Physical Activity, Exercise and Sport Programs as Effective Therapeutic Tools in Psychosocial Rehabilitation

Federica Sancassiani¹*, Sergio Machado³,4 and Antonio Preti¹,2

¹ Department of Medical Sciences and Public Health, University of Cagliari, Cagliari, Italy
² Center for Consultation-Liaison Psychiatry and Psychosomatics, University Hospital, University of Cagliari, Cagliari, Italy
³ Laboratory of Panic and Respiration, Institute of Psychiatry of Federal University of Rio de Janeiro (IPUB/UFRJ), Rio de Janeiro, RJ, Brazil
⁴ Physical Activity Neuroscience, Physical Activity Sciences Postgraduate Program - Salgado de Oliveira University, Niterói, Brazil

Received: November 15, 2017 Revised: December 16, 2017 Accepted: January 15, 2018

Abstract: People with severe psychosocial disabilities have a 20-years shorter lifespan due to chronic somatic comorbidities and the long-term consequences of the side-effects of antipsychotic drugs. They often are sedentary and show lower levels of physical activity, factors which can contribute to their shorter lifespan, because of the greater cardiovascular risk. An increasing amount of evidence, including clinical trials, pointed out that sport, physical activity and structured exercise programs improve physical and psychological wellbeing of people with psychosocial disabilities, playing also an important role against their social isolation and self-stigma. The NICE and APA guidelines include exercise and physical activity for the management of depressive symptoms. Safe and effective programs require multidisciplinary teams that should always include mental health professionals, able to recognize the psychosocial needs, the impact of symptomatology, the role of secondary effects of psychotropic medication, the effect of previous exercise history, the lack of motivation, the inexperience with effort intensity and the frustration of people with psychosocial disabilities.

Keywords: Sport, Exercise, Physical activity, Psychosocial disability, Psychosocial rehabilitation, Multidisciplinary.

According to the World Health Organization [1] mental, neurological and substance use disorders account for 13% of the total global burden of disease in the year 2004. Depression alone accounts for 4.3% of the global burden of disease and it is among the largest single causes of disability worldwide (11% of all years lived with disability globally), particularly for women”. People with severe psychosocial disabilities (i.e. schizophrenia, major depressive and bipolar disorders) have a 20-years shorter lifespan due to chronic somatic comorbidities, such as diabetes, overweight, obesity, cardiovascular and dysmetabolic diseases, also including to the long-term consequences of the side-effects of antipsychotic drugs [2 - 4]. Persons with severe psychosocial disabilities are also significantly more sedentary and show lower levels of physical activity than healthy persons [4, 5], factors which can contribute to their shorter lifespan, because of the greater cardiovascular risk that these unhealthy habits entail. It must be emphasized that sedentary behavior and low physical activity levels are independent yet modifiable risk. It must be emphasized that sedentary behavior and low physical activity levels are independent yet modifiable risk. It must be emphasized that sedentary behavior and low physical activity levels are independent yet modifiable risk.
physical activity levels are independent yet modifiable risk factors for premature mortality of these people [4 - 6]. For this reason, the interest in the integration of sport, physical activity and exercise programs as a component of treatment and rehabilitation for this population has been growing over the last decades.

Over time, much evidence pointed out the benefits of sport, physical activity and structured exercise programs in the mental health promotion field [7 - 9], in particular for depressive and anxiety disorders [9 - 20].

Sport, exercise and physical activity are not synonymous [21, 22]. Traditionally, physical activity is referred to “any bodily movement produced by skeletal muscles that results in energy expenditure” [23] and its components are occupational, transport, domestic, and leisure time, which consists of exercise, sport, and unstructured recreation. From this perspective, most sports contribute to overall physical activity [24]. Exercise is a “planned, structured and repetitive bodily movement, the objective of which is to improve or maintain physical fitness” [23]. Sport is defined as “a subset of exercise that can be undertaken individually or as a part of a team. Participants adhere to a common set of rules or expectations, and a defined goal exists” [24].

Studies have shown that even a small increase in physical activity has a positive impact on symptoms, functioning, severity of the condition, physical health (i.e.: cardiovascular risk profile) and sleep quality in people with psychosocial disabilities [17, 25 - 31]. Recent evidence from clinical trials pointed out that these benefits include improvements about weigh, motor difficulties, psychiatric symptoms, cognitive and social functioning, self-esteem, self-efficacy and quality of life [32 - 42].

Furthermore, sport, exercise and physical activity programs seem to play an important role against social isolation [32 - 36], a typical phenomenon closely linked with the experience of suffering from a psychosocial disability [43].

