



## **Towards safer use of front-wheeled walkers: A guide to support clinicians, healthcare staff and care support staff.**

Supporting video available at the following link:

<https://media.salford.ac.uk/Play/31505>

Video also available via our website:

<http://hub.salford.ac.uk/research-walking-frames/>



University of  
**Salford**  
MANCHESTER

## **Foreword**

Walking aids aim to reduce falls-risk, however, paradoxically, their use has shown to be a risk factor for falling<sup>1</sup>. Users' concerns include "...could it [the walking frame] overturn when used; was it really stable?"<sup>2</sup>. Whilst the elevated falls-risk of walking aid users is likely in part due to their general vulnerability, the association between walking aid use and falls suggests that walking aids remain limited in their effectiveness in preventing falls.

Our focus group work (GMAHSN Ignite project 2018, Dunhill Medical Trust project 2019) with healthcare professionals showed that there is no gold-standard procedure for the assessment and training of users of walking aids. Whilst some guidance leaflets exist, those are generally brief and very basic, e.g. "glide the frame forward" on the ground, or "push rather than lift the frame". Discussions with users of walking aids (GMAHSN Ignite project 2018, Dunhill Medical Trust project 2019) showed that users remain concerned about falling.

**We argue that for a walking aid to prevent a fall it must be used in a stable manner.** But what is stable, and therefore safe use? At the University of Salford we demonstrated that treating the user and their device as a single moving system is imperative to accurately assessing overall stability<sup>3</sup>. Our novel objective stability measure, the combined stability margin, informs on how close the combined system, of both walking aid and user, is to tipping over. We developed a range of 'smart' walking frames that provide the data needed to calculate the stability margin. Using these we found that the usage patterns which users adopt do not facilitate stability<sup>4</sup>. Moreover, more complex tasks such as turning or walking backwards (e.g. to open a door or back up towards a chair) challenge stability<sup>5</sup>, yet these tasks have previously not at all been discussed in leaflets. Finally, we found that the more recent 'slim' or 'ultra narrow' frame models reduce stability<sup>6</sup>.

In collaboration with 10 healthcare professionals we discussed our research findings in relation to existing leaflets and clinical experience. Together we developed two new guidance documents concerned with use of front-wheeled walkers: 1) a Good Practice Guide for healthcare professionals and carers/care staff, and 2) a Safety Information Leaflet for users of front-wheeled walking frames. These documents feature all the basic information that was available in previous leaflets, are informed by clinical experience, and provide additional details based on our research. Moreover, we developed two videos in support of these two documents. We consider the documents and associated videos to be a 1<sup>st</sup> step towards safer use of walking frames, and we consider them to be iterative – i.e. they will require updating as new research findings and/or clinical input become available. In future, we also plan to discuss other frame types. At this time, we hope that these documents will be helpful to users of front-wheeled walking frames, their healthcare professionals, carers and care staff.

On behalf of the investigating team and supporting clinicians,

Dr Sibylle Thies  
Senior Research Fellow  
School of Health & Society, University of Salford, UK

## References

1. Deandrea S, Lucenteforte E, Bravi F, et al. Risk factors for falls in community-dwelling older people: a systematic review and meta-analysis. *Epidemiology* 2010; 21: 658-68.
2. Skymne C, Dahlin-Ivanoff S, Claesson L, et al. Getting used to assistive devices: ambivalent experiences by frail elderly persons. *Scand J Occup Ther* 2012; 19: 194-203.
3. Costamagna E, Thies SB, Kenney LPJ, et al. A generalisable methodology for stability assessment of walking aid users. *Med Eng Phys* 2017; 47: 167-75.
4. Thies SB, Bates A, Costamagna E, et al. Are older people putting themselves at risk when using their walking frames? *BMC Geriatr* 2020, 20: 90.
5. Costamagna E, Thies SB, Kenney LPJ, et al. Objective measures of rollator user stability and device loading during different walking scenarios. *PLoS One* 2019; 14(1): e0210960
6. Thies SB, Russel R, Al-Anib A, et al. An investigation of the effects of walking frame height and width on walking stability. *Gait & Posture* 2020, under review.

