



## Consumer Factsheet

# Grabrail Diameter

PEER  
REVIEWED

### Why use a grabrail?

Grabrails promote safety and independence at home. They are designed to support people while they carry out an activity to reduce the risk of slips or falls. For example, a grabrail may be installed beside the toilet to help move between sitting and standing, or beside a step for support when ascending or descending. People may have a high risk of falls because of their movement patterns, reduced strength or compromised balance.

To use a grabrail effectively it is important to maintain a strong and firm grip on the grabrail throughout the activity. Grip strength is influenced by the person's abilities and the characteristics of the grabrail. Grip strength also depends on the type of grasp used.

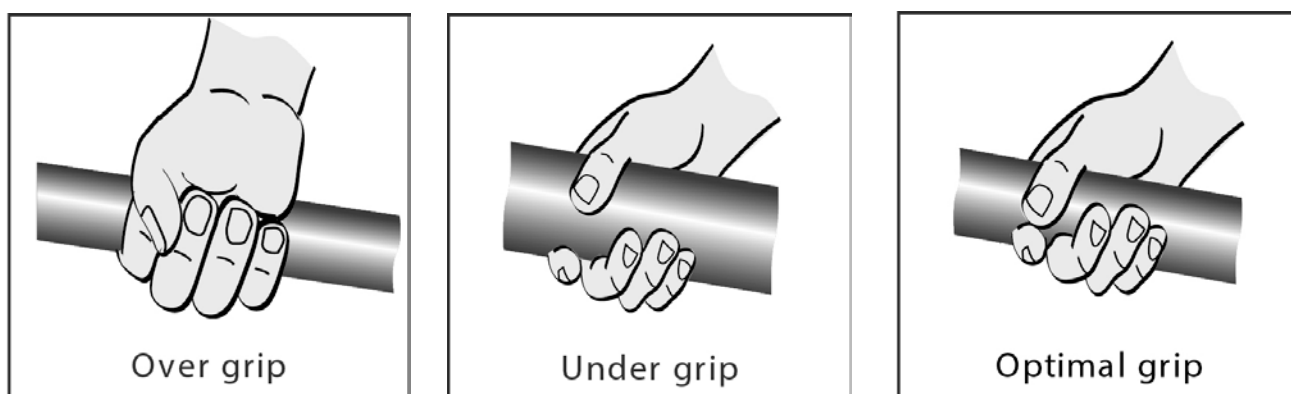
The ideal grasp maximises the efficiency of body movements. A poorly formed grasp can increase the effort and the energy required to hold the grabrail during activity. Using the body efficiently may reduce the risk of other injuries.

### What types of grabrails are available?

Grabrails are available in many different materials, finishes, shapes, and sizes. Each option has benefits and limitations. The most appropriate grabrail features will depend on specific circumstances such as the person's body size and shape, their abilities and needs, the activity they are doing, and the location of the grabrail (environment). Professional advice should be sought to help select the most appropriate combination of features for a specific circumstance.

## How do I know which diameter to choose?

Grabrail diameters are an important feature that should be determined with the help of a professional such as an occupational therapist. It is easier to lose grip on a grabrail with a diameter that is too large (under grip), while maintaining a firm grip requires a greater sustained effort when the diameter is too small (over grip). Ideally, the hand should encircle and be in complete contact with the grabrail (optimal grip). A strong, firm hold on the grabrail throughout completion of the activity is critical to reduce the risk of falls and slips (see Figure 1).



## What are the grabrail features to consider that improve the grip?

- **Diameter:** The correct diameter should allow you to maintain a firm grip throughout the activity without creating too much tension in the arm and shoulder.
- **Slip resistance:** Sufficient friction is important to enable a firm grip. It is harder to maintain a firm grip on slippery surfaces.
- **Texture:** A smooth finish is generally more slippery when wet, however, contaminants such as soap and oil can build up on textured surfaces. A build-up of contaminants may increase the slipperiness of the rail.
- **Finishes:** Maintenance is critical in maintaining appropriate slip resistance. Rough textured finishes may be more difficult to clean thoroughly.

## What building regulations apply to grabrails?

The Building Code of Australia (BCA) sets out the minimum requirements for built structures. The BCA refers to various Australian Standards to provide technical specifications that meet these requirements. This means the BCA describes the expected outcomes while the Australian Standard describes how to achieve these outcomes.

Australian Standard 1428 '*General requirements for access – New building work*' includes mandatory requirements for grabrails in public spaces. Grabrails in public spaces are designed to cater for the different abilities and needs of people with a disability. The BCA requirements for grabrails in private homes are not mandatory, however, these requirements indicate what should allow safe and independent mobility for many older people and people with a disability. Therefore, these requirements are a good benchmark for use in the home.

## Does this information apply to handrails too?

Handrails and grabrails may appear to have similar functions i.e. provide support to increase safety and avoid falls. However, handrails and grabrails are prescribed for different activities. They are most similar when the aim is to provide support.

Handrails are used to stabilise a walking person, often on stairs. But handrails are also used to minimise the severity of an injury in the event of a fall. Arresting falls (support) and steadying during *walking* (stability) place different physical demands on a person. Like grabrails, handrails designed for private homes should allow a strong, firm grip to be maintained (in the event of a slip or fall). This means handrail design should consider all the issues discussed on this factsheet including the person's physical abilities, appropriate diameter, types of finishes and textures, which all affect grasp.

## What maintenance is required to maintain friction for grip?

Regular inspection for, and removal of, surface dirt and organic matter including fungal or mould growth. Manufacturers and suppliers should provide written instructions on suitable cleaning products.

## Points to consider in planning and design

In addition to the grabrail features there are other points to think about when deciding on a grabrail. Ask yourself these questions:

- Does the grabrail have a rounded cross-sectional profile that is easy to hold?
- Is the finished material comfortable and does it enable a strong grip?
- What type of cleaning does the surface of the grabrail require?
- Is the grabrail too close or too far away to grasp comfortably without leaning?
- Consider what activity is involved e.g. to assist in sitting and standing, to provide support when negotiating steps.
- Where will the grabrail be located? Is the grabrail exposed to the weather?

## What do I do next?

There are many complex issues in selecting and designing a grabrail. Professionals such as Occupational Therapists can help you select the most suitable grabrail for you.

- Think about what your needs and preferences are e.g. how will your grabrail be maintained? By whom?
- Talk to your Occupational Therapist and Architect about your needs and Preferences.

## Where can I find more information?

- Home Modification & Maintenance service providers
- Occupational Therapists
- Architect or builder
- Resource library on the the HMinfo website at [www.homemods.info](http://www.homemods.info)

*\*\*This information was correct at time of printing.*