



Pushing and pulling on a construction site

Carts and wheeled equipment can make work more efficient on construction sites. For example, dollies move heavy equipment or parts, and wheeled carts carry supplies and materials. It's important to understand how to work with wheeled equipment since many injury claims for low-back pain are the result of pushing and pulling activities.

Push rather than pull

Whenever possible, push a load instead of pulling it because:

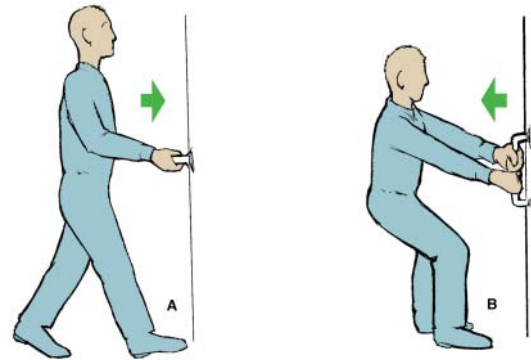
- You can develop higher push forces by leaning your body weight into the load
- The cart can run over your feet or hit your ankles when you are *pulling* it
- If you *pull* a load while facing the direction of travel, your arm is stretched behind your body, placing your shoulder and back in an awkward posture that increases your risk of injury
- If you *pull* a load while walking backward, you can't see where you are going

Handle height

Everyone has a preferred height at which they push or pull. Unfortunately, few carts are equipped with height-adjustable handles. For pushing, the handle should be between your elbow and hip. For pulling, the handle should be at hip level. If pushing will not cause the load to shift or slide off the cart or dolly, you can push on the load instead of the handle (for example, a large air conditioning unit on a wheeled dolly). Pulling a load almost always requires a handle. You can also use carts and equipment with continuous vertical handles that allow you to place your hands at an appropriate height. To accommodate workers of various heights, vertical handles for pushing should cover a range of approximately 76 cm to 120 cm above the rolling surface (66 cm to 100 cm for pulling).

Maintenance

Properly selected and well-maintained wheels and swivel casters can make an important difference. Larger pneumatic wheels roll with more ease where the floors are rough or uneven.



For pushing, the handle should be between your elbow and hip. (A) For pulling, the handle should be at the level of your hip. (B)

Other suggestions

- Use high-quality wheels or casters that are appropriate for the rolling surface.
- Keep rolling surfaces clear of debris.
- Avoid rough or uneven surfaces.
- In general, choose larger diameter wheels, that roll better, particularly over rough surfaces and over narrow gaps such as the spaces in front of elevators.
- Keep in mind that the hardness or softness of a wheel affects its rolling resistance and how noisy it is when rolling.
- Ensure that handles do not extend beyond the sides of the cart or equipment (to prevent crushing fingers on walls or other obstacles).
- Ensure that the loaded cart or equipment is stable. Trying to catch a falling load in an awkward posture may lead to an overexertion injury.
- Wear appropriate footwear to minimize slipping.
- Minimize the distance that loads need to be pushed or pulled by preplanning where materials are placed.
- Reduce the weight or size of loads.

For guidelines on pushing and pulling:
<http://ergonomics.healthandsafetycentre.org/calculator/ergo/ppcc/resources/PPCGuidanceSheet.pdf>