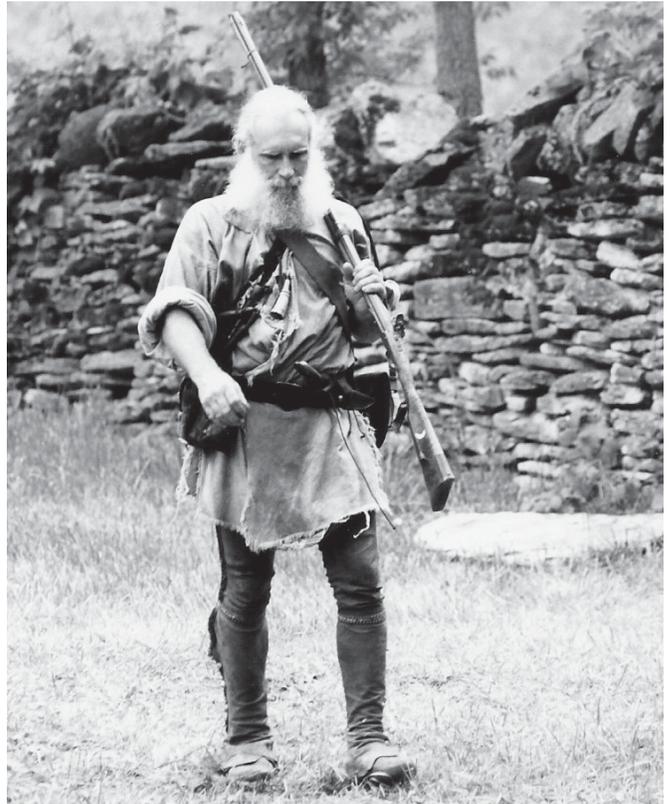
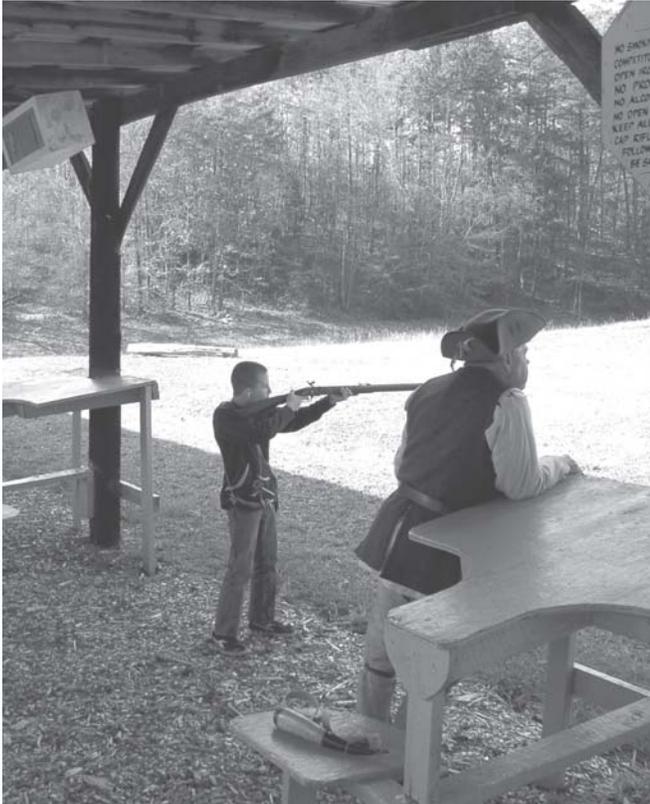


The Golden Age

by Fred Stutzenberger with John Cummings

Golden Age: the period of life after middle age, traditionally characterized by wisdom, contentment and useful leisure (Stein & Urdang 607)



Muzzleloading is a sport for all ages that brings the beginners and the graybeards together for the benefit of both.

For those of us active in the art, crafts, and skills of muzzleloading, the term Golden Age has two relevant meanings: the dictionary definition and that period from the 1780s to the 1820s in which the American Longrifle evolved to its classic form. Much has been written in *Muzzle Blasts* about the golden age of the American Longrifle, but little has been written about the personal “Golden Age” bestowed on each of us if we are fortunate enough to make it to our biblical three-score and ten years. This article seeks to address some of the physical issues that affect the muzzleloading performance of us golden agers on the range and afield.

When Director of Publications Terri Trowbridge asked me to consider writing such an article, the prospect seemed a bit daunting. Having lost four close friends who passed on in just the last year, I have become increasingly sensitized to the reality of human mortality.

Our physical abilities are declining while we still feel young. Both men and women reach their physical peak as young adults in their late 20’s to early 30’s. After that, physical strength declines slowly throughout the remaining years of life. Sen-

sory abilities peak in our early 20’s. Auditory acuity begins to decline by the late twenties (and for those of us who shoot without adequate hearing protection, probably even sooner). Visual acuity (perhaps the single biggest factor in muzzleloading performance) begins to deteriorate in early middle age (typically in the mid-forties). Fortunately, the ability to taste, smell, balance, and feel pain or temperature changes, stay with us until our later years.

