



**Sportwall Fitness Effects:
The Science Behind Its
Brain/Body Training
For Seniors**

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Sportwall Fitness Effects: The Science Behind Its Brain/Body Training for Seniors

Introduction

When the words “exercise” and “gaming” were combined to yield “exergaming,” the term was used to describe video games that are also a form of exercise.¹ Beyond repetitive finger movement, these interactive video or electronic games PROMISE whole body player movement, similar to that of “real-life” exercise participation.

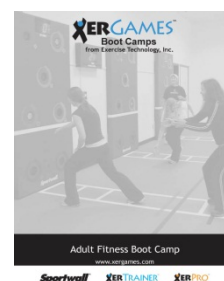
Sportwall’s XerPro and XerTrainer are recognized as two of the original, most enduring concepts in this category of exergame fitness training, but they differ significantly from modified video games that promote physical activity. Instead of simulating play, they engage players in a real kinesthetic experience with dynamic, integrated, multi-planar athletic movement using actual sporting and play equipment. The result is a powerful combination of both functional training AND sports specificity training in one multi-sensory system (see the next section for details).

Instead of simulating play, they engage players in a real kinesthetic experience with dynamic, integrated, multi-planar athletic movement using actual sporting goods.

Success is measured by the ability of participants to keep the game in play as a result of real athleticism rather than emulated movement called for in other exergames. The original concept behind the creation of Sportwall was to create fun, short, full-body games that engage maximum intensity and

focus with results measured via electronically generated scores and rewarding sounds. Today, this approach continues to incentivize repeated play until mastery takes place.

This concept has evolved into a wide range of applications from training high performance athletes to providing highly engaging, brain integrated, physical exercise for seniors and kids. This enormous flexibility is one of the most unique aspects to Sportwall programming. Instructors are free to choose from a wide array of curriculum/lesson plans for every sport and sector of the community.



Sedentary lifestyles have impacted the amount that people exercise AND their desire to exercise. To engage them our systems offer fun, interactive activities with immediate feedback incorporating computer game technology. Our reputation as the company that offers “computer games that make you sweat” and “serious fitness for people who love to play” is well deserved.

Engaging both sides of the brain requires keen art and science. Exploring this requires a close look at Sportwall programming. The following sections describe its impact on learning, fitness, motor skills, mood, and brain activity of its players.

Physical Activity Affects Quality of Life in an Aging Population

According to the US Census Bureau, 76 million baby boomers were born between 1946 and 1964. Beginning January 1st 2011, every day more than 10,000 baby boomers will reach the age of 65.² This will continue to happen daily for the next 19 years. In addition, modern medicine, science and technology have brought the majority of diseases and nutritional deficiencies under control, thereby increasing the average life expectancy from 65 to 85 years. The consequence delivers an average of 20 years of leisure time for seniors to spend either having a great active life or suffering from numerous age related conditions that rob them of the joy of their later years.

As Dr. Henry Lodge, author of the best selling book *Younger Next Year: a Guide to Living Like 50 until You're 80 and Beyond* states, "You are likely to live longer whether you want it or not, but how you live those years is largely under your control, which is a good reason to make the last third of your life terrific and not a dreary panoply of obesity, sore joints and apathy. Normal aging is intolerable and avoidable. You can skip most of it and grow old, not just gracefully but with real joy."³



An effective senior exercise program is comprised of several wellness components: aerobic conditioning, flexibility and agility activities, strength training, relaxation techniques and positive social interaction. Maintaining a healthy social connection is imperative for the senior population to thrive. We understand that wellness is a multi-dimensional model for senior lifestyles, with our primary objective to help seniors maximize their independence.

The Sportwall Programming for seniors blends these wellness components in a unique way, allowing for a "group play" setting in a safe, effective, and motivational environment. Predesigned senior boot camps, classes and drills consisting of safe, multilevel progressive exercises are available with the Sportwall system,

allowing for easy integration into your wellness program.

