Therapeutic Gardening

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Introduction

Gardening is a great activity to help maintain physical and emotional well-being. However, it is not without its challenges even for the able bodied. With a little creativity, gardening can be an accessible activity and can have therapeutic value. As a therapy, gardening is unique in that a living medium, plants, are used. This allows the gardener to be anchored in reality. When gardeners realize that they have an effect on something else that is living there are often positive changes in their behavior and feelings. The term therapeutic gardening means that the activity of gardening is designed to assure positive health outcomes and minimize negative outcomes.

Horticulture therapy is another term often used interchangeably with therapeutic gardening. However, the American Horticulture Association differentiates horticulture therapy as utilizing a trained professional carrying out a plan of care with measurable goals. Therapeutic gardening uses plant materials and gardening techniques as a way to improve physical, psychological and social well-being. It can benefit the elderly and infirm, the mentally ill, the developmentally disabled, substance abusers, public offenders, and the socially disadvantaged. It can also help the able bodied to garden with more ease, sense of achievement, control, and pride in accomplishment. (https://www.ahta.org/ahta-definitions-and-positions, and https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3372556/).

History

Using horticulture for healing has a long history. In early Egypt, physicians and philosophers recognized the healing benefits of gardening. In the United States in the early 1800's Dr. Benjamin Rush, pioneer psychiatrist, described the therapeutic effects of working in the garden. Following both World Wars I and II, veterans' hospitals made use of gardening as therapy in the treatment and reeducation of disabled soldiers. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3372556/.

Today in the US many horticulture therapists use plants to provide a powerful form of therapy for patients with emotional and physical disabilities. They work in a wide range of settings, from nursing homes to prisons, schools to hospitals.

Challenges Associated with Gardening

It has been reported that, during the average lifetime, one in every five Americans will be faced with either temporary or permanent disability. For these millions of Americans, gardening, which is one of our country's top hobbies, is abandoned as being too difficult. Even for the able bodied, there are many challenges to gardening. Examples include: the usual garden design of long rows at ground level; garden tools with heavy, long hard handles; problems with manual dexterity, such as weak grip or arthritis, carpal tunnel syndrome and weakness associated with chronic illness; lack of confidence and knowledge and declining visual acuity.

Rewards of Gardening

Everyone can get rewards from gardening whether these are physical, emotional, spiritual or mental well-being. While we tend to think of gardening as being good exercise, we often don't realize that it can help improve communication and social skills; confidence and self-esteem; feelings of well-being; nutrition, knowledge and enjoyment.

Gene Rothert of the Chicago Botanic Gardens concisely sums up the job of providing a horticultural therapy service in three parts,"Adapt the garden, adapt the gardener, and adapt the plant materials."

Adapting the Garden

For many individuals, walking down long rows, bending, stooping and reaching are no longer options in gardening. At this point, the garden needs to be adapted to the gardener. Increasingly, gardeners are adapting their garden with planters, containers, and raised beds. These adaptations make gardening easier and can be used in a variety of settings.

Raised Beds

If the gardener can't get down to the garden, bring the garden up to the gardener. A raised bed garden is gardening in soil that is above the normal ground level. It could be as simple as piling up soil several inches above ground level or a garden bed on legs that can be reached from sitting or standing. Raised beds are generally two to four feet wide: two feet if gardening from one side and four feet if gardening from both sides. Depending on the individuals' abilities, the length of the bed can be as long as desired. The height of the bed above ground level can vary significantly depending on the needs of the gardener.

Low raised beds are usually 8-10 inches in height. These beds are used to grow deep rooted plants, or plants that will be very tall, for example, dwarf fruit trees. They may be combined with a trellis to add vertical gardening.

Figure 1. This low raised bed also includes a trellis.

Deep raised beds can be built at a height and width that will provide easy access from a sitting position. They may have a border or edge wide enough for a person to sit upon. Deep raised beds are best adapted to annual crops because permanent plantings are vulnerable to winter injury of roots in the above ground exposed raised bed. Limited space calls for compact crops. Limited reach while sitting will require choosing plants that will not achieve a height of more than two feet.

