

## Health Benefits of Exercise for Persons with Disabilities

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In their seminal report "Physical Activity and Health", the U.S. Surgeon General's (1996) concluded that regular physical activity can have a significant health benefit for people of all ages, both male and female disabled and non-disabled. The Surgeon General expressed a sense of urgency in increasing the frequency and duration of physical activity participated in, stating that:

"Because physical activity is so directly related to preventing disease and premature death and to maintaining a high quality of life, we must accord it the same level of attention that we give other important public health practices that affect the entire nation. Physical activity thus joins the front ranks of essential health objectives, such as sound nutrition, the use of seat belts, and the prevention of adverse health effects of tobacco."

The health benefits of regular physical activity have been shown to be the same for people with and without disabilities (Brenes et al, 1986; Minor and Hewett, 1995; Siegel et al, 1970; Cowell et al, 1987; Kaplan et al, 1981; Hoffman, 1987; Nilsson et al, 1995; Sinclair and Ingram, 1980; Gaffney et al, 1981; Kristensen et al, 1980; Gehlsen et al, 1981).

**However it has been observed that people with disabilities (PWD) participate less, have lower levels of fitness and higher metabolic cost of physical activity than able-bodied peers (Oligiati et al, 1988; Olney et al, 1986). People with disabilities accrue additional benefits from participating in regular moderate physical activity, including:**

- **PWD who are physically active have decreased rate of hospital admission (compared with inactive) and physical activity is seen to prevent and/or ameliorate co-morbidity including contractures, decubitus ulcers and deep-vein thrombosis (Stotts, 1986; Patrick and McClelland, 1985; Hopkins et al, 1987; Marge, 1988; McAdam and Natvig, 1980; Agre et al, 1987; Hardy and Jones, 1986);**
- **Regular physical activity is seen to have a positive influence on the measures of independence, activities of daily living and quality of life (Marge, 1988; Spira, 1980; Petrofsky and Heaton, 1983; Oligiati and Di Prampero, 1986).**
- **Physical activity decreases psychological sequelae associated with disability (Meyer, 1981; Shepherd, 1991; Green et al, 1984; Bar-Ord et al, 1976).**

**Reference list attached.**

## REFERENCES

1. U.S. Department of Health and Human Services (1996) Physical Activity and Health - A Report of the Surgeon General. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Atlanta.
2. Agre, J.C., T.W. Findley, M.C. McNally, R. Habeck, A.S. Leon, L. Stradel, R. Birkebak, and R. Schmalz.(1987) Physical activity in children with myelomeningocele. Arch. Phys. Med. Rehabil (68):372-377.
3. Bar-Or, O., O. Inbar, and R. Spina. (1976) Physiological effects of a sports rehabilitation program on cerebral palsied and post-poliomyelitic adolescents. Med. Sci. Sports Exerc. (8):157-161.
4. Brenes, G., S. Dearwater, R. Shapera, R.E. LaPorte, and E. Collins. (1986) High density lipoprotein cholesterol concentrations in physically active and sedentary spinal cord injured patients. Arch. Phys. Med. Rehabil. (67):445-450.
5. Cowell, L.L., W.G. Squires, and P.B. Raven.(1986) Benefits of aerobic exercise for the paraplegic: a brief review. Med. Sci. Sports Exerc. (18):501-508.
6. Gaffney, F.A., G. Grimby, B. Danneskiold-Samsoc, and O. Halskov. (1981) Adaptation to peripheral muscle training. Scand. J. Rehabil. Med. (13):11-16.
7. Gehlsen, G.M., S.A. Grigsby, and D.W. Winant. (1984) Effects of an aquatic fitness program on the muscular strength and endurance of patients with multiple sclerosis. Phys. Ther. (64):653-657.
8. Green, B. C., C.C. Pratt, and T.E. Grigsby. (1984) Self concept among persons with long-term spinal cord injury. Arch. Phys. Med. Rehabil. (65):751-754.
9. Hardy, L., and D. Jones (1986) Dynamic flexibility and proprioceptive neuromuscular facilitation. Res. Q. Exerc. Sport (57):150-153.
10. Hoffman, M.D.(1986) Cardiorespiratory fitness and training in quadriplegics and paraplegics. Sports Med. (3):312-330.
11. Hopkins, W.G., H. Gaeta, A.C. Thomas, and P. McN. Hill. (1987) Physical fitness of blind and sighted children. Eur. J. Appl. Physiol. (56):69-73.
12. Kaplan, P.E., W. Roden, E. Gilbert, L. Richards, and J.W. Goldschmidt. (1981) Reduction of hypercalciuria in tetraplegic after weight-bearing and strengthening exercises. Paraplegia (19):289-293.
13. Kristensen, J.H., T.I. Hansen, and B. Saltin. (1980) Cross-sectional and fiber size changes in the quadriceps muscle of man with immobilization and physical training. Muscle Nerve (3):275-276.
14. Marge, M.M.(1988) Health promotion for persons with disabilities: moving beyond rehabilitation. Am. J. Health Promotion (2):29-35.