Factors which Optimize Successful Aging

- Engagement with life—social, club and volunteer activities
- Maintenance of high physical function (strength, flexibility, balance, endurance, aerobic capacity)
- Control of stress
- Diet
- Sleep

Maximizing Bone Health

As a result of our longer life span, we find that degenerative diseases are increasingly becoming the largest health care issue in the US today. Age related changes to joints, bone, muscle and cognitive ability have become significant deficits in the functional ability of the senior population.

Bone health is dependent upon two specific factors. The first is the total level of bone mass we were able to achieve during our growth and early development. The second factor for healthy bones is our ability to slow the rate of bone loss as we continue to age. According to Spirduso, et al, in the book *Physical Dimensions of Aging* (2nd ed.), “Women lose approximately 1% of bone per year up until 50 years of age. This loss of bone mass then increases to 2-3% per year at the start of menopause and continues for 5-10 years. On average, women may lose between 1/3 and ½ of their bone mineral density during menopause.”⁴

The Importance of Daily Exercise in Maintaining Bone Health for Successful Aging

According to Henry S. Lodge, M.D, author of *Younger Next Year for Women*, “twenty million American women have osteoporosis, a preventable disease. There are one and a half million fractures each year from osteoporosis. Research has shown that women have a 50% lifetime risk of breaking a bone from osteoporosis, and the vast majority of those fractures are caused by falls you would have bounced right up from in younger years.” Astonishingly, “twenty percent of women who fall down and break a hip die within one year.”⁵



One of the most modifiable ways to improve bone health is through weight bearing exercise. Many seniors take vitamin supplements which are only intended to slow the loss of bone. Weight bearing exercise, on the other hand, has been consistently shown to increase bone mass. Research has demonstrated that a loss of muscle strength precedes loss of bone. Pocock et al, 1988.⁶ Weight bearing activities stimulate bone formation, and increase muscle mass, strength and balance. Many senior programs are using

virtual reality gaming products such as Wii. Whereas these products do promote mobility, the Sportwall Systems allow additionally for functional weight bearing training using resistance of both the upper and lower extremities. Resistance training is imperative to stimulate joint proprioception and thereby subsequent appropriate reactive muscular force. Lack of resistance, as in using the Wii-type products, can frequently result in an over-exertion relative to the motor task, causing soft tissue irritation or injury.

The Importance of Maintaining an Ideal Body Weight for Successful Aging

Maintaining a healthy body weight is an important way to protect joints from degenerative osteoarthritis (OA). The development of OA is influenced by environmental and lifestyle factors which are modifiable. Obesity, muscular weakness, heavy physical activity, inactivity and decreased joint proprioception all play significant roles in the development and degree of osteoarthritis joint changes. According to the American Geriatric Society Panel on OA and Exercise 2001, 85% of those are 75 years of age or older. Degenerative Osteoarthritis (OA) affects 1 out of 2 adults over 65 years of age.⁷

The Sportwall System provides seniors with an excellent curriculum for promoting joint health, maintaining ideal body weight, and functional mobility for common activities of daily living. This is attained through participation in rapid moving, socially engaging low impact, “quick thinking” gaming that is the hallmark of Sportwall programming. Participation challenges seniors physically and cognitively, creating a self-competitive environment that keeps them engaged and motivated to continue to play and succeed!

The Importance of Maintaining Muscular Strength and Power for Successful Aging

Age related changes also occur in muscles, tendons and ligaments. Changes in these soft tissue structures can translate to an overall decrease in normal joint biomechanics and mobility and also increase the overall risk of injury. Maximum muscle strength is achieved by age 30 and then declines with age. This decline is due to a decrease in overall of muscle mass, which translates to loss of muscle strength. Changes occur in the muscle fiber size, decrease in the overall number of fast twitch fibers, the ability of the nervous system to carry signals quickly to the brain, and also a decrease in overall blood flow to the muscle as a whole.

