

Functional Guide to Power Standing Evidence



What do we know about power standing wheelchairs?

Impact on body functions & structures



Higher level of evidence shows that power standing can*:

- Provide pressure redistribution on the seat and back
- Maintain or increase lower extremity range of motion
- Impact bladder health, digestion & constipation



Lower level of evidence shows that power standing may*:

- Improve lower extremity spasticity
- Influence bone health
- Impact mental health



Limited evidence

- Strength & balance
- Cardio-respiratory & edema
- Other (blood glucose, sexual health, posture, fatigue)



Are there any clinical considerations?

- Joint contractures
- Active bone fractures
- Unstable blood pressure
- Pain may both increase and decrease

What can we learn from the lived experience?

54%

54% of people reported a favorable impact on pressure management with standing

75%

75% of individuals reported a favorable impact on range of motion/muscle length

84%

84% had a favorable impact on happiness

“

This [power standing wheelchair] has helped my son **put off a hamstring surgery** and gives him a **better quality of life.**

”

“

I guess the biggest thing is being able to **stand up helps my bowel programs so much.** If I stand up a little while before programs, they do so much better, and I empty out a lot easier. It also **helps with gas and gas pains.** I have a really hard time getting rid of gas and being able to stand up and to get that gas moving so I can expel it it's very helpful.

”



This is not a substitute for medical advice or clinical recommendations.

References and full survey results available:

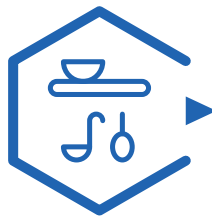
<https://www.permobil.com/clinical-research-1/research-library/permobil-white-paper-power-standing-update-2023>

What do we know about power standing wheelchairs?

Impact on daily activities

Everyone has activities that are necessary to complete in their daily lives and many functional needs can be supported by directly by power standing positioning but also indirectly by managing body functions and structures.

Higher level of evidence show that power standing can



Enhanced activities of daily living such as cooking, cleaning, countertop activities, accessing environmental controls



Increase independence with personal and medical care such as toileting, washing hands, and transferring



Facilitate Communication: providing hugs, verbal communication, hear conversations, see more clearly and cope in crowded situations

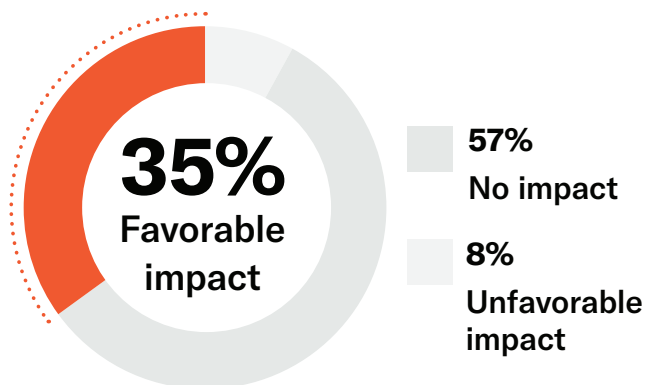


Increases Functional reach: shelf in grocery stores and home, shelves, counters

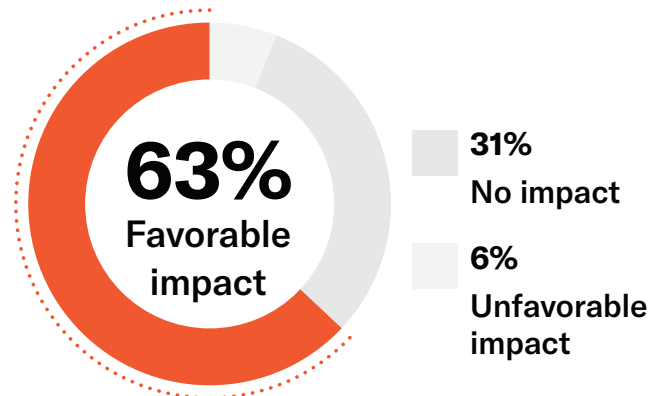
By decreasing overhead reaching, there may be a reduction in shoulder overhead reaching, which is known to result in less shoulder pain and injuries.

What can we learn from the lived experience?