Psychosocial disabilities cause an elevated burden in terms of lost opportunities and this leads to higher self-perceived stigma [44], as well as to lower self-efficacy and quality of life [45]. Conversely, when people with psychosocial disabilities are offered a chance of employing their time in engaging social activities, such as sport and exercise programs, from which they are often kept apart, they benefit from the opportunity [32 - 36].

The evidence available regarding the management of depressive symptoms has led to the inclusion of exercise and physical activity into the guidelines from the National Institute for Health & Clinical Excellence (NICE) [46] and the American Psychiatric Association (APA) [47]. The NICE guidelines [46] recommend regular physical activity programs, 3 times/week, 45-60 minutes over 12 weeks for people with persistent subthreshold depressive symptoms or mild-moderate depression. The APA guidelines [47] suggest that people with depression of any severity and without any comorbid medical contraindications in relation to physical activity and exercise should include them as an add-on treatment.

However, these guidelines do not include any specific recommendations about the intensity and the suitable dose for exercise and physical activity [48], as well as any considerations about administration (i.e.: which kind of health professionals should conduct these interventions). In so far there is consistent evidence that supervised aerobic exercise is effective in reducing depressive symptoms when carried out 3 times/week, at moderate intensity for at least 9 weeks [49]. It is unclear how the effects that were observed for mild to moderate depression are generalizable to more severe psychosocial disabilities. Overall, safe and effective programs are expected to require the involvement of multidisciplinary teams that should always include mental health professionals, able to recognize the psychosocial needs, the impact of symptomatology, the role of the secondary effects of psychotropic medication, the effects of previous exercise history, and the lack of motivation, inexperience with effort intensity, and the frustration of people with psychosocial disabilities [48].

The evidence on the potentially beneficial effects of physical activity, exercise and sports on the course of severe psychosocial disabilities, particularly as far their quality of life is concerned, make hopeful that in the future the care for people with psychosocial disabilities should always include a focus on improving their fitness. Adequate programs should be carried out in stimulating environments, by qualified healthcare professionals, able to motivate and support participants in maintaining an active lifestyle [50 - 52]. To achieve these goals, changes in the mental health care system [53, 54] and the recognition of the same priority to physical, social and mental health needs of people with psychosocial disabilities are required.

CONSENT FOR PUBLICATION

Not applicable.
CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

ACKNOWLEDGEMENTS

Declared none.

REFERENCES

[1] World Health Organization,. Mental Health Action Plan 2013-2020. 2013 http://apps.who.int/iris/bitstream/10665/89966/1/9789241506021_eng.pdf?ua=1

[2] Henderson DC, Vincenzi B, Andrea NV, Ulloa M, Capelld PM. Pathophysiological mechanisms of increased cardiometabolic risk in people with schizophrenia and other severe mental illnesses. Lancet Psychiatry 2015; 2(5): 452-64. [http://dx.doi.org/10.1016/S2215-0366(15)00115-7] [PMID: 26360288]

[3] Thornicroft G. Physical health disparities and mental illness: The scandal of premature mortality. Br J Psychiatry 2011; 199(6): 441-2. [http://dx.doi.org/10.1192/bjp.bp.111.092718] [PMID: 22130744]

[4] Hall I, Shah A, Thomson H. Improving physical health for people taking antipsychotic medication in the Community Learning Disabilities Service 2016; 5(1): u209539.w3933. [http://dx.doi.org/10.1136/bmjquality.u209539.w3933]

[5] Vancampfort D, Firth J, Schuch F, et al. Physical activity and sedentary behavior in people with bipolar disorder: A systematic review and meta-analysis. J Affect Disord 2016; 201: 145-52. [a]. [http://dx.doi.org/10.1016/j.jad.2016.05.020] [PMID: 27253817]

[6] Vancampfort D, Firth J, Schuch FB, et al. Sedentary behavior and physical activity levels in people with schizophrenia, bipolar disorder and major depressive disorder: A global systematic review and meta-analysis. World Psychiatry 2017; 16(3): 308-15. [http://dx.doi.org/10.1002/wps.20458] [PMID: 28941119]

[7] Rosenbaum S, Tiedemann A, Sherrington C, Curtis J, Ward PB. Physical activity interventions for people with mental illness: A systematic review and meta-analysis. J Clin Psychiatry 2014; 75(9): 964-74. [http://dx.doi.org/10.4088/JCP.13r08765] [PMID: 24813261]