Muscle is the most modifiable of all of these structures to improve flexibility and is most easily changed with exercise using both dynamic and static activities. Loss of lower body muscular strength in aging causes decreased locomotion and increased risk of fall. Messier demonstrated the positive effect exercise has on increasing overall lower extremity strength and balance, and decreasing subsequent risk of fall.⁸

A comprehensive exercise regime for seniors should include activities which develop both strength and power. The difference between strength and power is in the speed at which the participant is asked to move a resistance; that is, how fast one can move a resistance through a particular movement pattern. Power declines at a 10% greater rate per decade than strength. High velocity training is essential for increasing performance power. Studies comparing the difference between strength and power training



have found power training to be more effective than strength training for improving physical function in older adults with muscle weakness. Several studies indicate minimal power gains with strength training programs alone.⁹

The Sportwall System creates an environment of motor programming that promotes both rapid (power) and slow (strength) muscular contraction using light resistance in various gaming activities. The Sportwall gaming system is designed to progressively influence power by integrating safe, rapid methods of individual or group play which can be easily tailored to the senior’s functional level. As this level improves, the difficulty and speed of the Sportwall System gaming is adjusted to push the limits and ability. Only Sportwall Systems offer this unique style of play, challenging resistance and velocity training in a safe and effective manner.

Sportwall Conditioning for Mind and Body--How it Works

When it comes to localizing and tracking moving objects, it is likely that the human brain evolved to develop, learn, and operate optimally in multisensory environments.¹⁰ Thus, multisensory training protocols can better approximate natural settings and are more effective for learning.¹¹



Sportwall programs are fitness training products for all ages and ability levels. Visual, auditory, and physical tasks are integrated in performing the motor skills required. These protocols, with their profound and SIMULTANEOUS brain/body stimulation, are the key element that differentiates a functional training program from a general conditioning program.

This unique form of exergaming stimulates greater input to the proprioceptors of the motor system, and with it, greater subsequent refinement of movement patterns. The resistance and motor patterns encountered by the use of real sports equipment creates more dynamic neuromuscular control in a functional setting of play.

Sportwall programs are specifically designed to stimulate the body and the brain concurrently. This is accomplished by:

- Encouraging team participation and engaging sustained focus with short-attention grabbing computer games that are played sequentially to pursue mastery of skills and score.
- Providing full body exercise by stimulating the hands, feet, eyes, ears, and vestibular system (stimulating the proprioceptive input to the motor and vestibular systems) in playing real games with real sporting goods (not simulated).
- Requiring high levels of attention and focus for success (staying consciously “in-the-now”).
- Engaging in cognitive decision making under pressure.
- Delivering a cardiovascular workout in a game format.

“Functional Training” is used by physical therapists as a comprehensive form of rehabilitation to return patients to daily living activities as well as to competitive sports by using movement in multiple planes while weight bearing. In contrast, “Strength Training” might use a weight machine, bands, or free weights and usually focuses on a uni-planar, one joint motion to build muscular strength.

Sportwall’s brand of functional training uses a variety of activities that can focus on the core/torso, agility, speed, balance, flexibility, power, and strength while SIMULTANEOUSLY developing high levels of neuromuscular efficiency.

Sportwall’s brand of functional training (also during weight bearing) uses a variety of activities that can focus on the core/torso, agility, speed, balance, flexibility, power, and strength while SIMULTANEOUSLY developing high levels of neuromuscular efficiency. This process of engaging the hands, feet, ears, and eyes develops not just eye/hand, but visual-perceptual motor skills.

As seen in the next section, the added element of integration of the right and left brain hemispheres has been documented to enhance brain plasticity as well as whole brain thinking, cognition, attention, and focus for learning. In short, Sportwall has been proven to help stimulate the intellect as well.

Brain Plasticity – Physical Exercise Stimulates Cognitive Capacity

Brain research strongly supports the link between movement and learning. The brain and the body's movement and learning systems are interdependent and interactive. For example, motor development provides the framework that the brain uses for academic concepts.

Motivation to play for long periods occurs as a new score is established every few minutes.

In his book, Dharma Singh Khalsa, M.D., reports, "Several researchers revealed stunning evidence that powerfully supports the efficacy of exercise in achieving and maintaining optimal mental function in people of all ages."¹² He also reports that exercise, when it is combined with thinking, is most valuable because it grows the largest number of dendritic connections.

