Abstract

OBJECTIVE: Both Nordic walking and Exercise on Prescription have potential as elements in the management of type 2 diabetes mellitus. These programs are recommended, but their effectiveness has not yet been established. The aim was to evaluate the efficacy of these 2 interventions compared with standard information on physical activity.


SETTING: Sixty-eight patients (37 men and 31 women) were randomized into 3 groups: Nordic walking (NW; n = 22), Exercise on Prescription (EP; n = 24), and control (CG; n = 22).

PATIENTS: Patients were recruited from a diabetes outpatient clinic and via newspaper advertisement.

INTERVENTIONS: Consisted of a 4-month intervention period followed by an 8-month follow-up, during which the participants were recommended to train on their own.

MAIN OUTCOME MEASURES: HbA1c.

RESULTS: There was no difference in HbA1c when comparing the intervention groups relative to the control group: DeltaNW = -0.4% [95% confidence intervals (CI), -0.9% to 0.1%] and DeltaEP = -0.2% (95% CI, -0.6% to 0.2%) after 4 months; DeltaNW = 0.0% (95% CI, -0.6% to 0.5%) and DeltaEP = 0.3% (95% CI, -0.3% to 0.9%) after 12 months. However, fat mass assessed by dual energy X-ray absorptiometry (DXA) decreased significantly in the NW group after 4 months [-1.0 kg (95% CI, -1.7 to 0.1)] and after 12 months in both NW [-1.8 kg (95% CI, -3.2 to -0.4)] and EP [-1.5 kg (95% CI, -2.9 to -0.05)] groups. No significant changes in other variables.

CONCLUSIONS: Four-month exercise programs at moderate intensity of either Nordic walking or Exercise on Prescription did not significantly improve HbA1c in patients with type 2 diabetes either at the end of the program or at the follow-up.

PMID: 20818193 [PubMed - in process]
Nordic Walking improves daily physical activities in COPD: a randomised controlled trial.

Breyer MK, Breyer-Kohansal R, Funk GC, Dornhofer N, Spruit MA, Wouters EF, Burghuber OC, Hartl S.

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Abstract

BACKGROUND: In patients with COPD progressive dyspnoea leads to a sedentary lifestyle. To date, no studies exist investigating the effects of Nordic Walking in patients with COPD. Therefore, the aim was to determine the feasibility of Nordic Walking in COPD patients at different disease stages. Furthermore we aimed to determine the short- and long-term effects of Nordic Walking on COPD patients' daily physical activity pattern as well as on patients exercise capacity.

METHODS: Sixty COPD patients were randomised to either Nordic Walking or to a control group. Patients of the Nordic Walking group (n = 30; age: 62 +/- 9 years; FEV1: 48 +/- 19% predicted) underwent a three-month outdoor Nordic Walking exercise program consisting of one hour walking at 75% of their initial maximum heart rate three times per week, whereas controls had no exercise intervention. Primary endpoint: daily physical activities (measured by a validated tri-axial accelerometer); secondary endpoint: functional exercise capacity (measured by the six-minute walking distance; 6MWD). Assessment time points in both groups: baseline, after three, six and nine months.

RESULTS: After three month training period, in the Nordic Walking group time spent walking and standing as well as intensity of walking increased (Delta walking time: +14.9 +/- 1.9 min/day; Delta standing time: +129 +/- 26 min/day; Delta movement intensity: +0.40 +/- 0.14 m/s2) while time spent sitting decreased (Delta sitting time: -128 +/- 15 min/day) compared to baseline (all: p < 0.01) as well as compared to controls (all: p < 0.01). Furthermore, 6MWD significantly increased compared to baseline (Delta 6MWD: +79 +/- 28 meters) as well as compared to controls (both: p < 0.01). These significant improvements were sustained six and nine months after baseline. In contrast, controls showed unchanged daily physical activities and 6MWD compared to baseline for all time points.

