



Pushing and pulling are everyday work activities in many work environments.

You may be required to push and pull large or small items, levers, cables, boxes, carts, and more.

Using material handling devices like carts, dollies, or hand trucks rather than carrying material is a good idea but pushing and pulling these devices can strain your back, shoulders, and arms if not appropriately handled.

Many things affect the force needed to start and maintain movement of a load, including:

- the weight** of the load,
- the height** where the force is applied (handles, conveyor height),
- your posture** (bending forward or twisting when pulling),
- the direction of force** applied (straight on or at an angle),
- the slope and condition** of the surface,
- the condition of the item** to be moved,
- the grip of the worker's shoes** on the floor surface.

Use the following tips to reduce the risk of injury when pushing and pulling:

Eliminate the need to push or pull using mechanical or gravity-fed rollers, mechanized carts, vacuum lifts, or powered equipment.

Push rather than pull.

Pushing a load is generally less stressful on your body because you use the weight of your body and maintain a more neutral posture. When you pull, your body is often twisted, and you frequently use only one hand.

Use devices that reduce friction between moving objects and surface areas.

For example: mount appropriate casters on carts and movable furniture, ensure smooth, unbroken surfaces on counters and shelves, and use slip sheets for moving patients and sliders for moving heavy items on carpet.

Ensure that surfaces are clean and debris-free to reduce physical barriers to movement.

Use a vehicle or conveyor that can accommodate the size and weight of your moving load. Ensure that the design and type of conveyance are well maintained and appropriate for moving the item.

Ensure you do not exceed the recommended force for pushing your cart or hand truck. Measure the forces and follow suggested guidelines.

When possible, apply force from approximately elbow height.

Add handle extensions or provide vertical handles; ensure that conveyor heights are correct; add platforms to workstations or redesign workplaces, so that vertical pulls are not above shoulder height or below knee height.

When pushing or pulling heavy objects, be sure to use good body mechanics:

- Tighten your stomach muscles.

- Bend your knees.
- Lean in slightly toward the object you are pushing.
- Lean slightly away from the object when pulling.
- Keep your back and wrists straight.
- Use the legs and weight of your body to move the object.