Increasing evidence suggests that the brain operates in many ways like a muscle – atrophying from disuse and increasing capacity with active use, even late in life. This is the “use it or lose it” adage espoused by Dr. Joseph Jankovic, professor of neurology and director of the Baylor College of Medicine Movement Disorders Clinic in Houston.¹³

The brain thrives on stimulation. Unlike other organs that wear out after a certain number of years, the brain becomes sharper the more it is used. Physical exercise can increase cognitive capacity just by driving blood and oxygen to the brain.

Strong evidence suggests that exercise stimulates production of a neurotrophic factor (also called brain-derived neurotrophic factor or BDNF), which helps repair brain cells, prevent cognitive decline, improve learning and promote mental as well as motor performance. It may slow the onset of degenerative brain diseases like Parkinson's syndrome.¹³

Harvard psychiatrist John Ratey refers to BDNF as “Miracle-Gro for the brain.”¹⁴ He calls BDNF “a crucial biological link between thought, emotions, and movement.” So how do you get more BDNF?

Daily aerobic exercise is good, but including intervals of sprints is even better. In a recent German study, volunteers who did two 3-minute sprints separated by 2 minutes of lower intensity during the course of a forty-minute treadmill session demonstrated higher increases in BDNF than non-sprinters. Not only that, the sprinters learned vocabulary words 20 percent faster than non-sprinting exercisers. It seems even a small amount of high-intensity exertion can have a profound effect on the brain.¹⁵



When the brain is engaged by having to make decisions under pressure while playing interactive ball sports, the benefits are enhanced significantly because gross motor skills must be incorporated. Neurons develop only when the player is confronted with a demand for greater efficiency (skill development). As far as the brain is concerned, if you need a skill, you develop it only when you are confronted with the need, and then practice performing it.

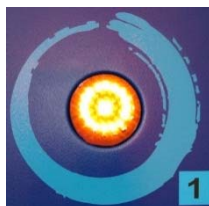
The Sportwall XerPro/XerTrainer makes training more fun while taking the brain-body connection to a level beyond typical sports in that the games are short, specific, more intense, and tuned to the appropriate level of difficulty until the player is ready for the next. Motivation to play for long periods occurs as a new score is established every few minutes.

Unlike other computer simulated games where a player holds a device and pretends to play by waving it around, the XerPro/XerTrainer engages the whole body in a real-play game with real sports equipment

where the hands, feet, eyes, ears, and vestibular system are all involved in the activity. This produces a computer-generated score, which measures actual athleticism, cardiovascular fitness, and intellectual agility.

The value of the computer-generated games is that successive demands at each level of difficulty are randomly produced. This requires the player to stay “in-the-now,” ignoring any internal or external distractions in order to prepare for the next challenge. Profound focus on the present allows the XerPro/XerTrainer programming to target development of all five core brain areas:

- Memory (Short Term/Long Term)
- Speed, Accuracy, Reaction Time
- Attention/Focus
- Problem Solving
- Cognitive Agility



Age Related Effects on Behavioral Speed, Motor Control, Balance and Posture

As older adults age, significant changes occur in gait speed, trunk rotation, arm swing, and in the overall time of double limb support during gait. Seniors tend to be more cautious and deliberate when performing activities such as sit-to-stand, ambulation immediately upon standing and when negotiating obstacles in their path. All of these changes can be attributed to the aging of the neuromuscular, vestibular, visual and proprioceptive systems which often ultimately affects the ability of older adults to remain independent in their community. Often these changes translate into loss of balance and higher risk of falling in this population.



Balance is our ability and process how we control our body’s center of mass with respect to base of support, whether it is stationary or moving. Sportwall programming influences and refines both the anticipatory and reactive postural control of seniors by incorporating both static and dynamic balance activities. These activities include reaching, lifting, pushing, pulling and change of direction, thereby mimicking the senior’s physical requirements for normal activities of daily living.

The progressive style active/reactive physical gaming promotes the senior’s ability to adapt to movement patterns quickly and accommodate to a changing environment. Results of cross sectional, correlational and interventional studies all support the fitness-cognition relationship.