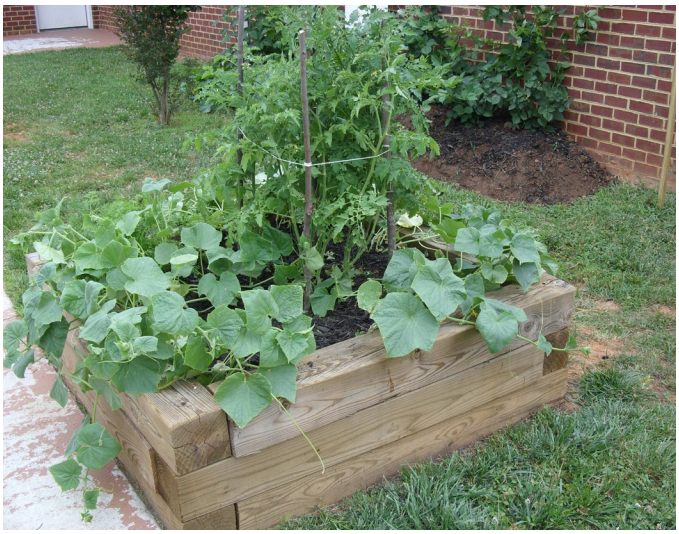


Figure 2. Deep raised beds provide a way to garden from a sitting position.

Elevated beds are shallow beds that are raised off the ground upon legs. These beds are especially good for the chair-bound individual. The height from ground level to the bottom of the bed should be as low as is comfortable for the individual. Thirty inches is usually satisfactory for an adult. If the bottom of the bed is much higher, the soil level will be so high as to cause excessive fatigue of the arms while working. However, this bed can be constructed higher for those who prefer to stand. The elevated bed should be at least eight inches deep and is usually made of wood. The plantings within the bed should be shallow-rooted annual vegetables and flowers.

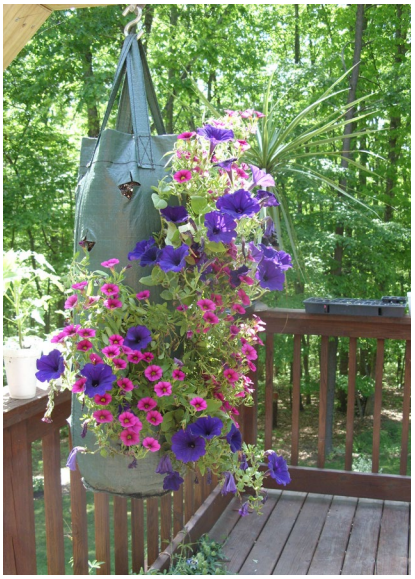
Figure 3. Elevated beds are usually thirty inches off the ground.

Containers

Containers provide another way to adapt the garden to the gardener's needs. Containers can be located for easy accessibility and used in areas where plants would not otherwise grow (e.g. roof gardens). Advantages of planters include: the wide choice of plants that can be used; mobility of the garden; and fewer problem with soil borne disease. Additionally, containers drain well, warm quickly, and thus produce early crops. Seedlings can be started in small mobile planters indoors and brought out when the weather is appropriate, thus extending the growing season. Almost anything that will hold sufficient soil can be used as a planter. Plants in containers will need to be watered frequently. Even full-sized bush-type vegetables can grow in containers of at least 18 inches diameter.

Figure 4. Container gardening provides much versatility.

Planting Bags



Planting bags provide another way to adapt the garden. Plastic bags are filled with artificial soil mix and planted through slits in the side of the bag. Bags can be placed on ground, benches, or tables of any convenient height. They can be easily moved from one location to another to produce a small garden where other methods are difficult.

Figure 5. An advantage of planting bags is ease of movement.

Hanging Baskets

Hanging baskets are not much different from any other container in their cultural requirements. However, their small size may require more frequent watering. A pulley system on the basket may make it easier for those in wheelchairs to reach. Compact vegetable varieties can be grown in a hanging basket, bushel basket, or pot.

Figure 6. Hanging baskets provide another alternative to traditional

Straw Bale Garden

Straw bales can be used for the garden, a seat in the garden, or both. With topsoil on top of the bale, you can start your garden with seeds or transplants. Holes can be cut into the bale and soil and plants added. The straw bale should be aged and heavily wetted before planting.

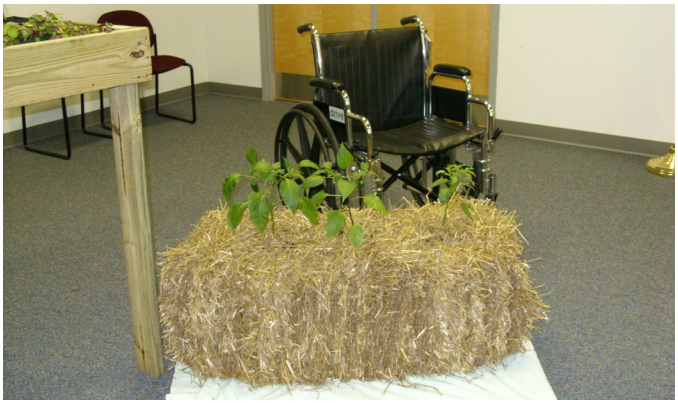


Figure 7. A straw bale garden.

