

B.C Square and Round Dance Federation
Fitness Evaluation

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An alarming trend has been emerging among the North American baby boomer population and worse, among many young professionals. While the number of fitness facilities, dietary supplements and access to health information is at all time high more and more of these populations are experiencing a number of health related conditions. Conditions such as chronic pain related to the knees, low back and shoulders and metabolic syndromes including obesity, elevated blood pressure, insulin resistance are on the rise ¹. Compound this with the increased time demands related to work and family, the intimidation factor of joining a fitness facility as well as the financial requirements of many physical activities such as golf or downhill skiing and the prospective of reversing or even slowing this trend appears bleak.

Fortunately there is an activity that addresses most of the conditions of poor physical health while minimizing the obstacles presented by many other types of physical activity. This activity is square dancing.

Square dancing is an activity that provides a number of health benefits related to physical, mental and social health. The dances burn calories, improve cardiovascular health and promote strong bones. The mental benefits of dancing are supported by a twenty-one year study in the New England Journal of Medicine by Joe Verghese of Albert Einstein College of Medicine (NYC). This research found that dancing was the only physical activity associated with a lower risk of dementia ². A common slogan of square dancing is “if you can walk, you can dance”. Dancing has helped persons who have suffered strokes recover and improve their mental acuity.

Many aspects of square dancing require and develop physiological abilities that provide an optimal physical workout and transfer well to other activities and sports.

Dancing requires the participant to be on their feet moving in all planes (frontal, sagittal and transverse) and directions (forward, backward, sideways) in a coordinated and smooth manner. The activity develops coordination and balance, as the dancer must respond to a “call” indicating which particular dance step to perform. The dancer cannot predict the next call but must hear and react to the call much as an athlete would read and react to a play developing in the game. Since the dancers cannot look at their feet there is an added element of coordination required and to maintain this balance requires proper posture and core stabilization. Poor posture would be revealed when the eyes look at the feet, the shoulders fatigue and slouch and the back begins to round. A lack of core stability would be evident when a change in direction is called and the dancer’s momentum pulls them off balance missing the next step or call. Lastly square dancing helps maintain healthy range of motion through the joints. The variety of motions described above requires flexibility at the ankle, knee, hip, back and shoulders. While there are no excessive ranges of motion to the dance steps the whole body must move as a coordinated unit unimpeded by any of these joints.

While subjective descriptions and claims as to the purported health benefits of square dancing are interesting objective values add credibility and allow one to compare square dancing to other activities. On a particular square dance night lasting two and a half hours participants were evaluated with respect to their flexibility, pre-dance pulse rate, cardiovascular efficiency and work to rest time. The participants evaluated ranged in age from 52 to 75 years and were comprised of three men and five women. In terms of flexibility the range was -10.5 to 3 inches on a standard sit and reach test³. While these scores are average at best there are a few considerations to be aware of including:

minimal warm-up which may have limited extensibility of the hamstrings and low back contributing to a lower score and the fact the test is usually performed superiorly by younger individuals who are generally more flexible.

The pre-exercise pulse rates ranged from 72 to 102 beats per minute (bpm) and after a three-minute step test the rates ranged from 108 to 138 bpm. After a one-minute recovery pulse rate dropped to 78 to 114 bpm. Using a formula developed by Skubic and Hogdkins (1963) ⁴ the cardiovascular efficiencies were found to range from 82.4 (very good) to 56.4(average). Cardiovascular efficiency (see table below) is a unit-less estimate of an individual's fitness level. It should be noted these values are not corrected for age making the results even more impressive. On a previous occasion a participant (female, 57 yrs.) wore a pedometer and observed the number of steps in an evening of dance to be greater than two kilometres.

In terms of the work to rest ratio square dancing keeps the participants in constant motion. Dancing intervals ranged from as little as 1 min 50 s to as long as 13 min 47 s. Rest intervals ranged from less than 30 s to as long as 2 min 40 s rest. After one a half hours of dance there was an 18 min intermission for business items and upcoming events to be discussed. Overall the dance to rest ratio was observed to be 3.2 to one. In other words, for every 3.2 min of dance there would be one minute of rest. A three to one work to rest ratio is effective at developing cardiovascular fitness.

As with all activities there will be some limitations to practicing and enjoying it. With square dancing the physical limitation would be the requirement to be able to walk. If an individual has the faculties necessary to walk then they would adequate mobility to dance. Participants who have had knee and or hip replacements have returned to this

form of recreation.

While there are few if any limitations to participation in square dancing there are a number of aspects that make it feasible to enjoy. There are minimal costs to dancing, no specialized equipment is required and there is no limitation on age. Lastly none of the participants interviewed and assessed could recall of any injuries occurring on the dance floor. If an injury occurred it was after the event such as slipping in the parking lot after an evening of dancing. In this regard the activity itself should be considered as safe if not safer than any sport or activity.

Given the declining health and activity levels of North American society square dancing should be viewed as an effective form of exercise to maintain good health. The assessment conducted demonstrated that dancing is very beneficial to cardiovascular health, is effective in terms of preventing loss of mental abilities and contributes to proper movement and balance. While not specifically assessed the activity draws upon and helps maintain proper posture and core stability. Considering the few requirements and limitations necessary to participate in square dancing combined with the above mentioned health benefits results in a physical activity suitable, beneficial and applicable to meeting the health and fitness needs of the typical baby boomer or young professional.

Table 1

Cardiovascular efficiency

Poor	Fair	Average	Good	Very Good
28-38	39-48	49-59	60-70	71-100

References

1. Souadjian V.V. 2004. Senior Fitness and Insulin Resistance. conference notes. NASM International. San Diego, CA.
2. Vorghese J. et al. 2003. Leisure Activities and the Risk of Dementia in the Elderly. NEJM. 25(348) p. 2508-2516.
3. Golding L.A., Myers C.R. and Sinning W.E. The Y's Way to Physical Fitness. Rosemont, IL. YMCA of the USA. 1982.
4. Skubic V., Hogdkins J. 1963. Cardiovascular efficiency tests for girls and women. Research Quarterly. 34 p. 191-198.