CONCLUSIONS: Nordic Walking is a feasible, simple and effective physical training modality in COPD. In addition, Nordic Walking has proven to positively impact the daily physical activity pattern of COPD patients under short- and long-term observation.

PMCID: PMC2933683 Free PMC Article

PMID: 20727209 [PubMed - in process]
Physiotherapy is widely used in Parkinson's disease (PD), but there are few controlled studies comparing active interventions. Recently, a technique named "LSVT®BIG" has been introduced. LSVT®BIG is derived from the Lee Silverman Voice Treatment and focuses on intensive exercising of high-amplitude movements.

In the present comparative study, 60 patients with mild to moderate PD were randomly assigned to receive either one-to-one training (BIG), group training of Nordic Walking (WALK), or domestic nonsupervised exercises (HOME). Patients in training (BIG) and WALK received 16 hours of supervised training within 4 (BIG) or 8 (WALK) weeks. The primary efficacy measure was difference in change in Unified Parkinson's Disease Rating Scale (UPDRS) motor score from baseline to follow-up at 16 weeks between groups. UPDRS scores were obtained by blinded video rating. ANCOVA showed significant group differences for UPDRS-motor score at final assessment (P < 0.001). Mean improvement of UPDRS in BIG was -5.05 (SD 3.91) whereas there was a mild deterioration of 0.58 (SD 3.17) in WALK and of 1.68 (SD 5.95) in HOME. LSVT®BIG was also superior to WALK and HOME in timed-up-and-go and timed 10 m walking. There were no significant group differences for quality of life (PDQ39). These results provide evidence that LSVT®BIG is an effective technique to improve motor performance in patients with PD.

PMID: 20669294 [PubMed - in process]
Abstract

BACKGROUND: Regular physical activity is an important component of a health pregnancy. Being physically active during pregnancy often creates uncertainty and leads to numerous questions: How much and which kind of sports is possible? In pregnant women, a lot of physiological changes are taking place in haemodynamics, in the respiratory system, in the musculoskeletal system, in the glucose metabolism, and in further endocrinological feedback systems besides the psyche and bring about changes in fitness and physical performance.

DISCUSSION: There is evidence that the most active women show the lowest prevalence for gestational diabetes (GDM) and, moreover, a lower incidence for obesity and diabetes in both mother and child. Physically active women rarely develop not only GDM but also pre-eclampsia. The protective effect of physical activity can be explained by an enhanced placental growth and vascularity, by decreased oxidative stress, reduced inflammation and an adaptation of the disease-related endothelial dysfunction. Maternal obesity increases the frequencies of infertility and miscarriage. Weight loss programmes with nutritional advice and activity counselling represent a cost-effective infertility treatment. Moreover, the possibility of health problems during pregnancy are limited thereby. A high degree of fitness before pregnancy and regular physical activity before conception can prevent the excessive weight gain during pregnancy and influence the weight at the very best.

CONCLUSIONS: Considering common recommendations for training, as well as careful measures and contraindications, a moderate individual training to maintain physical and psychic fitness is desirable. Many kinds of sports like jogging, Nordic walking, swimming, and cycling, for example, can be carried out in pregnancy without any risks and furthermore promote the health of the future mother and child.

PMID: 20574938 [PubMed - indexed for MEDLINE]

Related citations


Banerjee M, Bouillon B, Banerjee C, Bäthis H, Lefering R, Nardini M, Schmidt J. Department of Trauma and Orthopaedic Surgery, University of Witten/Herdecke, Cologne Merheim Medical Center, Ostmerheimerstrasse 200, Cologne, Germany. marc.banerjee@gmx.de

Abstract

BACKGROUND: Little is known about sports activity after total hip resurfacing.

HYPOTHESIS: Patients undergoing total hip resurfacing can have a high level of sports activity.

STUDY DESIGN: Case series; Level of evidence, 4.
METHODS: The authors evaluated the level of sports activities with a standardized questionnaire in 138 consecutive patients (152 hips) 2 years after total hip resurfacing. Range of motion, Harris hip score, and Oxford score were assessed, and radiological analysis was performed.