Games/drills involving a high level of attention, movement, change of direction and speed help to:

- Increase processing speed
- Increase controlled processing (cognitive tasks that start by requiring controlled, effortful processes but that can be processed automatically through practice)

- Increase execution control (planning, scheduling, coordination and inhibition of working memory functions of the brain)

Studies show that physical activity influences cognition but cognitive competency also influences the nature and amount of physical activity! Many participants using the Sportwall System have experienced an increase in perceived mental acuity for days following play on the Sportwall System!^{16, 17}

Sportwall Programming Promotes Social Integration



It is likely that Sportwall provides both genders as well as overweight and inactive seniors a chance to contribute more subtle physical and mental attributes such as alertness, intelligence, precision, coordination, quickness, empathy and, even leadership to their team. A sense of belonging mixed with accomplishment is undoubtedly a potent concoction at this age when future activity patterns are being created.

The above would explain a preference for Sportwall, as it appears to provide these individuals a unique stage to perform.

Sportwall programs develop social skills and interpersonal cooperation through social interaction in a spirit of fun. Opportunities to work together as a team create an environment where participants develop and enhance concepts such as inclusiveness, cooperation, and mutual support. In this respect, Sportwall programming certainly distinguishes itself as superior to its competition in terms of socialization.

Learning how to be part of a team as a valued member raises confidence and a sense of self-esteem. Instead of only one winner, with Sportwall training there is a new winner every few minutes, so players have numerous opportunities to improve their scores, and experience the feeling of success.

Opening the Doors to Participation in Sports during Retirement

Sportwall invisibly pushes levels in player strategy, focus, power, precision, balance, and footwork. This is exactly what all sports demand.

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Sportwall is a perfect match for any participant. It is an opponent that never misses and always plays the ball back at the speed and direction established by the player. Changes in feedback and response are instant. Since most systems are installed in a fairly confined space, required skills to maintain play develop rapidly. The temptations to drive up scores and continue play are irresistible. It invisibly pushes levels in player strategy, focus, power, precision, balance, and

Beyond enhancing skills, the system promotes a love for movement, which we dare say is an intrinsic human need. Body and brain find a concert of new confidence, which in turn fosters a strong desire to pursue life-long physical activity, a desire that may not have happened otherwise.

Sportwall for Maintaining Neurological Competence

Movement is essential to maintaining physical and emotional health. Unfortunately, the past two decades have witnessed a drastic reduction in physical movement in industrialized countries. The risks associated with sedentary living continue to increase as technological “advances” impact our lifestyles.

The XerPro/XerTrainer has been designed to provide a safe space for group exercise based on engaging activities and games, with particular emphasis on those who typically do not otherwise choose to exercise or work out at a gym. Since 2003, various professional treatment centers have been using the Sportwall systems to treat a range of neurological disorders.

Sportwall Training on Mood: A Natural Alternative to Anti-depressants

Sportwall’s XerGames training is often presented in play format that appeals to those who traditionally do not want to exercise or play sports. This makes it a critical tool to reach the enormous numbers impacted by technologies which promote remaining sedentary.

According to the Harvard School of Public Health, inadequate physical activity and inactivity is now rated as the FOURTH leading cause of preventable death in America.¹⁸ This preventable cause of death was ranked above high blood sugar and high LDL cholesterol.

It is easy to believe that the senior sector of the US population is associated with higher levels of stress, obesity, and mood disorders. Exercise can elevate mood even in our later years. According to one meta-analytic review, “chronic exercise is associated with improved mood in the elderly.”¹⁹

Many researchers have concluded that, due to our neurochemical response, we can control mood through exercise and thereby dramatically impact human psychological health. In addition to its massive appeal to the “at-risk” population, this section explores how Sportwall’s “short-burst-short-rest” style of interval training programs can:

- release endorphins which lift mood,
- stimulate the elimination of adrenalin and cortisol, improving the sense of well-being, and
- naturally increase the production of neurotransmitters (building blocks of hormones) such as serotonin, norepinephrine, and dopamine (known as “the happy hormones”).