Adapting the Garden Site

Adaptations to the garden site may be needed in order for the gardener to get the maximum benefit from gardening. For example, it is essential that the gardener be able to reach the garden with a minimum of difficulty. For wheelchair bound gardeners, gates or doors must be wide enough (36 inches) for a wheelchair to pass through without difficulty. Gates and doors must be light enough to move easily. Walkways and spaces between raised beds should be a minimum of three feet wide for single-person travel and six feet for two persons. All surfaces within the garden should be non-slip and have a 2% slope for water drainage or be made of porous materials. The surface

should be continuous and should not have any bumps. Brick walkways are discouraged because they are very susceptible to heaving in winter weather. A traditional lawn is too uneven and not appropriate for the person in a wheelchair or with impaired walking.

The garden site should provide rest areas: benches, chairs, or a flat surface for a wheelchair in a shaded location. These areas provide opportunities for the passive enjoyment of gardening. Access to a water supply is critical for gardens using raised beds and containers, which need frequent watering. Watering is easier if you have an easily accessible spigot two to three feet above ground and if you replace round spigot handles with hand levers, which are particularly helpful for gardeners with arthritis. Mulch and groundcover decrease the need to water and weed, making a more user-friendly garden.

Planting techniques can also be used to help the gardener maximize benefit and minimize effort. Intensive gardening is a planting technique of close planting to maximize space. Interplanting is a technique of growing two or more types of vegetables in the same place at the same time. Succession planting is planting something new in spots vacated by spent plants. Trellising or caging uses vertical space, leaving soil space around these plants for more plants.

Adapting the Gardener

The first step in planning a garden is to understand the needs and abilities of the gardener. Once abilities and limitations are identified, adaptations can be made to aid the gardener in their task.

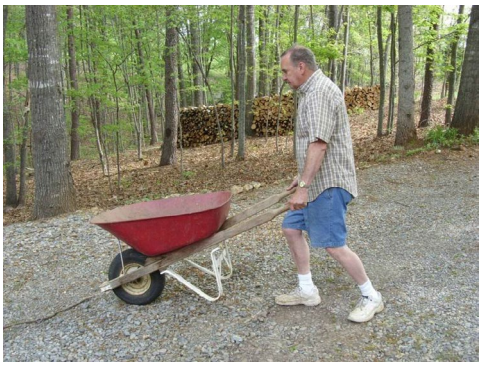
At times, our enthusiasm for gardening overrides our prudence. We lift loads too heavy for us. We twist, kneel, stand, and overreach. The result is fatigue, pain and even injury. Much of this stress can be avoided by steps such as exercises to tone and relax muscles before, during and after gardening; shifting from task to task to relax muscle groups; and using the right equipment.

Exercises

An exercise program that includes toning up before garden season, warming up before gardening, stretching during gardening and unwinding after gardening can prepare the muscles for the activity of gardening and protect the gardener from injury.

One mistake gardeners make is staying in one position too long. It's okay to weed for several hours at a time but not in the same position. You can bend over, kneel down, sit in a chair, pull with one hand, then the other, and kneel on one knee and then the other. Each position will change the shape of your back and the muscles you use. Shifting tasks accomplishes the same thing. It is wise to pause every 20 minutes or so. Repeat some warm-up exercises, doing hip circles, or a few waist twists. And drink lots of water. Tight muscles build up toxins, and water helps clear those out, which in turn lessens tightness. Stretching after gardening will also guard against soreness and help prevent loss of flexibility.

Exercises to Tone-up for Gardening

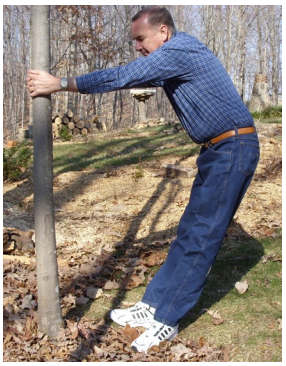


Wheel Barrel Shuffle. To tone up your glutes, your thighs, your lower legs, your back.