[8] Malcolm E, Evans-Lacko S, Little K, Henderson C, Thorthmicroft G. The impact of exercise projects to promote mental wellbeing. J Ment Health 2013; 22(6): 519-27. [http://dx.doi.org/10.3109/09638237.2013.841874] [PMID: 24279404]

[9] Wegner M, Helmich I, Machado S, Nardi AE, Arias-Carrion O, Budde H. Effects of exercise on anxiety and depression disorders: Review of meta-analyses and neurobiological mechanisms. CNS Neurol Disord Drug Targets 2014; 13(6): 1002-14. [http://dx.doi.org/10.2174/1871527313666140612102841] [PMID: 24923346]

[10] Bailey AP, Hetrick SE, Rosenbaum S, Purcell R, Parker AG. Treating depression with physical activity in adolescents and young adults: A systematic review and meta-analysis. J Clin Psychiatry 2014; 75(9): 964-74. [http://dx.doi.org/10.4088/JCP.13r08765] [PMID: 24813261]

[11] Nyström MB, Neely G, Hassmén P, Carlbring P. Treating major depression with physical activity: A systematic overview with recommendations. Cogn Behav Ther 2015; 44(4): 341-52. [http://dx.doi.org/10.1080/16506073.2015.1015440] [PMID: 25794191]

[12] de Souza Moura AM, Lamego MK, Paes F, et al. Comparison among aerobic exercise and other types of interventions to treat depression: A systematic review. CNS Neurol Disord Drug Targets 2015; 14(9): 1171-83. [http://dx.doi.org/10.2174/1871527315666140612102841] [PMID: 26556090]

[13] Mura G, Sancassiani F, Machado S, Carta MG. Efficacy of exercise on depression: A systematic review. Int J Psychosoc Rehabil 2014; 18(2): 23-36.

[14] Mura G, Moro MF, Patten SB, Carta MG. Exercise as an add-on strategy for the treatment of major depressive disorder: A systematic review. CNS Spectr 2014; 19(6): 496-508. [http://dx.doi.org/10.1017/S1092852913000953] [PMID: 24589012]

[15] Silveira H, Moraes H, Oliveira N, Coutinho ES, Laks J, Deslandes A. Physical exercise and clinically depressed patients: A systematic review and meta-analysis. Neuropsychobiology 2013; 67(2): 61-8. [http://dx.doi.org/10.1159/000345160] [PMID: 23295766]

[16] Cooney GM, Dwan K, Greig CA, et al. Exercise for depression. Cochrane Database Syst Rev 2013; 9(9): CD004366. [PMID: 24026850]

[17] Schuch FB, Vancampfort D, Rosenbaum S, Richards I, Ward PB, Stubbs B. Exercise improves physical and psychological quality of life in people with depression: A meta-analysis including the evaluation of control group response. Psychiatry Res 2016; 241: 47-54. [http://dx.doi.org/10.1016/j.psychres.2016.04.054] [PMID: 27155287]

[18] Knapen J, Vancampfort D, Morien Y, Marchal Y. Exercise therapy improves both mental and physical health in patients with major depression. Disabil Rehabil 2014; 1-6.
Josefsson T, Lindwall M, Archer T. Physical exercise intervention in depressive disorders: Meta-analysis and systematic review. Scand J Med Sci Sports 2014; 24(2): 259-72.

[http://dx.doi.org/10.1111/sms.12050] [PMID: 23362828]

Jayakody K, Gunadasa S, Hosker C. Exercise for anxiety disorders: Systematic review. Br J Sports Med 2014; 48(3): 187-96.

[http://dx.doi.org/10.1136/bjsports-2012-092187] [PMID: 23299048]

Buddle H, Schwarz R, Velasques B, et al. The need for differentiating between exercise, physical activity, and training. Autoimmun Rev 2016; 15(1): 110-1.

[http://dx.doi.org/10.1016/j.autrev.2015.09.004] [PMID: 26384527]

Duché P, Rochette E, Merlin E. Reply to the Letter to the Editor: The need for differentiating between exercise, physical activity, and training. In: Buddle et al Autoimmun Rev Autoimmun Rev. 2015; 15: pp. (3)289-90. 2016 Mar

[http://dx.doi.org/10.1016/j.autrev.2015.09.004]

Caspersen CJ, Powell KE, Christenson GM. Physical activity, exercise, and physical fitness: Definitions and distinctions for health-related research. Public Health Rep 1985; 100(2): 126-31.

[PMID: 3920711]

Khan KM, Thompson AM, Blair SN, et al. Sport and exercise as contributors to the health of nations. Lancet 2012; 380(9836): 59-64.

