

Working Body Mechanics Presentation

Use a Cart for Transportation

The cart is a better choice than the wheelbarrow because the single front wheel on the wheelbarrow makes it less stable. If the wheelbarrow begins to tip, you can injure your back trying to right the load. Be certain not to overload. Take more trips with less effort, less stress.

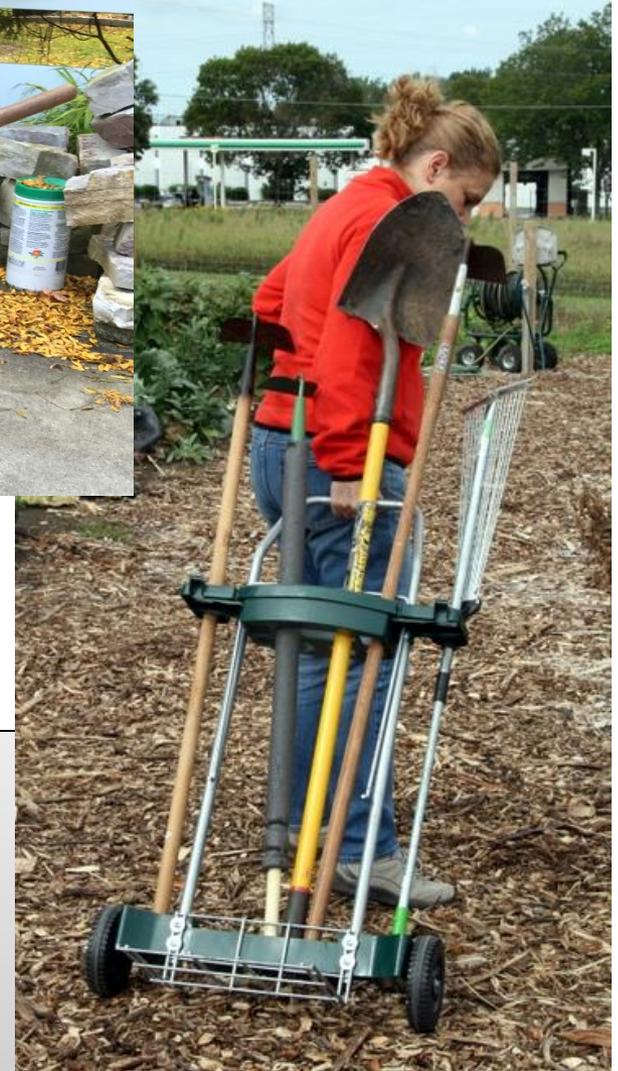
Compare the wheel location on the wheelbarrow vs. the cart:

- On the wheelbarrow, notice how far forward the wheel is. This requires the gardener to lift the full load before moving.
- Now look at the cart on the bottom left. With the wheels back and positioned more under the load, less lifting is required as the weight is born by the wheels themselves, which means less stress on the body before you begin to move.

The multi tool cart on the right allows you to move many long bulky tools in one trip and store them upright which is safer than trying to balance them on top of a cart or wheelbarrow, or carrying them in your arms.



BEST CHOICE



Use A
Cart For
Transport

Push vs. Pull

Whenever possible, push objects rather than pulling them.

Pulling requires you to twist your trunk, while pushing does not.

You can also generate more force pushing than pulling because you are able to utilize your body weight.

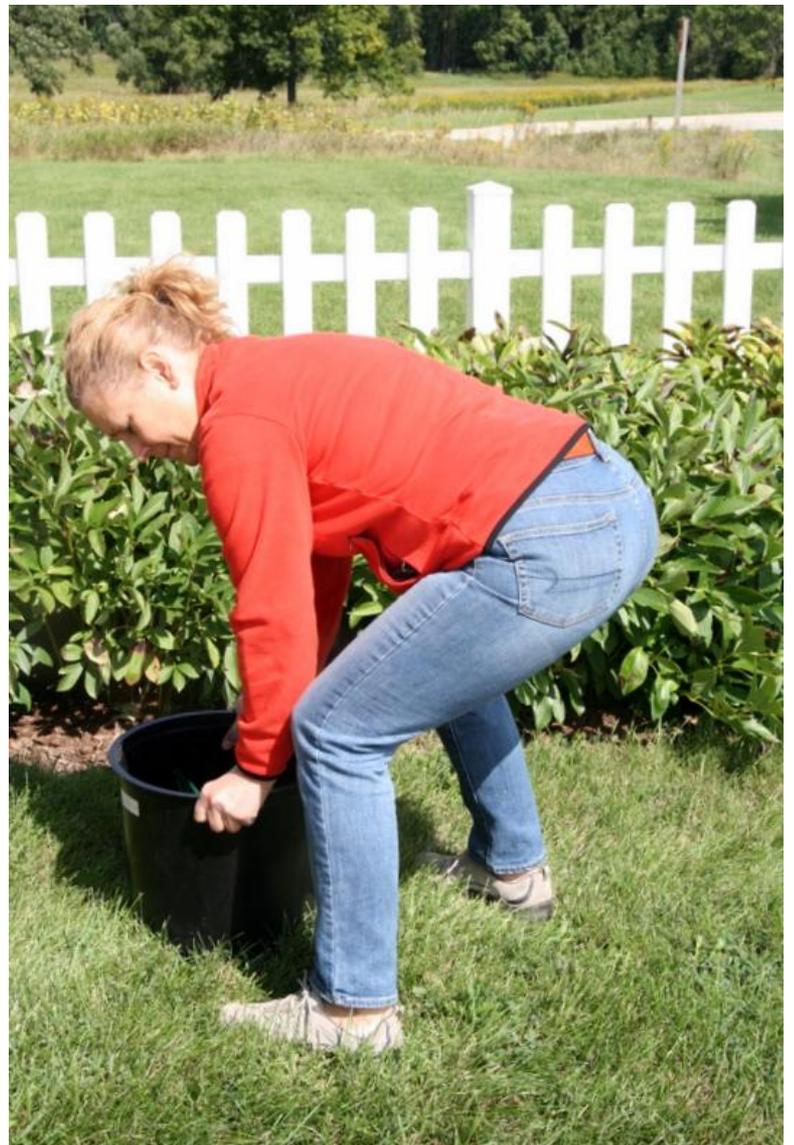
Additionally, pushing allows you to recruit more muscles by letting you use both arms, thus sharing the load.



