Original Article

Sports skills in sitting volleyball between disabled and non-disabled people

TIZIANA D'ISANTO
University of Salerno, ITALY

Published online: May 30, 2020
(Accepted for publication: May 18, 2020)
DOI:10.7752/jpes.2020.03194

Abstract

The aim of this study has been shown that through specific trainings, disabled players practitioners the sitting volley, how much they manage to improve their own performances, approaching to the standard of the non-disabled players. Data were collected during twelve trainings on specific task (test on the set, being sit). The subjects involved in the study, on the technical element of the set, are ten players non-disabled and ten players disabled for a period of four weeks with a specific training to verify the improvement of the two groups. The improvement obtained was calculated taking into account the difference between the averages of the first and second detections. It can see an average dribble distance from point 0 (position of the athlete able to sit while sitting) of 6.92 m. It can note an average dribble distance from point 0 (position of the disabled athlete) of 6.09 m. The second analysis was carried out on the sample of both able-bodied and disabled people, to check the results achieved after 4 weeks, carrying out 12 training sessions, with specific exercises for the disabled and standard training sessions for able-bodied players. The result obtained is a positive improvement threshold of 31 cm; as regards disabled players (it went from 6.09 to 6.40 m). It is evident that the deviation between the measurements on able-bodied people is almost nil; this indicates that following the usual constant training these athletes do not have particular improvements. It should be specified, however, that even without targeted training, able-bodied people still perform better than disabled people. The difference between the surveys on disabled people is evident; this indicates that following a specific training, the latter manage to improve their performance significantly. It shows that the performance of disabled athletes has improved with a specific training of four weeks and compared to that of able-bodied athletes who carried out technical-tactical training during the same period. Thus, in sitting volleyball is reached the inclusion model of sport participation as well as on assessment of sport skills. In this way, it will be developed also in other team sports to declare the full inclusion between disabled and non-disabled people in competitive sports.

Key words: Assessment, setting, performance, evaluation.

Introduction

Practicing regular physical activity has a number of benefits, which are amplified if it is started in very young age, in overall terms and in terms of physical well-being (Altavilla & Di Tore, 2016). Today is consolidated the importance of physical activity to health, so it is important to know the effects of exercise for primary prevention, secondary and for the treatment of widespread diseases (Tiziana et al., 2017). It has now been demonstrated by several researches that daily and prolonged physical activity, also improves school performance (D'Isanto et al., 2019), the metacognitive processes (Theodosius & Papaioannou, 2006), the ability to solve motor and sports problems (Marcoux et al., 1999) and also in motor impairment disabilities or with cognitive delay (Altavilla et al., 2015; 2017, 2019). Sports activity plays a very important role in training and education (D'Isanto, 2016), for many it is an opportunity to keep both body and mind in training (Cassese & Raiola, 2017).

The disabled person can, and is encouraged, today, to enter the world of sport and physical activity for its value psychomotor (Cottini, 2003), because he is seen as a subject who, like everyone else, has the right to develop his physical-motor, intellectual and social skills (Ghirlanda, 2003). Every man, woman, preschool child, elderly person has the fundamental right of access to physical education and sport (D'Elia, 2019), size essential for the development of personality, attitudes, will, and self-control on an intellectual and moral level (Ng, 2012). Continuity of physical activity and sport must be ensured throughout life, through permanent, global and democratized education, to encourage the full integration of each one within society (International Charter, 1978).

Taking care of the weakest, making them participate in the opportunities does not mean hindering the life of others, but making it better. Our system allows us to discover a serious pedagogical perspective: the disabled person must live with others and can live with others (d'Alonzo, 2014). Sports activity is the manifestation of the innate need that the body has to express itself, since movement is one of the primary needs of man (Raiola, 2011; 2015 2017). Sport allows the individual to improve physical qualities, to enhance cognitive