RESULTS: Preoperatively, 98% of all patients participated in sports activities. Two years postoperatively, 98% of the patients participated in at least 1 sports activity. The level of sports activity decreased after surgery. The number of sports activities per patient decreased from 3.6 preoperatively to 3.2 postoperatively. Intermediate- and high-impact sports, especially tennis, soccer, jogging, squash, and volleyball, showed a significant decrease while the low-impact sports (stationary cycling, Nordic walking, and fitness/weight training) showed a significant increase. Physical activity level at the time of follow-up as measured by the Grimby scale was significantly higher than in the year before surgery. Duration of sports participation per week increased significantly after surgery. Men had a significantly higher sport level than women before and after surgery. Eighty-two percent felt no restriction while performing sports. One-third missed certain sports activities such as jogging, soccer, tennis, and downhill skiing. The Harris hip and Oxford scores showed a significant increase postoperatively.

CONCLUSION: The results of this short-term follow-up study show that sports activity after total hip resurfacing surgery is still possible. Physical activity level increased with a shift toward low-impact sports. Duration of sports participation increased. High-impact sports activities decreased. These findings can be important for the decision-making process for hip surgery and should be communicated to the patient.

PMID: 20223940 [PubMed - indexed for MEDLINE]

Related citations


Figard-Fabre H, Fabre N, Leonardi A, Schena F.
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Abstract
This study aimed to compare physiological and perceptual responses to Nordic walking (NW) in obese women to those of walking (W), and to assess if these responses were modified by a learning period of NW technique. Eleven middle-aged obese women completed exercise trials (5 min each) at 4 km/h, inclinations of -5, 0 and +5%, with and without poles. Ventilation (V(E)) oxygen consumption V(O)(2)
energy cost (EC), heart rate (HR), rating of perceived exertion (RPE) and cycle length were measured before and after a 4-week learning period (12 sessions). V(E), V(O)(2), EC, HR and cycle length were significantly higher (P < 0.001) during NW trials than W trials. RPE was significantly diminished (pole x inclination interaction, P = 0.031) when using NW poles compared to W uphill. Significant pole x inclination interactions were observed for V(O)(2) (P = 0.022) and EC (P = 0.022), whereas significant pole x time interaction was found for EC (P = 0.043) and RPE (P = 0.039). Our results confirmed that use of NW poles increased physiological responses at a given speed but decreased RPE in comparison with W during inclined level. Moreover, this is the first study showing that a learning period of NW technique permitted to enhance the difference between EC with NW poles versus the W condition and to decrease the RPE when using NW poles. Thus, although it requires a specific learning of the technique, the NW might be considered like an attractive physical activity with an important public health application.

PMID: 20091181 [PubMed - indexed for MEDLINE]

Related citations


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Abstract

OBJECTIVE: To investigate the effects of Nordic Walking training supplemental to a standard, early rehabilitation programme on exercise capacity and physical fitness in men after an acute coronary syndrome.

DESIGN: A controlled trial.

SETTING: Cardiac rehabilitation service of a provincial hospital.

SUBJECTS: Eighty men 2-3 weeks after an acute coronary syndrome, with good exercise tolerance.

INTERVENTIONS: Three-week, inpatient cardiac rehabilitation programme (control group) supplemented with Nordic Walking (Nordic Walking group), or with traditional walking training (walking training group).

MAIN MEASURES: Exercise capacity was assessed as peak energy cost (in metabolic equivalents) in symptom-limited treadmill exercise test, and physical fitness with the Fullerton Functional Fitness Test.
RESULTS: Exercise capacity after the rehabilitation programme was higher in the Nordic Walking group than in the control group (10.8 +/- 1.8 versus 9.2 +/- 2.2 metabolic equivalents, P =0.025). The improvement in exercise capacity in the Nordic Walking group was higher than in the control group (1.8 +/- 1.5 versus 0.7 +/- 1.4 metabolic equivalents, P =0.002). In contrast to the control group, the results of all components of the Fullerton test improved in the Nordic Walking and walking training groups. After the programme, lower body endurance, and dynamic balance were significantly better in the Nordic Walking group in comparison with the walking training and control groups, and upper body endurance was significantly better in the Nordic Walking and walking training groups than in the control group.