Endorphins

Endorphins function as neurotransmitters that act as the body’s “natural painkillers” as they resemble opiates in their abilities to produce analgesia and feelings of well-being. Endorphins are responsible for our ability to diminish, or even ignore, physical pain. They are also partly responsible for the “runner’s high” often reported by devout runners.

It is a fact that endorphin production increases with the frequency of exercise. All people, regardless of history, will experience a rise in endorphin levels with even modest regular exercise. Those who establish a regular exercise routine often report a sense of beneficial “addiction” for their body.

Sportwall Promotes the Production of the “Happy Hormones”

Inactivity is a major contributor to depression. A study of 276 middle-aged women found that those with a positive sense of well-being had also engaged in about 85 more minutes of physical activity per week than women who were clinically depressed.²⁰

About 10% of the US population (27 million) was taking prescription anti-depressants in 2005.²¹ Of those, about 700,000 were ages 5-17. Astonishingly, This group’s usage has doubled from 1995 to 2005, according to the Archives of General Psychiatry.

The thrill of play and competition, balanced with intermittent rest, holds the player’s focus on the game and not the length of time spent exercising.

While serotonin, norepinephrine and dopamine are critical ingredients found in anti-depressants, they are also produced naturally in a healthy person whose diet, exercise, and stress levels are well managed.



David C. Nieman, PhD, author of *The Exercise-Health Connection*, explains that the benefits of exercise far exceed that of any medication or supplement. He suggests since the results of exercise can last for days, it is a safe and natural way to raise neurotransmitter levels and relieve depression.²²

Neurotransmitter levels affect the way a person feels, which is why they have been referred to as the “feel-good hormones” or “happy hormones.” Aside from enhancing mood, they also help control sleeping habits and digestion.

There are several conditions that may arise if neurotransmitter levels, especially serotonin levels, are low. Depression, migraines, constipation and feelings of increased stress are possible indicators that serotonin levels are low. While serotonin, dopamine, and norepinephrine levels may be boosted using various types of drugs or medication, many experts support the idea that exercise may be just as efficient.

Dopamine

Dopamine stores can become depleted with chronic stress, or anxiety, intense trauma, starvation, or low carbohydrate diets. Performing long duration exercise at moderate intensity can elevate dopamine levels.

Norepinephrine

Norepinephrine is the chemical in the brain that controls physical wants and needs and is increased along with serotonin during strenuous exercise, and continues long after exercise is completed.

Serotonin

Serotonin helps to govern the healthy function of the other neurotransmitters as well as providing critical support to the entire neurological system. Many stress related conditions are being tied to shortages of serotonin production. These include chronic fatigue syndrome, fibromyalgia, migraine headaches, anxiety, and depression.

Serotonin is produced in the intestines and 75% is used to control intestinal activity. The remaining 25% is synthesized in the brain. The rate of serotonin production in the neurons determines mood. High serotonin levels are linked with elevated or happier moods, whereas low levels are linked with feelings of anxiety and depression.

Although all neurotransmitters affect mood, serotonin is considered the most crucial and exercise is one of the most efficient stimulators of serotonin production. While exercise is often linked to weight loss, it can in fact also help a person feel better. Several studies have found that once a person engages in physical activity the brain's serotonin function increases, which in turn reduces depression, anxiety, and stress.

Sportwall's Balanced Programming: Key to Performance & Adherence

While even mild exercise will have a positive effect on our neurochemicals, exact effects vary with the severity of exertion. While exercise at very high intensity and long duration can cause adrenalin levels to become elevated while serotonin levels drop, as long as the body is not over-stressed, the more demanding the exercise, the better the chances of increasing serotonin production.

Sportwall's interval training (short-burst-short-rest) regimen, when delivered to groups, is an excellent way to achieve the balance needed to optimize results without over-producing adrenaline or under-producing serotonin. Intensity is balanced with recovery during a thirty to sixty minute workout. This may explain why schools that have adopted the Sportwall programs are noticing a significant reduction in aggression and out-of-school suspensions.²³



Interval training is now well documented to hold the key to maximizing performance. In order to replenish its biochemical sources of energy, the body must rest, or compensate, following a period of activity. Too much stress without recovery increases risk of injury and burnout. Too much rest without stress will lead to atrophy and weakness. Balancing stress and recovery is essential to increasing performance and adherence.

