



Physical Therapy: How to Meet the Needs of Farmers

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AgrAbility Virginia

AgrAbility Virginia promotes safety, wellness, and accessibility on the farm through education, rehabilitative services, and assistive technology. AgrAbility Virginia offers services to farmers at no cost, supports a wide diversity of farmers and farmworkers across all farming communities, and addresses a wide variety of disabling conditions in agriculture. To learn more, please visit our website at www.agrabilityvirginia.org.

Understanding the Landscape of Virginia Agriculture

As food producers and land stewards within both rural and urban communities, farmers are a significant segment of the population in the United States. Protecting and promoting farmers' health and safety is essential not only to preserve a high quality of life for our farmers but also to ensure our food security, economic stability, and the well-being of our communities.

Agriculture is Virginia's largest industry, with an economic impact of \$82.3 billion annually, providing more than 381,800 jobs in the Commonwealth (USDA, 2022; VDACS, 2025). With a strong agrarian tradition, Virginia's agricultural context is one of the most diverse in the United States. From a commodity perspective, the state ranks competitively in tobacco production and

seafood, as well as in cattle, apple, and peanut production, and is well known for its poultry production (USDA, 2022; VDACS, 2025). Farming practices and models differ regionally and in different contexts. For example, dairy and beef cattle farming communities thrive in southwestern and central Virginia, while we celebrate cut flowers, goat, and tilapia production in southeastern Virginia.

Although commodities play a significant role in Virginia, the changing face of agriculture is illustrated through a majority of small-scale, diversified farms. The findings from the 2022 Census of Agriculture indicate that there are 39,000 farms, with an average farm size of 187 acres (USDA, 2025). The variety of farming practices and diversity of producers may be at least partially attributed to the prevalence of small-scale agriculture. Small farms are crucial to Virginia's agricultural identity, as well as its economy.

Lastly, Virginia farmers and consumers have embraced the local and regional food movement, which is growing at a teeming rate following a national farm-to-table trend. This investment in the local and regional food system has a direct impact on the survival and viability of agriculture in the state. (Niewolny, et al., 2016).

Virginia Farmers

As in other states, the average age of farmers in Virginia has been steadily increasing, with the average age of farmers now reaching 59.2 in 2022

(USDA, 2022). As farmers age, they may experience impaired vision and hearing, slow reaction times, and other conditions such as arthritis and stroke (Raghupathi & Raghupathi, 2018). These factors may adversely affect farmers' ability to farm safely, resulting in primary or secondary injuries.

According to the *Bureau of Labor Statistics Injury and Illness Report*, among all U.S. states, Virginia had the 17th highest fatal injury rate per 100,000 full-time workers in the agriculture, forestry, fishing, and hunting sectors (BLS, 2023a). Moreover, the ratio of the fatal injuries in Virginia's agriculture, forestry, fishing, and hunting sector (19.8) was higher than the overall rate across all state industries (2.7) (BLS, 2023a). Although it is slightly lower than the national rate (20.3) (BLS, 2023b), Virginia's fatal injury rate underscores the dangers faced by agricultural workers. Factors related to an aging farming community, coupled with higher levels of farm vulnerability, may be contributing to this increased number of fatal and non-fatal injuries in Virginia.

To support aging farmers, those with disabilities or injuries, farm families, farm workers, and new farmers seeking to enter into agriculture, it is essential that health service providers understand the unique demands of agricultural work and promote wellness and rehabilitation strategies that help farmers achieve their goals.

Assessing Risk of Injury

In 2020, the agriculture sector employed approximately 1 million people full-time, and 368 farmer deaths were due to work-related injuries in the US (The National Institute for Occupational Safety and Health (NIOSH), 2022); 11,800 injuries from agricultural work resulted in time off from work; 12,000 youths were injured on farms in 2014 (NIOSH, 2022). Compared to the 1970s and 1980s, farm-related injuries now occur in older individuals; injuries are also more severe and are more commonly neurological in nature (Staskywiec et al., 2022). Between 2011 and 2015, 89 percent of injuries experienced by farmers were caused by their work; livestock, machinery, and hand tools were the most common causes (Johnson et al., 2021). Increased risk for injury included younger age, agriculture as the primary vocation, more time spent

working, and lack of internet access. Injuries often cost about eight thousand dollars.

