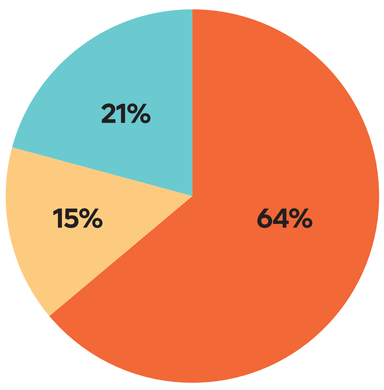
33 persons completed the survey. Participants were asked about their acceptance of wearing orthoses and orthopedic shoes with integrated sensors.

The results show the acceptance of using sensor for different aims.

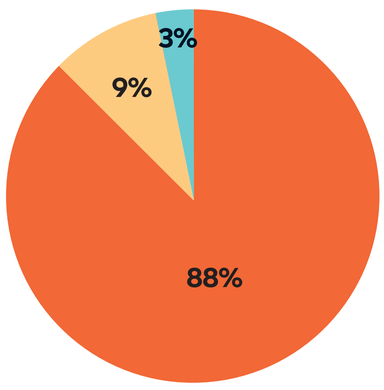
Most important thresholds and facilitating factors

Facilitating factors	True	False	Don't know
I consider wearing my orthotic(s) or orthopaedic shoes **useful**.	**94%**	3%	3%
I consider wearing my orthotic(s) or orthopaedic shoes **unsafe**.	0%	**94%**	6%
I can **perform activities better** by wearing my orthoses or orthopaedic shoes.	**88%**	6%	6%
I see **no added value** in wearing my orthoses or orthopedic shoes.	3%	**94%**	3%
I hesitate to wear my orthoses or orthopaedic shoes because I'm afraid of **doing something wrong** e.g. when donning or doffing them.	0%	**100%**	0%
Thresholds	**True**	**False**	**Don't know**
I consider my orthoses or orthopedic shoes **too expensive**.	24%	**64%**	12%
Wearing my orthoses or orthopaedic shoes **hinders me** in some activities.	36%	**55%**	9%
I find my orthoses or orthopaedic shoes **uncomfortable or painful**.	30%	**61%**	9%
I find that my orthoses or orthopaedic shoes stand out too much or are **too visible**.	27%	**67%**	6%
I had **negative experiences** with orthoses or orthopedic shoes **in the past**.	24%	**73%**	3%

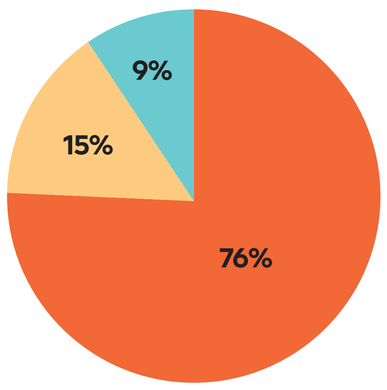
Sensor-equipped aids for monitoring adherence



Sensor-equipped aids to improve therapy effectiveness



Sensor-equipped aids to enhance comfort





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