15. McAdam, R, and H. Natvig. (1980) Stair climbing and ability to work for paraplegics with complete lesions - a sixteen year follow-up. Paraplegia (18):197-203.
16. Meyer, C.M.H. (1981) Sport and recreation for the severely disabled. S.Afr.Med.J. (60): 868-871.
17. Minor, M.A., and J.E.Hewett. (1995) Physical fitness and work capacity in women with rheumatoid arthritis. Arthritis Care Res. (8):146-154.
18. Nilsson, S., P.H. Staff, and E.D.R. Pruett. (1975) Physical work capacity and the effect of training on subjects with long-standing paraplegia. Scand. J. Rehabil. Med. (7):51-56.
19. Olgiasi, R., and P.E., di Prampero.(1986) Effect of physical exercise on adaptation to energy expenditure in multiple sclerosis. Schweiz. Med. Wochenschr. (116):374-33.
20. Olgiasi, R., J.-M. Burgunder, and M. Mumenthaler. (1988) Increased energy cost of walking in multiple sclerosis: effect of spasticity, ataxia, and weakness. Arch. Phys. Med. Rehab. (69):846-849.
21. Olney, S.J., T.N. Monga, and P.A. Costigan. (1986) Mechanical energy of walking of stroke patients. Arch. Phys. Med. Rehabil. (67):92-98.
22. Patrick, J.H., and M.R. McClelland. (1985) Low energy cost reciprocal walking for the adult paraplegic. Paraplegic (23):113-117.
23. Petrofsky, J.S., H. Heaton, 3<sup>rd</sup>., and C.A. Phillips. (1983) Outdoor bicycle for exercise in paraplegics and quadriplegics. J. Biomed. Eng. (5):292-296.
24. Shepherd, R.J. (1991) Benefits of sport and physical activity for the disabled: implications for the individual and for society. Scand. J. Rehabil. Med. (23):51-59.
25. Siegel, W.G., Blomqvist, and J.H. Mitchell. (1970) Effects of a quantitated physical training program on middle-age sedentary men. Circulation (41):19-29.
26. Sinclair, D.J.M., and C.G. Ingram.(1980) Controlled trial of supervised exercise training in chronic bronchitis. Br.Med. J. (1):519-521.
27. Spira, R. (1980) Sport activities in severe motor paralysis in adolescents: their therapeutic and preventive value. The First International Medical Congress on Sports for Disabled, Ustaoset. H. Natvig (ed.). Royal Ministry of Church Education State Office for Youth and Sports, Oslo, pp. 200-205.
28. Stotts, K.M. (1986) Health maintenence: paraplegic athletes and nonathletes. Arch. Phys. Med. Rehabil. (67):109-114