1408-----

Corresponding Author: TIZIANA D'ISANTO, E-mail: tizidisanto@gmail.com

and psychic aspects and to develop very valuable socio-relational skills, especially in the case of people with disabilities (Boccia et al., 2019). Sport allows the subject to achieve an improvement from a physical point of view but also contributes significantly to psychic and socio-relational aspects (Raiola et al., 2018). Today, people with disabilities, thanks to the introduction of specific adaptations, are guaranteed participation in physical education in schools and many of the most common sports (Sanseviero et al., 2019). The data collected from recent studies show that the population inactivity can be a risk, since it can adversely affect both the mental and physical health (Altavilla, 2016). A risk that affects even people with special educational needs and for this interest in the Adapted Physical Activity (APA) is increasing and diversified, because it operates in a net dedicated both to disability that at people with needs and special needs (Sherrill & Hutzler, 2010).

Sitting Volley is a Paralympic discipline, a variant of traditional volleyball, which is played by disabled athletes (Molik et al., 2008). Born as an adapted discipline, it consists of playing volleyball while sitting on the ground (sitting), without the use of dedicated sports-technological aids and being able to move also by pushing the arms, but keeping any part of the ball touched torso in contact with the ground (Raiola & Di Tore, 2012). In Sitting Volley there is no differentiation of skill levels as, on the other hand, exists in other disciplines (Gaetano, 2012ab; 2015). Once seated on the ground, in fact, the different skills tend to level out, allowing athletes with quite different disabilities to coexist (Martino et al., 2019).

It is for this reason also that within the sitting volleyball teams, disabled and able-bodied people can coexist, for promotional purposes, also expressing a good technical level, thus representing an important example of cooperation and above all of inclusion (Raiola, 2013; 2015). The aim is to demonstrate that with specific training, disabled athletes who practice Sitting Volley can improve their performance by approaching those of able-bodied subjects (Alminni et al., 2019).

Methods

Ten disabled subjects and ten able-bodied subjects were involved for a total of 12 training sessions, carried out in four weeks. A specific test on sitting dribble was used. Using a 20 m metric roller, positioning it along the entire vertical length of the volleyball field (18m), the performance of the athletes was measured (the trajectory of the dribble starting from the point where it was positioned, sitting), making each athlete perform three tests. In photo n.1, the graphic example of the specific dribble test.

Photo n.1 – Specific test on the set (being sit)

Following, the training sessions held during the four weeks.

GENERAL ACTIVATION AND MUSCLE STRENGTHENING

While seated: alternate torsions of the torso left and right

While seated: upper arm extension (with weights of 2kg per arm) and hyperextension of the torso alternating with forward and backward jerks with flexed arms

Sitting in a circle: torsion of the torso with the arms stretched out (with weights of 2kg per arm)

From prone: push-ups on the arms on the ground

From prone: bending back of the torso with swinging the arms out.

SYNTHETIC EXERCISES OF TASKS RECOMPOSITION

By synthetic "task recomposition" exercises we mean those exercise methods that allow the insertion of the motor sequence in the correct technical timing (movement precision) and the speed of execution at a given power.

- Exercises in front of the wall with target with medicine ball;
- Exercises in front of the wall with multiple targets and directional shifts;

- Three-player: side dribble exercises after bidirectional movement and strength control;
- In pairs with various directions;
- Synthesis exercises with attack, wall, defense with two or more options.

EXERCISES IN CONDITIONS SIMILAR TO THE GAME

- Single gesture repeated on targets (service, rise, attack, bagher, etc ...);
- Complete exercise of dribbling with medicine ball and repetitions;
- Complete exercise of action management with mandatory tasks;
- Exercises with four directional options;
- Analytical exercises on the wall with medicine ball.

Statistical analysis

All data are presented as average, standard deviation (SD) and percentages. The analysis refers to the following variable: trajectory length (being sit). Statistical analyses is carried out with the software IBM SPSS Statistics 23.

Results

Following, the data collected on 01/12/2019, for able-bodied players seated.

