Clinical & Scientific Studies on Nordic Pole Walking

General Studies:

1. **Comparison of treadmill and over-ground Nordic walking**  
   Dr. Gail Dechman, Appleby, Carr, & Haire. School of Physiotherapy, Dalhousie University - European Journal of Sport Science, January 2012; 12(1): 36-42

2. **NPW engages more than 90% of Body Muscles**  

3. **NPW versus walking without poles:**  
   - Percentage of Body Muscles involved  
   - Calorie Burning Rate per hour  


5. **Comparison of kinematic and kinetic parameters between the locomotion patterns in Nordic walking, walking and running.**  

6. **Effects of Nordic Pole Walking on Functional Capacity in Patients with Moderate to Severe Heart Failure.**  
   ML Keast, R Reid, M Slovinec-D’Angelo, L McDonnell Minto Prevention & Rehabilitation Centre, Ottawa, 2010

7. **Exploring Muscle Activation during Nordic Walking: A Comparison between Conventional and Uphill Walking**  
   CeRiSM (Research Centre of Mountain Sport and Health), University of Verona, Department of Neurological and Movement Sciences, University of Verona, Verona, Italy,  
   3 Barbara Pellegrini 1,2 , Leonardo Alexandre Peyré-Tartaruga 3, Chiara Zoppirolli 1,2, Lorenzo Bortolan 1,2, Elisabetta Bacchi 4, Hélène Figard-Fabre 1,5, Federico Schena 1,2

Cardiovascular System

1.1 **Influence on Coronary Diseases and Peripheral Vascular Diseases**  
   (Walter et.al.,1996; Stroughton, Larkin, Karawan, 1992  Parkatti et.al.,2003; Koskinen et.al.,2003 and others)

1.2. **Influence on High Blood Pressure: How NPW decreases High Blood Pressure**  
   (Ishikawa et. al.,1999. C. Diehm, 2007)
1.3 Effects of Nordic Walking and Pilates exercise programs on blood glucose and lipid profile in overweight and obese postmenopausal women in an experimental, nonrandomized, open-label, prospective controlled trial Journal North American Menopause Society. Vol. 22, No. 11, pp. 1215-1223 Magdalena Hagner-Derengowska, PT, PhD, 1 Krystian Kałużny,2 Bartosz Kochanski, PT,2 Wojciech Hagner, MD, PhD,2 Alina Borkowska, MD, PhD,1 Andrzej Czamara, PT, PhD, 3 and Jacek Budzynski, MD, PhD

Musculoskeletal System

2.1 Diminishing Neck- and Shoulder Tension/Pain (Anttila et al., 1999)


2.3 Less Impact on Joints: Mechanics of Pole Walking in subject with Chronic Knee Problem (Willson et al., 2001; Young-Hoo Kwon, Lori R. Bolt, and Jackun Shi Ball State University, Muncie, Indiana, USA, 2008)

2.4 Nordic Poles immediate improve Walking Distance in Patients with Intermitted Claudication (C. Oakleya, I. Zwiersk, G. Tew, J.D. Beard and J.M. Saxton, 2008.University, Sheffield, S10 2BP, UK
Sheffield Vascular Institute, Northern General Hospital, Sheffield, S5 7AU, UK)

2.5 Posture Enhancement & Segmental Stability (Koskinen et al. 2003)

2.6 Lower Trunk and Posture Control (Koskinen et al., 2003)

2.7 Functional Benefits (Parkatti et al.,2002)


2.13 Nordic walking and chronic low back pain: design of a randomized clinical trial.
**Effect on Metabolism**

3.1 Physiological responses to Nordic walking, walking and jogging.  
Schiffer T, Knicker A, Hoffman U, Harwig B, Hollmann W, Strüder HK.  

3.2 Energy expenditure and comfort during Nordic walking with different pole lengths.  

3.3 Effects of Nordic Walking and exercise in type 2 diabetes mellitus: a randomized controlled trial.  
Gram B, Christensen R, Christiansen C, Gram J.  