Aging leads to a progressive decrease of muscle strength and flexibility. Our Armed Forces know these realities and reflect them in their age limits for acceptance. Air Force enlistment age limits are 17-27 years old, Marines 17-29 and Army 17-34. Muscle strength and mass plateaus, depending on an individual’s daily activity, by 35 to 40 and then shows an accelerating decline, with 25% loss of peak force by the age of 65. Changes are greater in the legs than in the arms; perhaps there is a greater decrease in use of the legs with aging. The male/female strength ratio is unchanged, so that women are limited by a loss of strength at an earlier age than men.

Having spent 50 of my 73 years on college campuses, I am painfully aware of the age-related contrast between students and myself. I used to pass up students walking between classes; now I am lucky to keep pace with those engrossed in texting on their cell phones. The age-related issue generating the most complaints on the range is "I can't see these open iron sights anymore," while the muzzleloading hunters complain that "up-hill tires me out, down-hill makes me sore." We all complain about not being as steady as when we were young – holding steady through a shot being the essence of good marksmanship, particularly with a flintlock.

The good news is that muscle strength can be markedly increased by as little as eight weeks of resistive training (weights or specific exercise machines), even in 90 year-old subjects. Muscle protein synthesis proceeds more slowly than in a younger adult, but much of the wasting of lean tissue can be avoided by regular resistive exercise. Stronger muscles further enhance function by stabilizing osteo-arthritic joints, reducing the risk of falls, and lessening the extent of dyspnea (labored respiration). In the past, resistive exercise was suspected of causing a dangerous rise of blood pressure and possibly provoking a heart attack. However, if individual contractions are held for no more than a few seconds at 60% of peak voluntary force, the rise of blood pressure is no greater than would be anticipated during a typical bout of cycle ergometer exercise.

The elasticity of tendons, ligaments, and joint capsules is another age-related issue influencing muzzleloading performance, particularly in cross-stick and chunk gun events where getting down on the ground is necessary. Flexibility is decreased as cross-linkages develop between adjacent collagen fibrils; over the span of working life, adults lose some 8-10 cm of lower-back and hip flexibility, as measured by the "sit-and-reach" test. The restriction in the range of movement at the major joints becomes gradually more pronounced during retirement to the point where independence is threatened. Fortunately, flexibility can be preserved or improved by gently taking the main joints through their full range of motion each day.

If muscle weakness and arthritis are already advanced, such activities are best attempted in warm water. Buoyancy then supports body-weight, and warmth increases the immediate flexibility of the joints. Classes are available for seniors at most recreation centers having pools. Rec-center memberships provide regularly scheduled aquatic classes such as "Senior Functional Fitness" (expanding range of



motion and strengthening specific muscle groups), "Silver Sneakers Splash" (exercises to improve agility, flexibility and cardiovascular endurance), "Deep Water Fitness" (moderate to high intensity workouts including vigorous aerobic exercises) and "Ai Chi" (exercises to develop personal mind-body relaxation techniques).

I took Terri Trowbridge's email across the hall to my friend and colleague, John Cummings. John is our university's Human Anatomy and Physiology instructor, so he possesses a strong background in age-related body changes. Before finding academia, he worked in Physical Therapy, thereby obtaining specific application of the questions being discussed. More pertinent to the discussion, John has served as our collegiate rifle coach, amassing considerable success with shooter development including taking his air rifle team to consecutive National Championships in 2010 and 2011. What follows is John's response:

"Core" muscles are those that run the length of the torso and function to stabilize the spine and pelvis. This list includes at minimum 20 different muscles, all of which function to create a solid base of support off which all movements of the extremities are based. These muscles make it possible to stand erect, to transfer energy to the arms and legs, to shift body weight and allow movement in any direction. A strong core distributes the stresses of weight bearing and protects the back.

Since shooting requires the stable hold of a weight that curiously extends a distance away from the body's center of gravity, a toned core is the first priority in shooting improvement. As we age and our muscles naturally atrophy,

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<p>Vol. I & II</p>	<p>Longrifle Series</p>	<p>Vol. I & II</p>	<p>Vol. I & II</p>		<p>WILLIAM R. BROCKWAY</p>
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we can lose core condition. This is evidenced in the number of postural imbalances exhibited by geriatric patients. In shooting, we can feel our core decline in our lower backs. We can sense it by recognizing we're wincing and holding our breath as we mount the rifle, and pay the price by feeling fatigued, sore, and requiring extended time for recovery.

Any exercise that targets a core muscle (remember, one that runs the length of the torso) will help to condition the core, but to be truly effective, groups, rather than individual muscles, should be exercised. Any group of muscles that work together and cross several joints, all contracting at the same time, will provide the most stabilization of the spine. In days past, sit-ups were seen as the best exercise for strengthening the lower back. Decades of failed recovery tell us otherwise. Now, something as simple as lying on your stomach and raising the right leg up about 6-8 inches, setting it down and switching to the left leg, then repeating for a number of reps is preferred. While this is only one exercise, it demonstrates the concept of involving numbers of muscles at the same time, thereby giving us a balanced development.