CONCLUSIONS: Nordic Walking may improve exercise capacity, lower body endurance and coordination of movements in patients with good exercise tolerance participating in early, short-term rehabilitation after an acute coronary syndrome.

PMID: 19786418 [PubMed - in process]

Related citations


Allet L, Leemann B, Guyen E, Murphy L, Monnin D, Herrmann FR, Schnider A. Department of Clinical Neurosciences, Geneva University Hospitals and University of Geneva, Geneva, Switzerland. lara.allet@hcuge.ch

Abstract

OBJECTIVE: To examine the effects of 3 different walking aids on walking capacity, temporo-spatial gait parameters, and patient satisfaction.

DESIGN: Observational study.

SETTING: University Hospital of Geneva.

PARTICIPANTS: Hemiparetic inpatients (N=25) with impaired gait, at an early stage of rehabilitation, unfamiliar with any of the walking aids tested.

INTERVENTIONS: On 3 consecutive days subjects used, in random order, 1 of 3 walking aids: 4-point cane, simple cane with ergonomic handgrip, and Nordic stick.

MAIN OUTCOME MEASURES: Maximal walking distance in 6 minutes, temporo-spatial gait parameters determined with a commercial electronic gait analysis system, and patients’ preference on a subjective ranking scale.

RESULTS: Walking distance was greatest with the simple cane with an ergonomic handgrip, followed by the 4-point cane and the Nordic walking stick. Walking velocity was highest with the simple cane, which was also indicated as the preferred walking aid by the patients. There was no significant difference in step length symmetry.
CONCLUSIONS: The simple cane with the ergonomic handgrip was not only preferred by patients, but was also the most efficient among 3 commonly used walking aids. It appears justified to take patients' subjective preference into account when prescribing a walking aid.

PMID: 19651276 [PubMed - indexed for MEDLINE]

Related citations

Energy expenditure and comfort during Nordic walking with different pole lengths.
Hansen EA, Smith G.
Department of Physical Performance, Norwegian School of Sport Sciences, Oslo, Norway. ernst.albin.hansen@nih.no

Abstract
Energy expenditure and comfort for Nordic walking with self-selected and 7.5-cm shorter poles and ordinary walking were measured during uphill (12 degrees), downhill (12 degrees), and horizontally. Twelve (11 women and 1 man) Nordic walking practitioners participated (mean +/- SEM: 171.5 +/- 1.5 cm, 67.0 +/- 2.7 kg, 50.6 +/- 2.4 years, and maximal oxygen uptake of 43.4 +/- 2.8 mL x kg(-1) x min(-1)). Energy expenditure was calculated from oxygen uptake and comfort was self-rated. Differences in physiological responses between the 3 locomotion types at each slope were first analyzed by a 1-way analysis of variance. In case of significance, Student's paired samples 2-tailed t-test was applied twice to test for differences between the 2 pole lengths and between Nordic walking (with self-selected pole length) and ordinary walking. The corresponding differences in comfort were evaluated by a Wilcoxon matched pairs test. The relative exercise intensity during Nordic walking with self-selected pole length ranged between approximately 44 and 87% of the maximal oxygen uptake across the different slopes. For comparison, it ranged between approximately 29 and 80% during ordinary walking. Uphill Nordic walking with short poles compared with poles of self-selected length caused 3% greater energy expenditure. Notwithstanding, comfort was similar. Horizontally and downhill energy expenditure and comfort were similar between pole lengths. Compared with ordinary walking, Nordic walking required as much as 67% greater energy expenditure. Comfort was similar for ordinary and Nordic walking for each slope. In conclusion, shorter poles caused greater energy expenditure during uphill Nordic walking, whereas comfort was similar to poles of self-selected length. The substantially enhanced energy expenditure of Nordic walking compared with previous studies reflects the vigorous technique used here.