Voice production



Visual orientation



“

ADL

Standing with the chair makes it easier to get undressed for bed or shower

”

“

Functional reach

It is possible to get my own glass of water because I can stand up and reach the sink.

”

“

Communication

As a voice actor, being able to stand in the recording booth has not only encouraged me to stand frequently throughout the day but perform better as well

”

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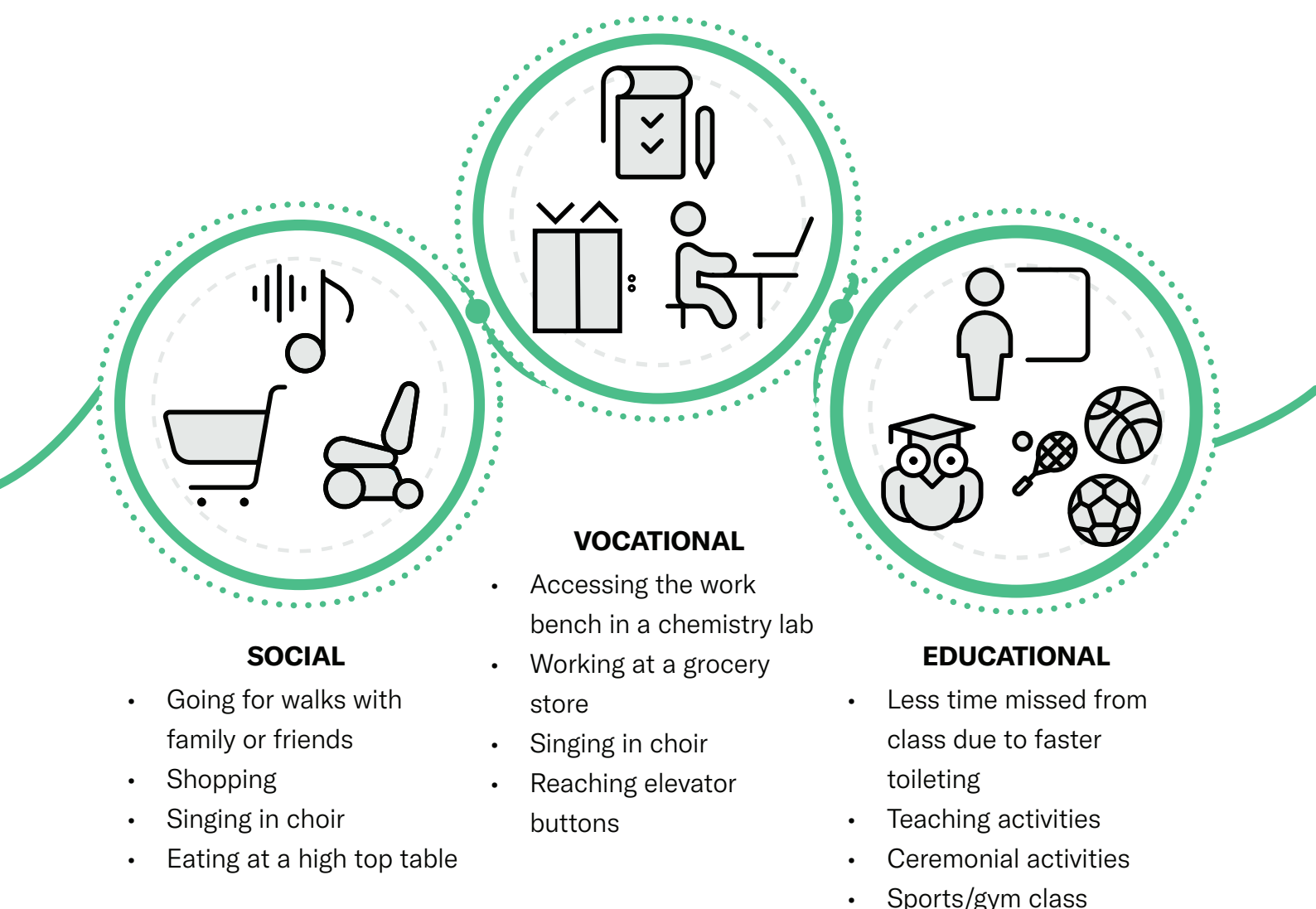
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What do we know about power standing wheelchairs?

