Pushing & Pulling



Pushing and pulling are common work activities in many work environments. You may be required to push and pull large and 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 handled properly.

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), posture (bending forward or twisting when pulling), the direction of the force applied (straight on or at an angle), the slope and condition of the surface, the condition of the item to be moved, and 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 by 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 the level of friction between the object being moved and the surface area. For example, mount appropriate casters on carts and movable furniture, assure smooth unbroken surfaces on counters and shelves, use slip sheets for moving patients and sliders for moving heavy items on carpet.

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

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

Ensure that you are not exceeding the recommended force for pushing your cart or hand truck. Measure the forces and follow recommended 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 your legs and weight of your body to move the object.