All Sportwall training programs utilize this method of training, which is a key to its superior adherence and performance results, especially among at-risk populations. Inactive people often report that pain is the greatest barrier to adopting an exercise regime. Sportwall's format of short, intense games, followed by short rest in preparation for the next turn, is believed to be a key factor in successfully encouraging individuals to conquer this "pain barrier."

The thrill of play and competition, balanced with intermittent rest, holds the player's focus on the game rather than on the length of time spent exercising. Add the neurochemical release of "happy hormones" and the drudgery of regular exercise is replaced with the pleasure that play brings.

Summarizing Sportwall's Superior Position in the Exergame Market

While it can be argued that many of the components discussed in this document may be fulfilled with other programs and training equipment, there is nothing that compares with the Sportwall XerPro and XerTrainer in several areas which should be critical to consumers.

First, the programming is extremely diverse. It can be tailored to all seniors regardless of activity level, including older athletes.

Second, the programming does not discriminate with regard to skill level as it meets players at their own abilities. Each player will find it easy to prepare the system for his or her level.

Third, and most importantly, these are programs which have mainstream appeal. They break through the social barriers and gender stigma found in regular sports. They even engage the traditionally inactive.

Because the structure of the programming involves multiple short games played in teams, there are no permanent winners. Instead, the chance for everyone to succeed is repeated every couple of minutes, which incentivizes continual play. Often, trainers have to “pull the plug” to end play.



Since groups can play together or one team can play against another, a high level of camaraderie is quickly built. The combination of rapid skill development along with social connection leaves players inspired with a sense of belonging when the class ends.

A special note to older generations: today’s computer gamers sense no barriers to overcome as they see Sportwall activity as a game rather than a workout or something done only by athletes. In this way, Sportwall eliminates the “jock” stigma to exercise. Similar to other three-dimensional electronic

engineering puzzles, “nerds” like Sportwall too.

On the other end of the spectrum, seniors have affirmed that play is for the “kid in all of us.” They report that their mental clarity is sharper for days after participating in a class. Essentially, Sportwall represents a form of time machine. They get to visit the playground again.

Installation convenience: Since the programming is so diverse, facilities have preferred to install the systems in general purpose rooms where everyone can have access to them, rather than placing them in a room dedicated to a particular group. This way seniors can use them in the mornings, youth in the afternoons, and adults and athletes in the evenings. An added advantage is that when not in use the systems take up only 4” of depth on a wall, which also helps alleviate the need for a dedicated room or outdoor/indoor court.

Instructional growth: When instructors fully engage with the wide range of programming available, they begin to create their own routines and programs. This is when a level of excitement ignites and true believers are born as they discover the limitless possibilities of Sportwall programming. Passive supervisors often become inspired physical educators.

We have developed a wide variety of program manuals designed to get instructors started in their own field of interest, whether for sports training, group exercise classes, or personal training sessions. Using our drills initially provides a feel for how the process and results come together.

Score tracking: An effective way to ensure sustained use is to incorporate score tracking and team competitions. This can be done in two ways: by using the score tracking charts or by encouraging players to post their scores on a social networking site (such as Facebook) along with a video clip of the play to validate the authenticity of the score.

Facilities can either dedicate their own page to tracking scores or they can use the company’s official score tracking site. Some facilities also hold competition days where teams challenge each other for the

high score of the day in a particular game. Since games average sixty seconds, it is easy to get a lot of action happening quickly.

In our experience new ideas quickly emerge as instructors find themselves easily adapting drills to achieve their desired results. We encourage instructors to share ideas on our blog, <http://www.xergames.com/blog/> or on Facebook, <http://www.facebook.com> on Sportwall XerGames. This way, resources available to both new and experienced users will grow continually.

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Evidence in this document has been gathered from scientific research, interviews with medical/science professionals, and experienced observations by seasoned trainers who have worked with the Sportwall products and programs in their facilities during the past seven years.

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