We thank the following for supporting our research:

- Dowager Countess Eleanor Peel Trust: *Use of Smart Walkers to investigate effects of walking frame height and width on walking stability – a pilot study questioning the status quo.*
- Greater Manchester Academic Health Science Network (Ignite): *Smart walking aids - preparing their route to clinical adoption.*
- The Dunhill Medical Trust [R473/0216]: *Are older people putting themselves at risk of falling when using a walking frame?*
- The Dowager Countess Eleanor Peel Trust: *Development of novel technology for identification of unstable walking frame use.*
- The Robert-Bosch-Hospital, Stuttgart, Germany.
- Prof Helen Dawes, Oxford Brookes University.
- The Greater Manchester Health & Social Care Partnership.
- The Greater Manchester Teaching Care Homes Initiative.
- The Disabled Living Charity.
- AGILE Physiotherapists Chartered Physiotherapists Working With Older People.

## **How to use this good practice guide**

This practice guidance is designed to supplement current best guidance on the assessment and prescription of front-wheeled walking frames. It is divided into 5 sections.

- A. The Person
- B. The Environment
- C. Walking Frame Skills
- D. Using the Frame in Context
- E. Narrow Frames

Under each section, there are a number of questions that act as a check list and when answered will support the assessment and prescription of a front-wheeled walker.

### **The Person**

1. Has the person got capacity to understand and learn how to maximise their stability when walking with the frame?

- Yes
- No

**Tick when completed**

If No, provide carer with guidance on use of frame.

2. Has the frame been set to the appropriate height for the person?

*(Hand grips just above wrist level when standing with the arms at the side, and elbows slightly bent when holding onto the hand grips)*

3. Has a Safety Information Leaflet/Guidance document been provided?

4. Has person (or carer) contact details if there is an issue with the frame?

5. Has person (or carer) been informed not to give the frame to others to use (such as other patients, friends or relatives)?

6. Does person (or carer) know to check the general condition of the frame and ensure ferrules are replaced?

7. Does the person's ability to walk with the frame need to be reviewed?

- Yes
- No

If Yes, provide reason and action to be taken:

## The Environment

1. Have you considered the following environmental factors that may prevent the person from using the walking frame?

If ward based, it is important the following factors are also applied to the discharge environment.

	Factors to consider	Circle
Floor surface	Are there any concerns that the condition of floor surfaces will prevent appropriate use of the frame (consider all areas of the home)?  <i>If Yes, discuss these with the person and/or their carer.</i>	Yes No
Door thresholds	Will door thresholds cause lifting of frame?  <i>If Yes, discuss this with the person and/or their carer and practice crossing these (see below "Skills").</i>	Yes No
Adequate circulation space in living spaces to use walking frame appropriately	Does the position of furniture or clutter prevent gradual turning or necessitate backward walking?  <i>If Yes, discuss this with the person and/or their carer and consider rearranging furniture/removing any obstacles/obstructions.</i>	Yes No
Adequate circulation space in kitchen to use walking frame appropriately	Is space in the kitchen inadequate for gradual turning? Does the layout of the kitchen prevent appropriate use of the walking frame?  <i>If Yes, discuss this with the person and/or their carer and practice spot turns (see below "Skills").</i>	Yes No
Adequate circulation space in bathroom/toilet	Is space in the bathroom inadequate for gradual turning? Does the layout of the bathroom compromise use of the walking frame when backing up to the toilet or when accessing the sink?  <i>If Yes, discuss this with the person and/or their carer and practice spot turns (see below "Skills").</i>	Yes No
Adequate circulation space in bedroom to use walking frame appropriately, including space at the side of the bed	Does the position of furniture or any obstacles/obstructions prevent or restrict gradual turning or necessitate backward walking?  <i>If Yes, discuss this with the person and/or their carer and consider rearranging furniture/removing clutter.</i>	Yes No
Bedroom and bathroom facilities upstairs	Is a 2 <sup>nd</sup> walking frame available, i.e. one for upstairs and one for downstairs?  <i>If No, discuss the need for a 2<sup>nd</sup> frame with the person (or carer), and if possible arrange for a 2<sup>nd</sup> frame.</i>	Yes No

2. If being discharged to a residential/nursing home, provide appropriate guidance and training.

Tick when completed

3. If ward based, is a home visit required to ensure frame can be used appropriately at home?

- Yes
- No

If Yes, how may a home visit be arranged:

### Walking Frame Skills

Is the person able to demonstrate the following skills?