[http://dx.doi.org/10.1016/S0140-6736(12)60865-4] [PMID: 22770457]

Vancampfort D, Stubbs B, Ward PB, Teasdale S, Rosenbaum S. Integrating physical activity as medicine in the care of people with severe mental illness. Aust N Z J Psychiatry 2015; 49(8): 681-2. [a].

[http://dx.doi.org/10.1177/0004867415590831] [PMID: 26041791]

Vancampfort D, Rosenbaum S, Schuch F, et al. Cardiorespiratory fitness in severe mental illness: A systematic review and meta-analysis. Sports Med 2017; 47(2): 343-52. [b].

[http://dx.doi.org/10.1007/s40279-016-0574-1] [PMID: 27299747]

Vera-Garcia E, Mayoral-Cleries F, Vancampfort D, Stubbs B, Cuesta-Vargas AI. A systematic review of the benefits of physical therapy within a multidisciplinary care approach for people with schizophrenia: An update. Psychiatry Res 2015; 229(3): 828-39.

[http://dx.doi.org/10.1016/j.psychres.2015.07.083] [PMID: 26254795]

Pearsall R, Smith DJ, Pelosi A, Geddes J. Exercise therapy in adults with serious mental illness: A systematic review and meta-analysis. BMC Psychiatry 2014; 14: 117.

[http://dx.doi.org/10.1186/1471-244X-14-117] [PMID: 24751159]

Wårdig RE, Foldemo A, Hultsjö S, Lindström T, Bachrach-Lindström M. An intervention with physical activity and lifestyle counseling improves health-related quality of life and shows small improvements in metabolic risks in persons with psychosis. Issues Ment Health Nurs 2016; 37(1): 43-52.

[http://dx.doi.org/10.3109/01612840.2015.1092187] [PMID: 26818932]

Firth J, Stubbs B, Rosenbaum S, et al. Aerobic exercise improves cognitive functioning in people with schizophrenia: A systematic review and meta-analysis. Schizophr Bull 2017; 43(3): 546-56.

[http://dx.doi.org/10.1093/schbul/sbw115] [PMID: 27521348]

Chalfout C, Karelis AD, Stip E, Abdel-Baki A. Running for your life: A review of physical activity and cardiovascular disease risk reduction in individuals with schizophrenia. J Sports Sci 2016; 34(16): 1500-15.

[http://dx.doi.org/10.1080/02640414.2015.1119875] [PMID: 26630458]

Hardoy MC, Seruis ML, Floris F, et al. Benefits of exercise with mini tennis in intellectual disabilities: effects on body image and psychopathology. Clin Pract Epidemiol Ment Health 2011; 7: 157-60.

[http://dx.doi.org/10.2174/1745017901071010157] [PMID: 22016751]

Carta MG, Maggiani F, Pilutzu L, et al. Sailing can improve quality of life of people with severe mental disorders: results of a cross over randomized controlled trial. Clin Pract Epidemiol Ment Health 2014; 10: 80-6. [a].

[http://dx.doi.org/10.2174/174501790101401010080] [PMID: 25191521]

Carta MG, Maggiani F, Pilutzu L, et al. Sailing for rehabilitation of patients with severe mental disorders: Results of a cross over randomized controlled trial. Clin Pract Epidemiol Ment Health 2014; 23(10): 73-9. [b].

[http://dx.doi.org/10.2174/1745017901410010073]

Sancassiani F, Cocco A, Cossu G, et al. “VelaMente?!” - sailing in a crew to improve self-efficacy in people with severe psychosocial disabilities: A randomized controlled trial. Clin Pract Epidemiol Ment Health 2017; 13. [a].

[http://dx.doi.org/10.2174/1745017901714010174]

Sancassiani F, Lorrai S, Cossu G, et al. The Effects of “VelaMente?!” project on social functioning of people with severe psychosocial disabilities. Clin Pract Epidemiol Mental Health 2017; 13(3) [b].

Luttenberger K, Stelzer EM, Först S, Schopper M, Kornhuber J, Book S. Indoor rock climbing (bouldering) as a new treatment for depression: Study design of a waitlist-controlled randomized group pilot study and the first results. BMC Psychiatry 2015; 15: 201.