According to the Occupational Safety and Health Administration (OSHA, 2022), there are many personal risks: animal-acquired infections, grain bin- and silo-related injuries (e.g., suffocation), hazardous equipment, heat, ladders and falls, musculoskeletal injuries, noise, harmful chemicals, respiratory distress, unsanitary conditions, and vehicle hazards. Because of these unique factors, farmers have needs that differ from those of the population at large.

Understanding Common Farmer Responsibilities:

Farmers have a lot of responsibilities. It is essential to understand these responsibilities because farmers have a different lifestyle and set of needs compared to those of the general population. Included below are some important examples of farm responsibilities to note as a healthcare provider who serves farmers and agricultural communities with a focus on strength, movement, and rehabilitation:

- **Physical Labor.** Farmers are responsible for performing manual labor to cultivate and upkeep the farm. Farm responsibilities may span all 365 days of the year, depending on the type of farm. For example, dairy farmers must manage and milk their cows seven days a week and sometimes twice or three times a day, while crop farmers may have times in the year when they are less active but may work upwards of 14 hours per day during the planting and harvesting seasons (spring and fall). These tasks can involve lifting, bending, squatting, kneeling, and other repetitive motions, and/or sitting for long periods of time on a vibrating tractor seat.
- **Equipment.** Many farmers need to handle heavy machinery and dangerous equipment on a daily basis. This may involve heavy lifting and/or contorting the body into awkward positions to access hard-to-reach areas of an engine or the interior of a piece of machinery.
- **Stress.** During the high-intensity planting and harvesting season, farmers may experience increased stress levels that may impair their decision-making process, along with a lack of rest, prompting them to get injured.

These responsibilities correspond to a higher risk of injury for farmers that may not be seen in the general population.

What is Physical Therapy (PT)?

Physical therapy is a profession that aims to improve the human experience by optimizing movement to get individuals back to doing the things they love. Physical therapists are rehabilitation specialists who help improve people's function and quality of life by optimizing movement through the use of therapeutic exercise – patient-specific exercises to help improve mobility/flexibility, strength, and endurance; manual therapy – to relieve muscle tension and increase mobility; and activity modification – identifying movement patterns that are causing pain and collaborating with patients to find ways to optimally perform necessary tasks without significantly decreasing productivity (APTA 2019). Additionally, PTs focus on evidence-based practice, including work-related ergonomics, safety, and assistive technology, especially for facilitating a client's successful and timely return to work.

Common PT Focuses

Physical therapists focus on improving physical function for individuals in many ways, including:

- **Musculoskeletal.** Strengthening weak muscles, lengthening tight muscles/tendons/ligaments, and increasing how long the muscles can work while performing tasks.
- **Neurological.** Nerve-related problems, neurological diseases, traumatic brain injuries, and stroke.
- **Cardiovascular.** Endurance training to promote heart and lung health.
- **Respiratory.** Help initiate respiratory secretions, proper breathing techniques, etc.
- **Pelvic Health.** Post-birth, fecal/urinary incontinence, and sexual dysfunction.
- **Sports performance.** Address injuries and optimize movement within a specific sport.

Common PT Approaches

Physical therapists create treatment plans specifically tailored toward the individual's goals and physical needs. Within this treatment plan, PTs utilize and prescribe therapeutic exercises, manual

therapy, patient education, and modalities (such as cold/hot packs, electrical stimulation, therapeutic ultrasound, and more) to improve patients' conditions and functional outcomes.

PTs are responsible for providing specialized care to all populations. Understanding the unique background of farmers and how they move throughout the world is paramount for providing the best possible care. PTs can improve the overall quality of life by tailoring treatment based on each farmer's individual needs and subsequently increase productivity.