Impact on participation

Power standing may allow an individual access to a wider range of unmodified spaces, which may provide a benefit in community settings to enhance their independence, and enable recreational activities.

Higher level of evidence supports that power standing enhances participation in different settings:



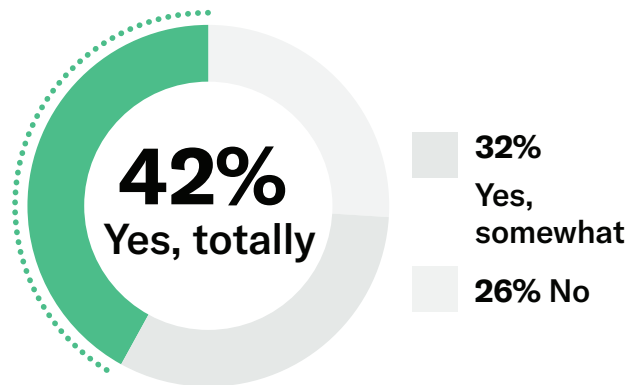
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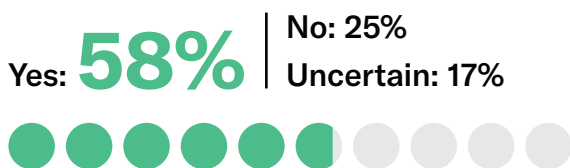
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What does the lived experience tell us about power standing?

Participation in enjoyable activities



New opportunities with power standing compared to without:



Those who report a positive impact on their work reported an increase with:

- Opportunities for employment overall, the roles you they can take on or place they can apply
- More work hours when needed/desired
- Ability to transition from part-time to full time

Those who reported a Positive impact on school

- participate in class discussion
- get to and from class in a timely manner
- Participate in more school based activities.



“Freedom of independence in performing tasks and expands what I’ll attempt to participate in.”

“I can stand to march with the band during parades and dance with my friends. It gives me opportunities to participate in the community in ways I never could before”

What do we know about power standing wheelchairs?

Impact on independence and Quality of life

Higher level of evidence shows that power standing may have a positive influence on independence with the following:

- Daily tasks
- Decision of when to stand
- Not having to ask for assistance
- Decreased demand for care (per parents)
- More time focusing on teaching (per teachers)
- Personal care routines
- New functional activities

What does the lived experience say about power standing and independence?



70% of individuals surveyed are more independent with power standing
23% are just as independent with power standing
7% are less independent

“

I got my power standing wheelchair in March of 2020...just 4 hours before my state went into lockdown. My attendant immediately stopped working for me. So until July 2021, I was performing 99% of his duties myself. That literally would not have been possible, without the standing function

”

“

I have ALS and standing is important to my health and reduces the load on my caregiver.

”

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Evidence shows that power standing leads to more benefits compared to non-powered standing devices due to:

- Fewer limitations in daily use
- Entering the standing position may be more independent
- Reduced number of transfers
- Choice of when to stand
- Caregiver benefits
- Equipment availability
- Integrate into a meaningful activity

What does the lived experience say about power standing and non-powered standing:

15%
experienced
both

reported having experienced standing both with a power standing wheelchair and non-powered standing device

100%
preferred
standing

preferred power standing. Reasons included increased independence, convenience, mobility, decreased risk of falls and lack of transfers.



“

My standing wheelchair is more convenient because I don't have to transfer to stand, which results in more standing.

”

“

The standing frame is difficult to transfer me into and out of. Also it took up a lot of space and I was stuck in one position once I was in it.

”

What do we know about power standing wheelchairs?

Impact on independence and Quality of life

Limited evidence quality of life in the literature. One study reports varied results within and between persons amongst children and adults. At this time, we cannot draw any conclusions from a single study.

What can we learn from the lived experience?



80%

reported higher quality of life with standing function compared to without

16% report similar QOL, 4% report low QOL

“

There really are no words to explain the feeling of being able to stand up again after so long. You really learn to live with what you have but you take standing for granted after an extended period of time.

”

“

In standing, you can get a real hug; you can look over a crowd and feel like you are a human being.

”

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