Table 1. Starting data recruitment for non- disabled people

TEST 1	Non-disabled (being sit)on 01/12/19			
	TEST 1	TEST 2	TEST 3	AVERAGE
Player 1	6,3	6,9	7,1	6,77
Player 2	8,4	8,5	7,9	8,27
Player 3	5,1	5,8	5,9	5,60
Player 4	6,5	6,9	6,2	6,53
Player 5	5,9	7,1	7,4	6,80
Player 6	7,8	7,2	7,3	7,43
Player 7	6,6	6,9	6,2	6,57
Player 8	8,3	7,4	8,6	8,10
Player 9	6,4	7,2	7,5	7,03
Player 10	5,9	6,1	6,3	6,10
				6.92
				SD ± 0.83

Graph n.1. Starting data recruitment for non-disabled people

From what is shown, from the previous table n.1 and related graph n.1, we can see an average dribble distance from point 0 (position of the athlete able to sit while sitting) of 6.92 m. Following, the data collected on 01/12/2019, for disabled players seated.

Table n.2. Starting data recruitment for disabled people

TEST 1	Disabled (being sit) on 01/12/19			
	TEST 1	TEST 2	TEST 3	AVERAGE
Player 1	5,8	5,7	6,2	5,90
Player 2	7,4	7,5	6,9	7,27
Player 3	4,1	4,8	4,9	4,60
Player 4	5,5	5,9	5,2	5,53
Player 5	4,9	6,1	6,4	5,80
Player 6	6,9	6,8	6,9	6,87
Player 7	5,9	5,8	6	5,90
Player 8	7,2	6,8	7,1	7,03
Player 9	5,2	6,3	6,8	6,10
Player 10	5,9	6,1	5,8	5,93
	6.09	SD ± 0.79		

Graph n.2. Starting data recruitment for disabled people

From what emerged, therefore, from the previous table n.2 and related graph n.2, we can note an average dribble distance from point 0 (position of the disabled athlete) of 6.09 m. Subsequently, a second analysis was carried out on the sample of both able-bodied and disabled people, to check the results achieved after 4 weeks, carrying out 12 training sessions, with specific exercises for the disabled and standard training sessions for able-bodied players.

Following, the data collected on 30/12/2019, for able-bodied players seated.

Table n.3. Final data recruitment for non-disabled people

TEST 2	Non-disabled (being sit) on 30/12/19			
	TEST 1	TEST 2	TEST 3	AVERAGES
Player 1	6,36	6,97	7,17	6,83
Player 2	8,48	8,59	7,98	8,35
Player 3	5,15	5,86	5,96	5,66
Player 4	6,57	6,97	6,26	6,60
Player 5	5,96	7,17	7,47	6,87
Player 6	7,88	7,27	7,37	7,51
Player 7	6,67	6,97	6,26	6,63
Player 8	8,38	7,47	8,69	8,18
Player 9	6,46	7,27	7,58	7,10
Player 10	5,96	6,16	6,36	6,16
	6.99	SD ± 0.84		

Graph n.3 Final data recruitment for non-disabled people

From what emerged, therefore, from the previous table n.3 and related graph n.3, we can note an average distance of the dribble from point 0 (position of the able-bodied athlete sitting) of 6.99 m. As for the second observation on disabled people as of 12/30/2019, the following emerged.

Table n.4. Final data recruitment for disabled people

Disabled on 30/12/19				
TEST 2	TEST 1	TEST 2	TEST 3	AVERAGE
Player 1	6,09	5,99	6,51	6,20
Player 2	7,77	7,88	7,25	7,63
Player 3	4,31	5,04	5,15	4,83
Player 4	5,78	6,20	5,46	5,81
Player 5	5,15	6,41	6,72	6,09
Player 6	7,25	7,14	7,25	7,21
Player 7	6,20	6,09	6,30	6,20
Player 8	7,56	7,14	7,46	7,39
Player 9	5,46	6,62	7,14	6,41
Player 10	6,20	6,41	6,09	6,23
				6.40
				SD ± 0.83

Graphic n.4. Final data recruitment for disabled people

From the previous table n.4 and related graph n.4, we can see an average dribble distance from point 0 (position of the disabled athlete) of 6.40 m.

Discussion

The improvement obtained was calculated taking into account the difference between the averages of the first and second detections. The result obtained is a positive improvement threshold of 31 cm; as regards disabled players (it went from 6.09 to 6.40 m).