PT's Role in Injury Prevention

Physical therapists play a vital role in providing patient education and resources to help prevent injuries. Key areas of education include:

- Proper lifting techniques. Understanding the best ways to lift objects safely.
- Warm-up exercise. Learning how to prepare the body for physical activity.
- Engaging stabilizing muscles. Techniques to strengthen muscles that support stability.
- Improving fitness and ergonomics. Strategies to enhance overall fitness and create a better working posture.
- Navigating the work environment. Guidance on how to move safely within the workplace to avoid potential injuries.

Additionally, physical therapists provide educational materials that highlight signs and symptoms to watch for, which can indicate issues such as muscle strains, sprains, fractures, tendinopathy, nerve-related problems, or more serious conditions that may require immediate medical attention.

Now Let's Apply It

Below, we offer a case example of a physical therapist working with a farmer in a fictional scenario. We present the fictional case and note the key question related to the farmer's unique needs. We provide examples of how PT can meet the needs of the farmer using their training and education for working with the general public, as well as their understanding of working with farmers and within agricultural communities.

Case Example

Rachel is a 37-year-old female who works on a family farm with her husband, John, and three children in Central Virginia. Farm responsibilities include caring for sheep, chickens, bees, gardening, landscaping, and other various farm tasks. Their kids, Ryan and Kate, are in middle school, and their oldest son, Marcus, is in high school. All the children help out on the farm in the mornings and after school. After a long day of work, typically ending around 5:30 pm, Rachel and John take joy in cooking a family meal and helping the kids with their schoolwork.

About three months ago, Rachel was in a car accident on her way to the grocery store. Having recovered from the initial injury, she is now reporting issues with her right foot. Rachel has difficulty lifting her forefoot when walking, pain in the bottom of her foot, and the outside portion of her knee. Although she has not fallen, she has noticed herself tripping more often while performing tasks around the farm.

These impairments have not only affected Rachel, but her husband and kids as well. With her pain and symptoms, Rachel has been experiencing decreased productivity on the farm. Her husband, John, has been working overtime to complete the tasks Rachel isn't able to do. Rachel's difficulties with her foot have also put more work on their children once they arrive home from school. With animals to attend to and the family's income at stake, instead of the workday ending at 5:30 pm as it used to, the family has been staying out until 7:00 pm to complete their chores. When the workday is done, Rachel and John find themselves too exhausted to cook a meal for her family. As of late, family dinners have been simple, easy-to-prepare meals rather than their usual elaborate recipes using farm products. These challenges have taken away the joy the family feels around shared meals. The couple is also too exhausted to help the kids with their homework. And now, with the kids not getting in from the farm until 7:00 pm, they no longer have time for leisure activities like reading or video games, as it is time for bed once they shower, eat dinner, and complete their homework. This dynamic leaves Rachel feeling defeated and guilty at times.

As weeks pass, Rachel notices that her condition is not improving, although she is relieved that it has

not gotten worse. She figured she could power through her pain and uncomfortable walking pattern, but with this putting more strain on her body, it is becoming harder to perform her duties on the farm, and seeing how this affects her family and body, she decided it was time to see a doctor. After her trip to the doctor, Rachel was informed her symptoms were consistent with "drop foot," a neurological condition that limits her ability to walk and increases the likelihood of tripping and falling.

The doctor recommends that Rachel see a physical therapist and provides a referral. With hesitation, Rachel tells the doctor she has had negative experiences with PT, as her previous physical therapist did not understand the physical requirements of being a farmer. With this, exercises were often too easy, or if her pain decreased, it would quickly reappear due to therapy not being translatable to her work environment.

That is when Rachel's doctor hands her this fact sheet, sends the PT referral a copy of this fact sheet, and refers her to AgrAbility Virginia. With Rachel and her physical therapist having both been provided resources, she and her doctor are hopeful Rachel will receive the help she needs in strengthening her muscles, decreasing her pain, and getting any assistive devices she may use to help her navigate around the farm, reducing her risk of falling. With this reassurance, Rachel is eager to start PT and get back to performing her daily tasks on the farm without limitation and without the sacrifices her husband and kids make daily.