Bowling. Coordinate large groups of muscles in your body that must work together to do things like raking, shoveling, carrying mulch and fertilizer. With a one pound can of veggies in one hand, swing that hand backward; then slowly stoop at the knees and swing that can forward… like throwing a bowling ball. Repeat 10 times on each side.

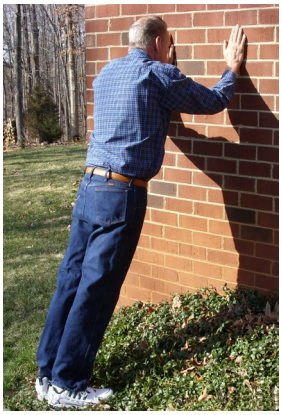
Marching. To protect your back, stomach muscles are essential. Lie on your back. Tighten your stomach muscles. Lift and lower your right foot and right arm; then your left foot and left arm. Do not hold your breath. Add a tin can of food to your hand to increase the workout. **Repeat 10 times.**

Exercises to Tone-up for Gardening, Continued



Back and Shoulder Stretch: Gardeners need strong upper back and shoulder muscles for all that repetitive overhead lifting. Facing a post, grasp it with both hands. Round-out your upper back and shoulders. Lean away from the post. You should feel a stretch through the back and shoulders. Hold this stretch for a minimum of 30 seconds.

Rowing Exercise: This exercise will help build strength for digging and lifting. Position one leg in front of the other in a lunge position. Rest one arm on your front leg while holding a weight in your other hand. Extend the weighted arm in front of you at a 45 degree angle. Pull your arm back, keeping your elbow close to your body. Squeeze your back muscles together. Return your arm to its starting position. Repeat with the other arm.

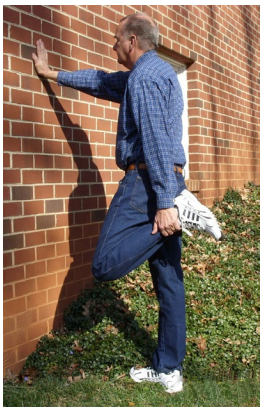


Wall Push Up: To prepare for pushing that lawn mower. Builds chest muscles. Stand two feet away from a wall. Place the palms of your hands on the wall slightly below shoulder level. Lower your chest toward the wall. Use your stomach muscles to help you. Push away from the wall. Concentrate on using your chest muscles to do the work. Repeat 10 times.

Leg and Calf Stretch: These stretches are useful for preventing injury to leg muscles while walking, stooping, or lifting. Place both hands on a wall in front of you. Step back with one leg, leaning into the wall, assuming a lunge position. Keep the heel of your back foot flat on the floor. Hold this position for 30 seconds. Repeat with the opposite leg.

Hamstring Stretch: Strengthens muscles for walking, pushing, digging, carrying heavy loads. Place one foot in front of you on a raised object (step) with your toes facing upward. Put your hands on your opposite leg for balance. Lean forward slightly until you feel resistance in the back of your thigh. Hold this position for 30 seconds. Repeat with the opposite leg.

Hip Stretch: Strengthen glutes and hamstrings. Hold onto a tall shovel for balance. Cross one leg over the other. Sit down into the other leg slightly. You should feel a stretch through the back of your hip. Hold this position for 30 seconds.



Quad Stretch: Strengthens legs. Hold onto a wall, post, or large tree for balance. Stand on one leg. Grab the ankle of your free leg behind you. Press your leg gently into your hand. You should feel a stretch on the front part of your thigh. Hold this position for 30 seconds. Repeat on the opposite leg.

Pot Raise Exercise: To get your shoulders and arms up to speed for the gardening season. Standing, lift an empty (or partially filled) clay pot straight up in front of you, only to shoulder height. Lower and repeat.

Dress for Gardening

Another adaptation for gardeners is to dress in a way that protects them from injury. A brimmed hat is necessary to protect the head and eyes. Research suggests that wearing sunglasses and a hat greatly reduces risk for developing macular degeneration of the eyes.

A lightweight, light colored, long sleeved shirt will protect the arms. Gloves not only help reduce scratches and prevent blisters, they provide protection from bacteria and fungus that live in the soil and may provide protection from snakes, spiders or rodents living in your garden, as well as poison ivy and insect bites. One drawback of using gloves is for the blind gardener who relies on the sense of touch for much information.

Figure 8. This scarecrow displays how to dress for gardening.