[http://dx.doi.org/10.1186/s12888-015-0585-8] [PMID: 26302900]

Callaghan P, Khalil E, Morres I, Carter T. Pragmatic randomised controlled trial of preferred intensity exercise in women living with depression. BMC Public Health 2011; 11: 465.
[39] Curtis J, Watkins A, Rosenbaum S, et al. Keeping the body in mind: An individualised lifestyle and life-skills intervention to prevent antipsychotic-induced weight gain in first episode psychosis. Early Interv Psychiatry 2016; 10: 2-276. 
[http://dx.doi.org/10.1111/eip.12230]

[40] Battaglia G, Alesi M, Inguglia M, et al. Soccer practice as an add-on treatment in the management of individuals with a diagnosis of schizophrenia. Neuropsychiatr Dis Treat 2013; 9: 595-603. 
[http://dx.doi.org/10.2147/NDT.S4066] [PMID: 2362058]

[41] Ho RT, Fong TC, Wan AH, et al. A randomized controlled trial on the psychophysiological effects of physical exercise and Tai-chi in patients with chronic schizophrenia. Schizophr Res 2016; 171(1-3): 42-9. 
[http://dx.doi.org/10.1016/j.schres.2016.01.038] [PMID: 26822592]

[42] Kerling A, Tegtbar U, Gützlaff E, et al. Effects of adjunctive exercise on physiological and psychological parameters in depression: A randomized pilot trial. J Affect Disord 2015; 177: 1-6. 
[http://dx.doi.org/10.1016/j.jad.2015.01.006] [PMID: 25743367]

[43] Linz SJ, Sturm BA. The phenomenon of social isolation in the severely mentally ill. Perspect Psychiatr Care 2013; 49(4): 243-54. 
[http://dx.doi.org/10.1111/ppc.12010] [PMID: 25187445]

[44] Angermeyer MC, van der Auwera S, Carta MG, Schomerus G. Public attitudes towards psychiatry and psychiatric treatment at the beginning of the 21st century: A systematic review and meta-analysis of population surveys. World Psychiatry 2017; 16(1): 50-61. 
[http://dx.doi.org/10.1002/wps.20383] [PMID: 28127931]

[45] Abraham KM, Miller CJ, Birgenheir DG, Lai Z, Kilbourne AM. Self-efficacy and quality of life among people with bipolar disorder. J Nerv Ment Dis 2014; 202(8): 583-8. 
[http://dx.doi.org/10.1097/NMD.0000000000000165] [PMID: 25010107]

[46] National Institute for Health and Clinical Excellence Depression The treatment and management of depression in adults (updated edition).. Available from: https://www.nice.org.uk/guidance/cg90 2016.

[47] American Psychiatric Association. Practice Guideline for the Treatment of Patients with Major Depressive Disorder. 3rd ed.. 2010.

[48] Carneiro L, Rosenbaum S, Mota MP, Schuch F, Ward PB, Vasconcelos-Raposo J. Exercise as an essential therapeutic tool in mental health: Closing the gap from research to practice, A portuguese perspective. Acta Med Port 2017; 30(5): 354-5. 
[http://dx.doi.org/10.20344/amp.8436] [PMID: 2885497]

[49] Stanton R, Reaburn P. Exercise and the treatment of depression: A review of the exercise program variables. J Sci Med Sport 2014; 17(2): 177-82. 
[http://dx.doi.org/10.1016/j.jsams.2013.03.010] [PMID: 23602562]

[50] Farholm A, Sørensen M. Motivation for physical activity and exercise in severe mental illness: A systematic review of intervention studies. Int J Ment Health Nurs 2016; 25(3): 194-205. 
[http://dx.doi.org/10.1111/inm.12214] [PMID: 26916699]

[51] Vancampfort D, Stubbs B, Sienaert P, et al. What are the factors that influence physical activity participation in individuals with depression? A review of physical activity correlates from 59 studies. Psychiatr Danub 2015; 27(3): 210-24. 
[PMID: 26400128]

[52] Thompson Coon J, Boddy K, Stein K, Whear R, Barton J, Depledge MH. Does participating in physical activity in outdoor natural environments have a greater effect on physical and mental wellbeing than physical activity indoors? A systematic review. Environ Sci Technol 2011; 45(5): 1761-72. 
[http://dx.doi.org/10.1021/es102947t] [PMID: 21291246]

[53] Carta MG, Angermeyer MC, Sancassiani F, et al. A follow-up on patients with severe mental disorders in Sardinia after two changes in regional policies: poor resources still correlate with poor outcomes. BMC Psychiatry 2013; 13: 333. 
[http://dx.doi.org/10.1186/1471-244X-13-333] [PMID: 24313930]

[54] Rosenbaum S, Watkins A, Ward PB, Pearce D, Fitzpatrick K, Curtis J. Psychiatry HeAL thyself! Aust N Z J Psychiatry 2016; 50(6): 600. 
[http://dx.doi.org/10.1177/0004867415620025] [PMID: 26619896]