Push vs. Pull

Lifting

- In the left photo, the gardener is lifting using predominantly her back muscles, causing the back to curve, and be stressed. In the right photo, she is able to keep her back straight and lift with by straightening her hips and knees.
- When lifting, be sure to face the object you are about to lift. Squat down, bending with your hips and knees, not your back.
- Push your buttocks out behind you (shortstop position). Your knees should not be in front of your toes, due to increased stress on the knee joints.
- Have/hold the objects as close to you as possible.
- Do not hold your breath while lifting.
- Lift the object, straightening your hips and knees.



Lifting

Lifting

If you need to turn with your load, rotate your whole body, stepping to turn. Do not twist your trunk to turn. Consider lightening the load to be lifted, if possible. Ask for help.

In the photo on the left, the gardener is not facing the item being lifted (or put down), forcing her to twist her trunk. Additionally, the object is too far away from her body. On the right, we see the proper initial position for lifting (or final position for setting it down).

An additional note about standing for a long time: Put one foot up on a low stool or other stable object to ease the pressure on your lower back. Alternate leg positions.



Lifting

Shoveling

The gardener on the left is shoveling incorrectly – note the straight knees and rounded back.

The gardener on the right is lifting while straightening hips and knees, not using her back to lift.

Use a shovel with a smaller tool head to reduce the load, and keep it sharp.



WRONG



Shoveling

Shoveling

Placement of soil: In the left photo the gardener is twisting her trunk to place soil in a container that is located away from the digging hole.

In the right photo, the gardener is stepped around with the soil on the shovel to directly face the receptacle.

If you recall our earlier discussion on appropriately sized tool ends, we note that a shovel that has an oversized head will hold a load of soil that is too heavy to be lifted comfortably. Remember to keep the tool end sharp so that less effort is used cutting through the soil or plant roots.



Shoveling

Weeding & Planting

In the photo on the left, the gardener is bending over with straight legs putting stress on the legs and back. This position also puts your neck in a very stressed position.

In the photo on the right, note how the gardener is kneeling with only one knee on the ground, and the other leg bent, with foot flat on the ground. She is able to position their forearm on their thigh. This help take pressure off her back muscles. Also this allows her to have a better neck position than in the photo on the left.

Alternate leg positions periodically.



Weeding & Planting

Weeding

In this photo, the gardeners are weeding with hoes.

Note that the shaft of the hoe should be long enough to allow an upright posture, resulting in less use of back and hip muscles to maintain that posture against gravity.

In this photo the gardener on the right, who is using a diamond hoe (inset picture), has the best position.

The blade of the diamond is small and very sharp resulting in efficient cultivation and need to move less soil.



Weeding

Weeding

Note how the use of a back saving handle on the shaft of a hoe results in less forward bending and less stress on the back.

While both hoes have the handle, in the left photo the gardener is grasping the shaft of the hoe as she would had there been no handle on the hoe and you can see the less upright stance that results.



Weeding

Sit To Do Some Tasks

If standing tires you or causes pain, and sitting is more comfortable for you, consider sitting rather than standing when you do a task.

There are a variety of seating options available.

Using extended reach tools or child size tools will help you reach the ground and limit your need to bend.



Sit To Do Some Tasks

Weeding

Note how straight this gardener's back remains while performing this task while seated.



Weeding

Use Better Planting Methods

Better option for planting seeds – make or buy seed tapes, use pelleted seeds or a dial seed sower, or suction seed sower.

Commercial seed tapes are only available in limited varieties but homemade ones are a good winter project.

Using tools of this nature can reduce the later need to bend to thin crops, so less stress on your back.

If you experience fatigue or pain when using just one (dominant) hand, try switching to your non-dominant hand for a while. For example: when planting seeds or pulling weeds.