Safety Precautions

Safety precautions in the garden to be followed by all gardeners may be even more critical for gardeners who experience sensory deprivation, mobility issues, chronic illnesses or limitations in other abilities. Heat-related illness can be fatal. Over-exposure to the sun can cause problems for gardeners taking certain prescription drugs, so precautions should be taken.

Overexertion can exacerbate many illnesses. Take a break every half-hour or switch to another activity. Rest in the shade. Avoid sustained/constant gripping and awkward motions. Use both hands for heavy activities such as lifting. Don't sit back on your knees. It is a hard position for the knee joint and it requires you to push most of your body weight up with your hands and wrists, placing increased pressure on these joints as well. Instead, use a short gardening stool or bench.

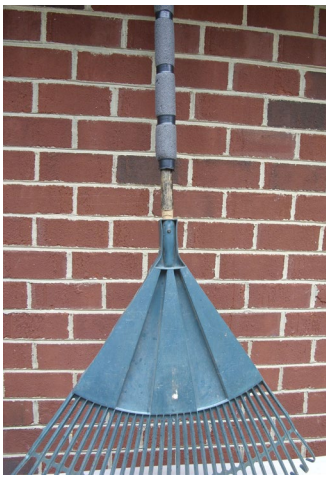
Stay hydrated. Drink water before and after working in the garden. Do not drink alcohol or caffeinated beverages, both of which dehydrate the body. Don't depend on thirst to tell you when to drink. It won't.

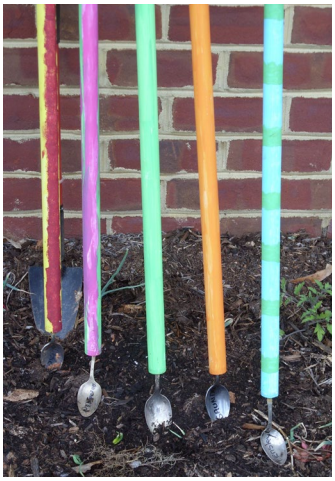
Keep the work area safe. All debris and equipment (tools, hoses, etc.) should be removed from paths to avoid problems with wheelchairs and walking aids. If using pesticides, directions on the label must be followed and cautions heeded. Keep any sharp tools closed when not in use. Keep rake tines turned down.

Never handle wildlife, alive or dead. If wild animals feel cornered, most will fight as hard as they can. Most also are a haven for microorganisms, ticks, lice and a host of other unhealthy-for-humans "critters."

Tools to Help the Gardener Adapt

Good ergonomic garden tools can make gardening tasks easier. Ergonomically angled handles keep the hand and wrist in a natural position, taking the strain and discomfort out of gardening. The soft feel non-slip grip prevents the tools from turning in the hand, giving a firmer grip even in wet conditions. Tools that are labeled 'enabled,' or 'for handicapped' are not that much different from regular tools. What makes a tool 'enabled' or good for use by the disabled gardener might be the way a handle is gripped, a little extra length in the handle to prevent extra bending or stretching, or a padded seat that lets the person garden from a sitting position. It isn't always necessary to buy expensive "tools for handicapped." Many times the tools you already have can be modified to benefit you.





Figures 9 and 10. Modify existing tools to help gardening become more comfortable.

Tools to Help Gardeners Adapt

Tools to help you grip:

- Buy Velcro to attach tools to your hands
- Buy foam sleeves to place on handles to make them easier to grip
- Use scissors and shears modified to require a small amount of pressure to cut

Tools to save your back and knees:

- Easy-rise kneelers for those that have difficulty getting on their knees to work
- Foam knee pads or pants with padded knees (e.g. hockey pads)
- Use an old skate board to sit on and roll along the ground as you work
- Tools with D-grips, or upper hand extra handles, that attach to long handles to provide a crosswise grip
- Small or electric-powered tillers are often lighter weight
- Lightweight carts to move tools or supplies made from plastic
- You may use an old laundry basket with wheels to haul your tools

Tools to save your wrists:

- Trigger grip tools with finger rests that are made of light-weight aluminum
- Ratcheting action tools such as pruners or loppers, also one-handed lopping shears that hold the item until it is cut
- Flower cutters that hold the stem after it is cut (one handed process)

Tools to help you water plants:

- Water nozzles with trigger grips that, when released, turn off
- Light weight hose or in-ground watering systems, or soaker hoses

Weeding tools:

- Weed whacker, weed popper or many other brands available
- Fork or weeding tool (for raised beds and containers)

Tools to enable the visually impaired:

- Magnifying glass to hang around the neck
- Tools with brightly-colored handles
- Seed tape or pre-plant seed trays