1. Walk in a straight line

- Yes
- No

If No, practice with the person and/or discuss with carer:

- ✓ Stand with your feet inside the back legs of the frame
- ✓ Glide the frame one step forward. Keep frame legs on the ground if possible
- ✓ Then step towards the frame, first with one foot, and then with the other foot, using the weaker leg first
- ✓ Repeat
- ✓ If rear legs are stuck, lift them a little, then glide frame forward, put legs back down, then continue as before



Don't over stretch.

Don't walk too far into the frame

Avoid lifting the front wheels

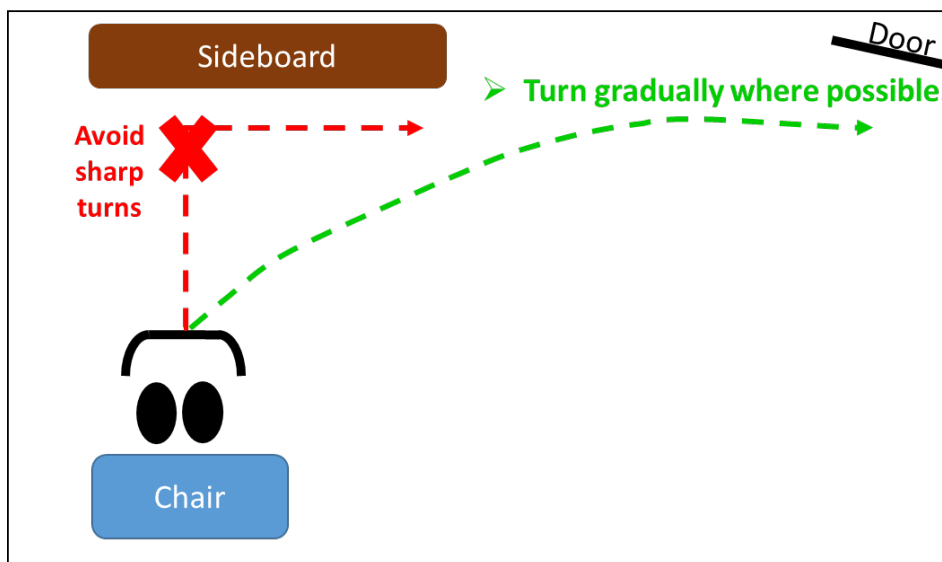
Avoid lifting the whole frame



2. When changing direction, can the person demonstrate how to make pre-planned gradual changes in the direction of travel (this helps to keep all four points, i.e. ferrules and wheels, of the frame on the floor)?

- Yes
- No

If No, practice with the person and/or discuss with carer:

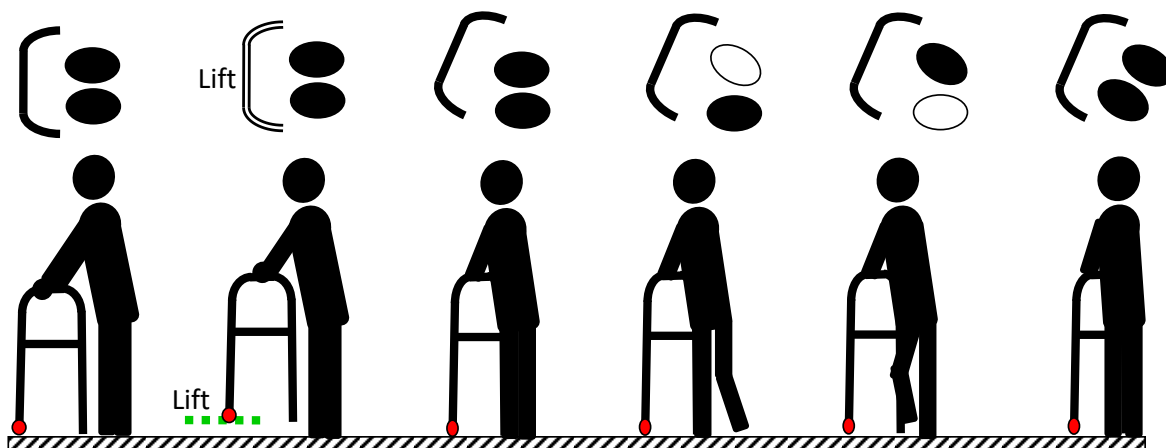


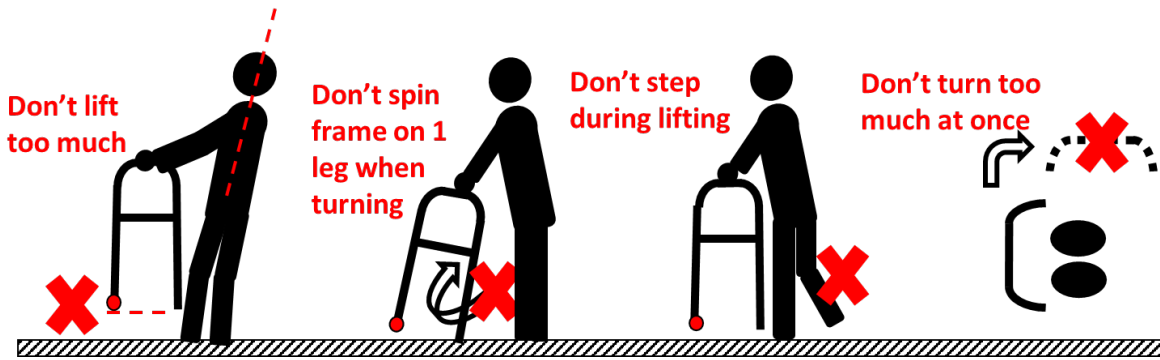
3. Where space does not allow for a gradual change in direction and the frame must be lifted to change direction, can the person demonstrate they are able to move the frame round in small steps?

- Yes
- No

If No, practice with the person and/or discuss with carer:

**Lift only little, and turn only little at a time. Then repeat.**

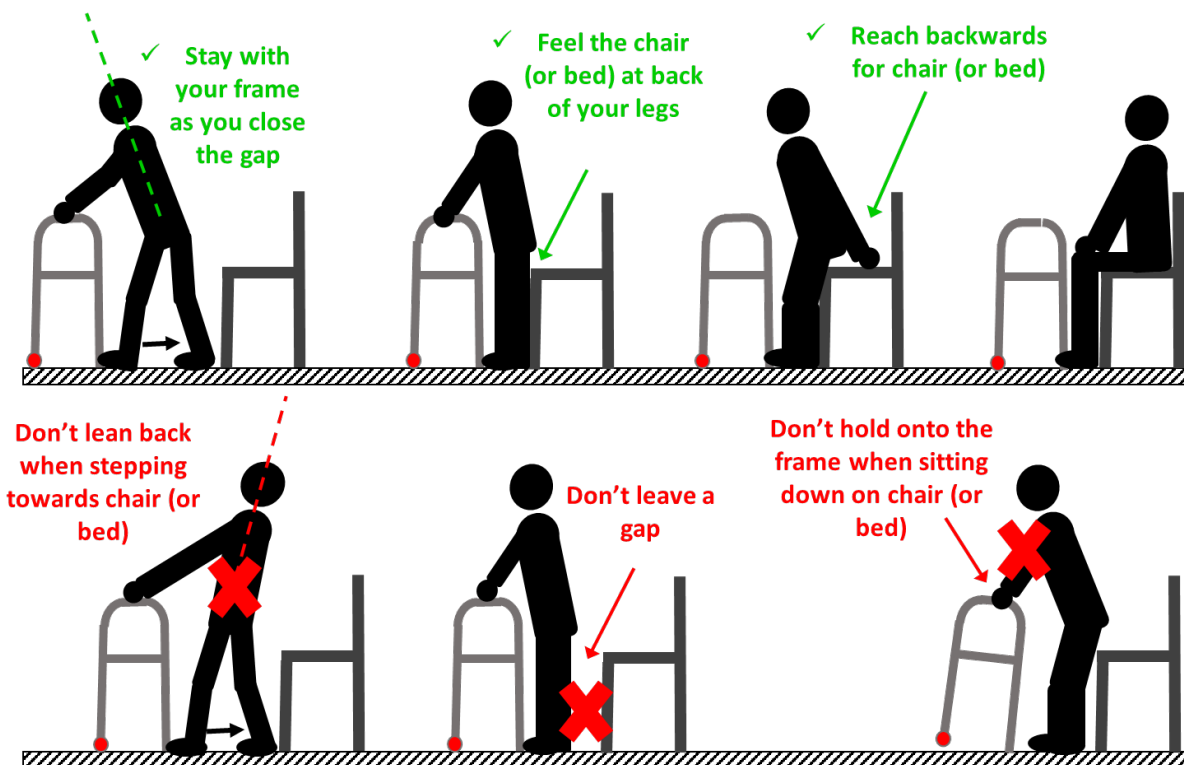




4. Where activities involve backward walking with the frame, for example backing up to a chair or bed, can the person demonstrate how to stay with the frame whilst taking small steps backwards, avoiding leaning backwards? Can they sit down in a controlled manner by reaching back with their hands towards the sitting surface (or arm rests)?

- Yes
- No

If no, practice with the person and/or discuss with carer:

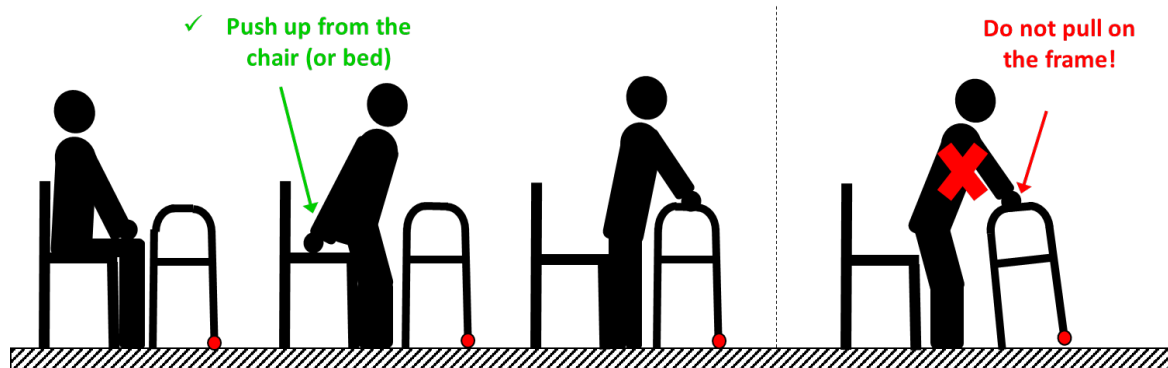




5. Is the person able to demonstrate getting up from a chair (or bed)?

- Yes
- No

If no, practice with the person and/or discuss with carer:



### Using the Frame in Context

Tick when completed

1. Discuss with the person that mobility is an integral part of most activities of daily living and it is important for the frame to be used regularly.  
I.e. "A frame can only support you if and when you use it."
2. Identify and practice any activities of daily living the person may find difficult to perform with the frame, for example opening and manoeuvring through doorways?
3. Make sure the person understands that the front-wheeled walker is NOT to be used on stairs, and that it is designed for indoor use only.

### Narrow Frames

Compared to standard frames, narrow frames offer less base of support for the person. If prescribing a narrow frame have you considered all other alternatives with the person, for example moving furniture/adapting the environment?

- Yes
- No

Reasoning for providing narrow frame:

Date of Assessment.....

Signature of Assessor.....

## NOTES