To attempt to outline a single exercise program effective for everyone is impossible, and downright foolhardy. Each of us has the potential to possess restrictions making any particular exercise unsuitable. Thus, each individual should develop his or her own specific routine, best through consultation with a licensed exercise physiologist or physical therapist. A quick search on Google, using the terms "Core Exercise Program" yielded over 37 million results. Obviously, a lot of people think they have the best training program, but all generally assume that their target is an otherwise healthy, younger adult. You will want to be quite selective in any program you adopt without professional consultation.

The USA Shooting Exercise Training Program was developed for the U. S. National Team by Brian Cassidy of ADAPT, a physical therapy firm in Portland, Oregon, and Amber Darland, a former U. S. National Team member. The program is designed to improve balance, strength, and stability using only the body for resistance. Because no extra equipment is needed, the workout can easily be conducted on the range.



The workout targets specific areas of the body that directly relate to shooters stability such as the hip flexor muscles that provide much of the support in standing and kneeling. This program primarily reaches the smaller muscles used for stability that are not typically worked in traditional exercise programs like weight training. Performing these exercises has become known as Ambergising. This is not an all out endorsement of this exercise program, but it does underscore that the National Team considers core conditioning essential for shooting success (<http://www.usashooting.org/11-resources/shootinginstruction/physicaltraining>).

Beyond core strength, the first thing I would investigate as a coach when a shooter complained about a loose hold or achy muscles is their shooting position. If muscles are being involved to a great extent, the shooter is generally creating a poor shooting position. The general rule is that the position should be built to provide a maximum of skeletal support, not relying on muscle support. Again, as we age and muscle mass and muscle tone naturally decline, a position that once relied on muscle and gave us good results is now not working. Simply stated, we can no longer get away with a sloppy position. Being more diplomatic, taking time to improve our position will give us far more success than hitting the weight room everyday.

Tearing down and rebuilding a shooting position is frustrating at the very least. It requires considerable conscious effort to overcome muscle memory, and while we're thinking about position, much of the rest of our shooting performance deteriorates. For these reasons, it is best to work on positional changes without obtaining performance-based feedback. The focus should be the process. So, plan on range sessions without active firing. By not having holes in the target to score, we can keep all our mental energies on building a solid position. Dry firing allows us to access the stability of our hold, the fluidity of our movements, and the amount of discomfort we perceive. These are the variables we are trying to optimize. Once we feel like we've achieved this balance, and new muscle memory is beginning to define, we can then add



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in live-firing. In many cases we'll be very pleasantly surprised with the result.

One last word about position: we should never think of position as static. We've all heard that once you've established your position you should avoid all movement. This is bad advice. Shooting position is dynamic. Not only will it have to change as our bodies change (remember before age 35 when that apron of lower abdominal fat wasn't there), it may have to change within a single shooting event. As muscles relax or fatigue, we can, and should, adapt our position. By being mentally attuned to monitoring position, we adapt more quickly. A tone core reduces the amount of change we should expect to see.

Dry firing, and its forced loss of performance feedback, is the first step in psychological re-profiling. Try this exercise to demonstrate the concept that is being developed here. Drive the route you always drive tomorrow. Tell yourself over and over before and during that drive to watch out for VW Bugs. Bet you'll be surprised at how many you'll encounter. Repeat this exercise substituting a different, common, easily distinguishable car. Again, I'll wager you encountered far more than you expected. What's the point of this exercise? In a nutshell, you see what you're looking for.

Let's bring this back to shooting. If you've begun noticing that your rifle seems to be swaying over the target like Mitch Miller's old bouncing ball, that then becomes the thing you're looking for. That alone will make the phenomenon increase. Instead, make a mindset to look for stability. Break a hold that isn't solid. Start over. Adjust if necessary. Soon, by looking for stability, stability will start to appear. It's positive feedback, not magic. I'll even venture that the rock solid positions we like to remember that we once had weren't really

THAT rock solid. Besides, until you develop a way to time travel back to those "good old days," the quicker we ground ourselves with the conditions we face today, the sooner we'll see improvement. Stop comparing yourself against your ideal memory. Work on improving yourself a little, and before long, you're way ahead.

Finally, by assessing your desire to make changes in your shooting, you've actively entered into a long-term commitment with yourself. Engaging in a two-week program of core conditioning will improve your core for about...you guessed it, two weeks. By keeping the end result always in focus, and making that goal "improvement," you will have to continually engage in activities devoted to making you better. If this is seen as drudgery, don't start. It's unlikely you'll see any benefits. If instead you embrace the positive aspects of not only improved shooting, but greater physical and mental health, you'll gladly start your day with a set of core exercises. You'll actively stop yourself from focusing on negative aspects of life. You'll start complimenting people on their successes, knowing that by seeing their successes, you'll look for more from yourself. Enjoyment will be there, and we really all should enjoy our time shooting.

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Golden Age Addendum

Many of the core-strengthening exercises recommended for the general public might not be practical (or may even be harmful) for us Golden Agers. The American Association of Retired Persons (AARP) website features exercises that are designed to meet the needs and limitations of senior citizens (<http://www.aarp.org/health/healthy-living/info-08-2012/how-to-avoid-injury-during-exercise.html>).

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