Case Question

How can you, as a PT, adapt your treatment approach and plan of care (POC) when working with Rachel as compared to a typical patient?

Farmer's Focus and Goals

With injury and disease, each individual has their own goals they would like to achieve in the healing process or in the maintenance of their disease/injury. The bullet points below showcase Rachel's focuses and goals based on her scenario:

- Increase work productivity to match the prior level of function before her injury.
- Decrease pain to optimally work on the farm and improve her well-being.

- Find solutions to prevent her foot from being a limiting factor on the farm and in her daily life by fixing the issue or developing tolerable compensations, either physical or social.
- Optimize her workday so her kids do not have to work as much when they come home from school by planning her work routine, adjusting for her injury.
- Manage her mental health by requesting a referral to a mental health care provider from her primary care doctor.

PT's Focus and Approach

In addressing disease or injury, physical therapists have different focuses and approaches to creating a treatment plan.

Table 1. Identifying Rachel's needs to create a treatment plan

Specific Needs	Environmental Modifications	Equipment Modifications
Physical barriers	Supporting Rachel's foot appropriately for farm work	Planning treatment to best meet lifestyle and work needs
Balancing rehab, work, and family	Modifying farm duties and chores	Identifying assistive devices or orthotics if appropriate

Strategies to Meet the Farmer's Unique Needs

Working with farmers may entail different treatment strategies, interventions, or visits outside the clinic to provide appropriate treatment. Here are some techniques to meet your patient where they are:

- Provide preventative and maintenance treatment strategies, including plans to prevent issues from recurring and ensure optimal operation and function within her limitations in her environment.
- Plan treatment around their schedule.
- Provide an extensive home exercise program to improve recovery and increase independence.
- When appropriate, conduct home/farm visits to support their recovery and enhance independence in their environment.

Conclusion

Farmers are essential workers in our society and are the powerhouses responsible for providing the food on our table and harvesting the materials that make up the clothes we wear. Oftentimes, society acknowledges farmers but has little understanding of what a farmer does and how the job is done. If we have little knowledge of the role of a farmer and what they do, how can we, as healthcare providers, truly provide the appropriate care needed to ensure that farmers can continue their role in society? Knowing that farmers are at an increased risk of injury and will likely find themselves in the PT clinic at some point in their lives, healthcare providers must know and understand the role of a farmer to provide adequate care, just as they would know how to provide appropriate care for a sports athlete. With this, healthcare providers need to educate themselves on the different patient populations they may serve in conjunction with the continuous education that comes along with the profession. If healthcare providers are equipped to serve diverse patient populations, such as farmers, these individuals can leave the clinic with the knowledge and tools to manage their injuries and illnesses. This allows them to return to their essential activities, which not only enhance their quality of life but can also contribute positively to our community as a whole.

AgrAbility Virginia works with healthcare and disability service providers to promote farm safety education and the care of farmers after an injury. They utilize their resources and connections by referring farmers to medical professionals and encouraging medical professionals to refer to AgrAbility in cases where clients may be unaware of this available resource. Healthcare service providers can also work alongside AgrAbility within a collaborative team to provide comprehensive services to farmers that help prevent primary and secondary injuries, improve their overall health, and allow them to return to farming and meet their farming goals. A crucial aspect of this collaborative process is educating and learning from one another about the unique services provided by AgrAbility Virginia and various medical professionals who support farmers, including doctors, nurses, OTs, physical therapists, and other rehabilitation specialists.

To learn more about AgrAbility, visit the website at www.agrabilityvirginia.org. To contact AgrAbility Virginia staff directly, call 540-231-4582 or email agrabilityva@vt.edu. AgrAbility staff can answer healthcare professionals' questions about working with farmers, provide resources and recommendations related to assistive technologies for farmers' specific needs, make referrals to other service providers, and visit with farmers on the farm to address their needs.

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