3.4 Weight Loss through Nordic Pole Walking  
(Heikkilä et al., 2004)

3.5 Intensity of Nordic Walking in young females with different peak O2 consumption.  
Jürimäe T, Meema K, Karelson K, Purge P, Jürimäe J.  

3.6 Menopause: Changes in level of VO2max, blood lipids, and waist circumference in the response to moderate endurance training as a function of ovarian aging.  
Hagner W, Hagner-Derengowska M, Wiacek M, Zubrzycki IZ.

3.7 Energy cost and pole forces during Nordic walking under different surface conditions.  
Schiffer T, Knicker A, Dannöhl R, Strüder HK.  

3.8 Field-testing of physiological responses associated with Nordic Walking.  
Church TS, Earnest CP, Morss GM.  
Res Q Exerc Sport. 2002 Sep;73(3):296-300. PMID: 12230336

**Mental Health**

4.1. Nordic Pole Walking and Depression  
(C. Willemer, K. Krüger, F.C. Mooren, K. Völker, S. Knecht and A. Flöel, University of Muenster, Germany, 2008)


4.3. Effects of exercise on aerobic capacity and fatigue in women with primary Sjogren’s syndrome.  
Strömbeck BE, Theander E, Jacobsson LT.  

4.4. Physiological and perceptual responses to Nordic walking in obese middle-aged women in comparison with the normal walk.  
Figard-Fabre H, Fabre N, Leonardi A, Schena F.  
Respiratory

5.1. Nordic Walking improves daily physical activities in COPD: a randomized controlled trial.


Rehabilitation

6.1 Effects of Walking Poles on Shoulder Function in Breast Cancer Survivors

(L. K. Sprod, S.N. Drum, A.T. Bentz, S.D. Carter, C.M. Schneider University of Northern Colorado, Rocky Mountain Cancer Rehabilitation Institute, Greeley, Colorado, 2005)


6.4. Effect of different walking aids on walking capacity of patients with post stroke hemiparesis.


6.6. Nordic walking. Also suitable in rehabilitation


Pregnancy

7.1. Physical activity in pregnancy and in breast-feeding period in obese mothers


Seniors

8.1. Nordic walking: a new form of physical activity in the elderly


8.2. Factors predicting dynamic balance and quality of life in home-dwelling elderly women.


8.3. Influence of NPW on functions important to everyday life for the elderly

(Parkatti et al., 2002)
Parkinson’s

9.1 Comparing exercise in Parkinson's disease--the Berlin LSVT®BIG study.
  Mov Disord. 2010 Sep 15;25(12):1902-8. PMID: 20669294

9.2 Nordic walking improves mobility in Parkinson's disease
  Nordic walking could provide a safe, effective, and enjoyable way to reduce physical inactivity in PD and to improve the quality of life.
  Frank J.M. van Eijkeren, Ruud S.J. Reijmers, Mirjam J. Kleinveld, Angret Minten, Jan Pieterter Bruggen, Bastiaan R. Bloem
  Movement Disorders Volume 23, Issue 15  September 2008

Diabetes

10.1 Effects of Nordic Pole Walking and exercise in type 2 diabetes mellitus: a randomized controlled trial.

10.2 Most effective for Diabetes: Influence of NPW on Medication with Patients suffering Diabetes Type 2
  (Nischwitz et.al. Medical University Munich, 2006; Clinic Bad Wiessee,2006)

10.3 Physical Activity and Diabetes Type 2
  (Siegmund, T., Clinicum Munich, Clinicum Bogenhausen, 2009)

Cancer

11.0 Nordic Pole Walking and Individuals with Cancer: Elise J. Cunningham, MHSc, BSc, Rkin. Dr Shilpa Dogra. Supervisor. Effects of NPW on individuals diagnosed with cancer.
  University of Ontario Institute of Technolog 2017

11.1 Nordic walking for women with breast cancer: A systematic review
  The low-impact exercise improved swelling, physical fitness, disability and quality of life.

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