Graph n.5. Compared data

In graph n.5 it is evident that the deviation between the measurements on able-bodied people is almost nil; this indicates that following the usual constant training these athletes do not have particular improvements. It should be specified, however, that even without targeted training, able-bodied people still perform better than disabled people. The difference between the surveys on disabled people is evident; this indicates that following a specific training, the latter manage to improve their performance significantly.

Conclusion

The results and the discussion show that the performance of disabled athletes has improved, with a specific training of four weeks, compared to that of able-bodied athletes who carried out technical-tactical training during the same period. Thus, in sitting volleyball is reached the inclusion model of sport participation as well as on assessment of sport skills. Group inclusion, class integration and social inclusion are the three stages of development of disabled people that need to be implemented. Even in competitive sport it will be necessary to make sport truly a social phenomenon (Caldin, 2019abc). Thus, in sitting volleyball is reached the inclusion model of sport participation as well as on assessment of sport skills. In this way, it will be developed also in other team sports to declare the full inclusion between disabled and non-disabled people in competitive sports. This study also highlighted that despite the inadequacy of the socio-economic in labour context in support for disabled people (Rodriguez et al, 2019), as well as the difficulty of private companies in meeting, not always for direct responsibility of the latter, the needs and the evaluation of disabled people can be integrated. It is evident that the enormous sacrifices that disabled people are forced to face every day to carry out training, an activity that could also be useful to facilitate the development of socio-relational aspects.

References

- Alminni, C., Altavilla, G., Scurati, R., D'elia, F. (2019) Effects induced through the use of physical and motor tests in volleyball, *Journal of Human Sport and Exercise*, 14 (Proc4), pp. S618-S623.
- Altavilla, G., D'Isanto, T., Di Tore, A.P., Raiola, G. (2018) Free throw and outcomes: Pilot study on intensive training versus extensive one, *Journal of Human Sport and Exercise*, 13 (3), pp. 494-503.
- Altavilla, G., Furino, F., Marika, D.P., Raiola, G. (2015) Physical skills, sport learning and socio-affective education [Fizičkejvejšťine, sportskoučenje I društveno-afektivnoobrazovanje] *Sport Science*, 8, pp. 44-46.
- Altavilla, G., & Di Tore, A. (2016). Physical education during the first school cycle: a brief social psychological summary, *Journal of Physical Education and Sport*, 16(2): 340 – 344.
- Altavilla, G., Di Tore, P.A., Raiola G., D'Isanto, T. (2017). Physical activity and evolutionary change of motor skills, *Acta Kinesiológica* 11(Suppl. 1): 7-11
- Altavilla, G. (2016). Relationship between physical inactivity and effects on individual health status, *Journal of Physical Education and Sport*, 16 (Suppl. 2): 1069 – 1074.
- Boccia, S., Izzo, R., D'Elia, F., Fattore, S. (2019). A wheelchair by the overboard model: a technological instrument for disabled basketball players. *Journal of Human Sport and Exercise*, 14(4): S1080-S1086.
- Caldin R., (2019a) *Inserimento*, in: *Dizionario di pedagogia speciale*, Brescia, Morcelliana, , pp. 270 - 273
- Caldin R., (2019b) *Integrazione*, in: *Dizionario di pedagogia speciale*, Brescia, Morcelliana, , pp. 274 - 277
- Caldin R. (2019c) *Inclusione*, in: *Dizionario di pedagogia speciale*, Brescia, Morcelliana, , pp. 259 – 264