Use Better Planting Methods

Planting

Stress to the back can be avoided by using a stand up seeder, since there is no longer any need to bend, or thin crops later.

This one was home made with a piece of PVC pipe, a clamp and a dowel. The dowel extends beyond end of pipe for making hole or furrow.



Planting

Planting

Our gardener is using a drill and bulb auger to reduce the stress on hands and wrists that would result from hand digging holes for bulbs. This combination decreases the need to bend, resulting in less stress on back, hips and knees.



Planting

Pruning

Exercise caution when using long reach extendable pruner to reach high branches.

While enabling, these pruners do require extreme backward bending of the neck.

Use only for short periods and change positions often.



BEWARE

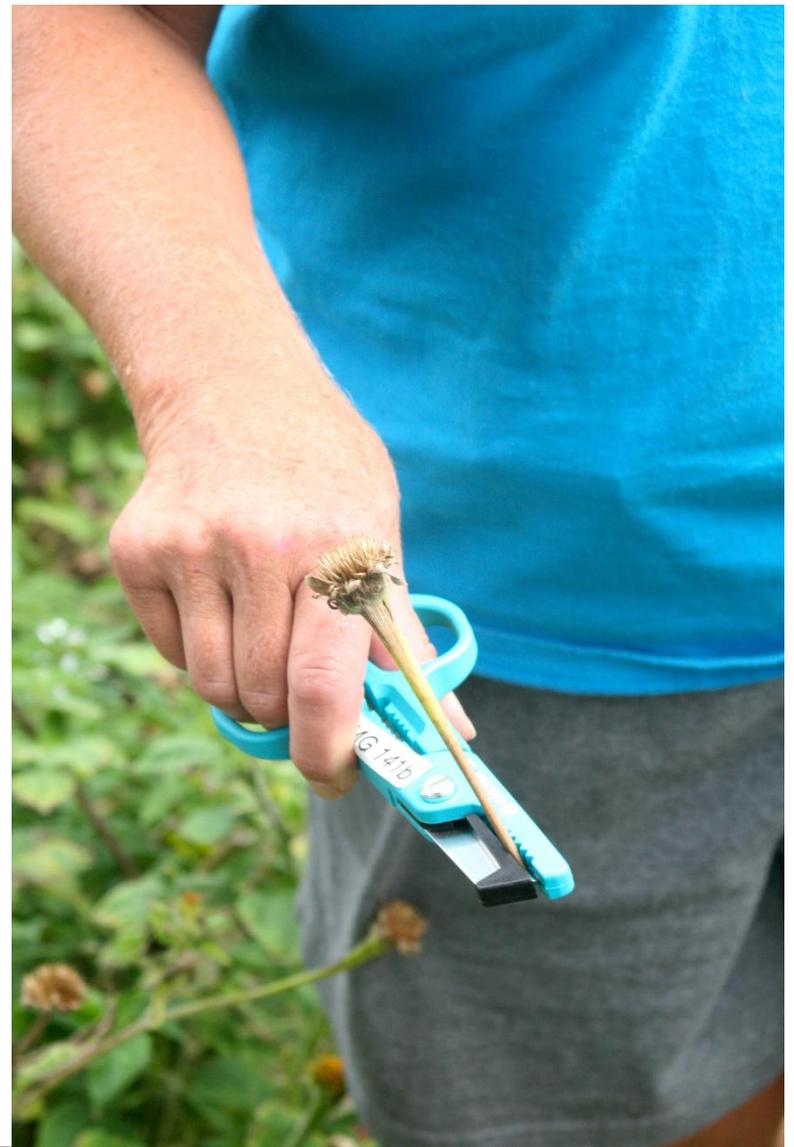
Pruning

Pruning

This gardener is using cut and hold pruners which incorporates a rubber or plastic piece along the cutting edge which prevents the release of the cut item.

Advantages:

- Eliminates the need to bend to retrieve cut flower or branch
- Frees one hand for use of cane or walker
- Eliminates the need to reach with a second hand (twisting) to hold the cut flower or branch so it doesn't fall to the ground.
- Reaching with both hands would require a weight shift to one side which could result in a loss of balance and risk of a fall.



Pruning

Raking

Considerations while raking: Use a long handled rake, same as for a hoe. Repeatedly bending and straightening hips and back as you reach out with the rake stresses the back, joints and muscles. Don't use a rake with too large a head, or try to move too large a pile of leaves. Do include back saving handle on the shaft of rake. Alternate holding the rake on each side of our body, which will cause you to change your hand positions on the rake, resulting in moving the focus of the stress from hand to hand.

Dancing with the rake is simply stepping forward and backward when raking, rather than bending and straightening the hips and back.



Dance
with
the
Rake!!

Raking

General Tips

- Warm up with exercises
- Change positions and activities (heavy vs. light) frequently
- Take frequent rest breaks
- Listen to your body: if you have pain, stop that activity and/or change position.
- Wear a back brace while gardening if you have been advised to do so by your therapist or doctor.

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