Ways to help with transplanting:

- Scissors to thin seedlings
- Teaspoon or fork to cultivate small containers
- Handle of wooden spoon to make indentions for small seeds
- A cup with a handle to dig with
- Tweezers to pick up small seeds or salt shaker with sand and very small seeds inside to sow them

Hints to Choosing and Using Garden Tools

- Make sure that all tools are brightly marked so that they can be found easily.
- Use a basket or large handled container to carry supplies to the garden. Baskets should be carried with hands, distributing the workload equally and decreasing stress in the joints of your upper body.
- Keep tools such as knives, pruners, and hoes sharp for easy and efficient use.
- Make use of such labor-saving devices as garden carts and wheelbarrows to move heavy objects.
- Match the tool to the job. Most people use tools that are too big for them, thinking it will ease the work. Whenever you can, use a small shovel, rake, spade or pitch fork. That way you're lifting less weight.
- Pad Profusely. Use tools with padded or thicker handles to protect the smaller joints in your hands. Kneeling pads and garden benches can pamper your back and joints. Padded hand tools also reduce the strain on your hands and arms.

Adapting the Plant Selection

Careful selection of plants can significantly reduce the work of gardening. Consider the level of maintenance that is needed and the level of skill needed to grow the plant. Many different types of plants can be grown in raised beds and containers. You can choose from: annuals, perennials and biennials, shrubs, bulbs, vegetables, plant material for drying or cutting fresh, herbs, climbers, dwarf trees, water plants, or plants for attracting wildlife.

Warm soil plants such as tomatoes, peppers, eggplants, peanuts, melons, and okra will thrive in higher beds where the sun can strike the sides of the bed and warm the soil. Cool soil plants such as lettuce, potatoes, cabbage, broccoli and cauliflower will do better in lower beds where soil temperatures are cooler.

Because most herbs are shallow rooted, they fare well in raised beds and containers. Many herbs grown in containers can be brought inside to provide a fresh supply of herbs during the winter months.

Small fruits such as strawberries thrive well in containers such as hanging baskets, barrels, and wheel barrows. Some bush type fruit that may be grown in containers include: blueberries, raspberries, blackberries, currants, and gooseberries. Because severe pruning is required to maintain vigor in many fruits, their yield will be low when grown in containers. All fruit trees grown in containers should from dwarf rootstock. Apples and pears are often trained to cordons and espaliers when grown in ground level beds.

In choosing perennials or woody shrubs, consider the amount of work that might be needed to care for these plants. The biggest problem with perennial plants in the raised planter is overwintering because the soil and roots are more exposed to colder temperatures and to heaving due to the increased freezing and thawing of the soil in the planter. A good layer of mulch is often used to help protect roots and crowns. Woody perennials need pruning in order to keep them the correct size for the planter. Plants may have to be sprayed to rid them of pests. The job of division of perennials and bulbs can be taxing so sometimes it is better to find species which require little or none of this cultural practice.

Careful choice of plants to use in raised beds and containers can help reduce the labor of gardening without decreasing the benefits of the activity.

Summary

Gardening can be therapeutic for anyone and has been used as therapy for those with physical, emotional and social disabilities, for children, and for those who are elderly. Through careful adaptations to the garden, the gardener and the plants almost anyone can benefit from the activity of gardening.

References

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6977207/ Positive aging benefits of home and community gardening activities: Older adults report enhanced self-esteem, productive endeavors, social engagement and exercise. Published online Jan. 22, 2020. Retrieved 10/21/22

https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/426/426-020/426-020.pdf Container and raised bed gardening. Retrieved 10/21/22

https://www.nchpad.org/fppics/NCHPAD_Accessible%20Gardening.pdf Accessible gardening. Retrieved 10/21/22

https://joegardener.com/podcast/gardening-in-straw-bales/ Gardening in Straw Bales. Retrieved 10/21/22

https://www.betterhealth.vic.gov.au/health/healthyliving/gardening-people-with-disabilities Gardening: People with Disabilities Retrieved 10/21/22

https://www.betterhealth.vic.gov.au/health/healthyliving/gardening-people-with-disabilities Health and Safety Tips for Gardeners with Disabilities. Retrieved 10/21/22

https://www.ahta.org/about-horticultural-therapy About horticulture therapy. Retrieved 10/21/22

Photographs

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Produced by Virginia Cooperative Extension, Virginia Tech, 2022

VT/1222/HORT-66NP (SPES-432NP)