- Carta Internazionale per l'Educazione fisica e lo Sport, 1978
- Cassese, F.P., Raiola, G. (2017) The importance of sport in disability management [Važnost sporta u upravljanju kod invaliditeta] *Sport Science*, 10, pp. 7-11.
- Cottini, L., (2003) *Psicomotricità. Valutazione e metodi d'intervento*, Carocci editore, 2003
- d'Alonzo, L., *Integrazione del disabile. Radici e prospettive educative*. Ed. La Scuola, 2014
- D'Elia, F. (2019). The training of physical education teacher in primary school. *Journal of Human Sport and Exercise*, 14(1): S100-S104.
- D'Isanto, T. (2016). Pedagogical value of the body and physical activity in childhood, *Sport Science*, 9, 13-18.
- D'Isanto, T., Manna, A., Altavilla, G. (2017). Health and physical activity *Sport Science* 10 (1): 100-105
- D'Isanto, T., D'Elia, F., Raiola, G., Altavilla, G. (2019) Assessment of sport performance: Theoretical aspects and practical indications, *Sport Mont*, 17 (1), 79-82.
- Gaetano, R. (2012a) Didactics of volleyball into the educate program for coaches/trainers/technicians of Italian Federation of Volleyball (FIPAV) *Journal of Physical Education and Sport*, 12 (1), pp. 25-29.
- Gaetano, R. (2012b) Motor learning and didactics into physical education and sport documents in middle school-first cycle of education in Italy *Journal of Physical Education and Sport*, 12 (2), pp. 157-163.
- Gaetano, R., Paloma, F.G., Gaetano, A. (2015) Anxiety in the youth physical and sport activity, *Mediterranean Journal of Social Sciences*, 6 (3), pp. 227-230.
- Ghirlanda, S., *Sport per tutti, spazio ai disabili*. Ed. Del Cerro, 2003
- Marcoux, M., Sallis, J.F., McKenzie, T.L., Marshall, S., Armstrong, C.A., & Goggin, K.J., (1999). Process evaluation of a physical activity self-management program for children: SPARK. *Psych&Health*, 14(4).
- Martino, L., Fonzo, E., Cassese, F.P., D'isanto, T. (2019). Principles of adaptation of the rules for disabled athletes for an inclusion sport, *Journal of Human Sport and Exercise*, 14 (Proc2), pp. S215-S220.
- Molik, B., Kosmol, A., & Skucas, K. (2008). Sport-specific and general sporting physical fitness of sitting volleyball athletes. *Physiotherapy*, 16(4), 68-75.
- Ng, K. (2012). *When sitting is not resting: Sitting volleyball*. AuthorHouse.
- Raiola, G. (2017) Motor learning and teaching method *Journal of Physical Education and Sport*, 17, art. no. 236, pp. 2239-2243.
- Raiola, G. (2011). A study on Italian primary school rules: Neurophysiological and didactics aspects on physical education and sport. *Journal of Physical Education and Sport*, 11(2):153-158.
- Raiola, G., Di Tore, P.A. (2012) Statistical study on bodily communication skills in volleyball to improve teaching methods, *Journal of Human Sport and Exercise*, 7 (2), pp. 468-488.
- Raiola, G. (2015). Inclusion in sport dance and self perception, *Sport Science*, 8, 99-102.
- Raiola, G. (2013) Body knowledge and motor skills, *Knowledge Cultures*, 1 (6), pp. 64-72.
- Raiola, G., D'elia, F., Altavilla, G. (2018) Physical activity and sports sciences between European Research Council and academic disciplines in Italy, *Journal of Human Sport and Exercise*, 13, pp. S283-S295.
- Raiola, G. (2015) Sport skills and mental health *Journal of Human Sport and Exercise*, 10 (Specialissue), pp. S369-S376.
- Rodrigues, M. B., Martin Cruz Pirotti, T., Giaconi, C., Del Bianco, N, (2019) Young people with disabilities and infinite worlds: Potential for a transdisciplinary reflection, *Education science and society*; 10, pp. 74 - 92
- Sanseviero, I., Cassese, F.P., Fonzo, E., Altavilla, G. D'Elia F. (2019). Study on the master's degree in sciences of sports evaluation and sport for disabled at the University of Salerno, Italy. *Journal of Human Sport and Exercise*, 14(2): S239-S244.
- Sherrill C., Hutzler Y., 2010, *Adapted physical activity sciences*. In J. Borms (Ed.), *Directory of sport science*. Berlin: ICSSPE/CIEPSS.
- Theodosiou, A., & Papaioannou, A. (2006). Metacognition and goal-orientations. Their role in self-regulation of learning in physical education. *Inquiries in sport & physical education*, 4(2).