PMID: 19528847 [PubMed - indexed for MEDLINE]
The purpose of this cross-sectional study was to determine the physiological reaction to the different intensity Nordic Walking exercise in young females with different aerobic capacity values. Twenty-eight 19-24-year-old female university students participated in the study. Their peak O2 consumption (VO₂ peak kg⁻¹) and individual ventilatory threshold (IVT) were measured using a continuous incremental protocol until volitional exhaustion on treadmill. The subjects were analysed as a whole group (n = 28) and were also divided into three groups based on the measured VO₂ peak kg⁻¹ (Difference between groups is 1 SD) as follows: 1. >46 ml min⁻¹ kg⁻¹ (n = 8), 2. 41-46 ml min⁻¹ kg⁻¹ (n = 12) and 3. <41 ml min⁻¹ kg⁻¹ (n = 8).

The second test consisted of four times 1 km Nordic Walking with increasing speed on the 200 m indoor track, performed as a continuous study (Step 1 - slow walking, Step 2 - usual speed walking, Step 3 - faster speed walking and Step 4 - maximal speed walking). During the walking test expired gas was sampled breath-by-breath and heart rate (HR) was recorded continuously. Ratings of perceived exertion (RPE) were asked using the Borg RPE scale separately for every 1 km of the walking test. No significant differences emerged between groups in HR of IVT (172.4 +/- 10.3-176.4 +/- 4.9 beats min⁻¹) or maximal HR (190.1 +/- 7.3-191.6 +/- 7.8 beats min⁻¹) during the treadmill test. During maximal speed walking the speed (7.4 +/- 0.4-7.5 +/- 0.6 km h⁻¹) and O2 consumption (30.4 +/- 3.9-34.0 +/- 4.5 ml min⁻¹ kg⁻¹) were relatively similar between groups (P > 0.05). However, during maximal speed walking, the O2 consumption in the second and third groups was similar with the IVT (94.9 +/- 17.5% and 99.4 +/- 15.5%, respectively) but in the first group it was only 75.5 +/- 8.0% from IVT. Mean HR during the maximal speed walking was in the first group 151.6 +/- 12.5 beats min⁻¹, in the second (169.7 +/- 10.3 beats min⁻¹) and the third (173.1 +/- 15.8 beats min⁻¹) groups it was comparable with the calculated IVT level. The Borg RPE was very low in every group (11.9 +/- 2.0-14.4 +/- 2.3) and the relationship with VO2 and HR was not significant during maximal speed Nordic Walking. In summary, the present study indicated that walking is an acceptable exercise for young females independent of their initial VO₂ peak level. However, females with low initial VO₂ peak can be recommended to exercise with the subjective ‘faster speed walking’. In contrast, females with high initial VO₂ peak should exercise with maximal speed.
Changes in level of VO2max, blood lipids, and waist circumference in the response to moderate endurance training as a function of ovarian aging.

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Rehabilitation Clinic, Department of Health Sciences, Collegium Medicum, Nicolaus Copernicus University, Torun, Poland.

Abstract

OBJECTIVE: The aim of this study was to analyze the influence of moderate endurance training on a set of physiological parameters accompanying menopausal transition.

METHODS: One hundred sixty-eight women participated in the study. The cohort was divided into three subgroups: premenopausal, perimenopausal, and postmenopausal. A 12-week moderate intensity Nordic Walking program was administered to the cohort. The changes in body mass index (BMI), total fat mass (TF), low-density lipoprotein (LDL), high-density lipoprotein (HDL), triglycerides (TGs), and waist circumference (WC) were assessed by means of appropriate statistical methods.

RESULTS: Significant differences are observed in VO2max and cholesterol levels as a function of age, both ovarian and chronological. BMI, TF, LDL, HDL, TGs, and WC also fluctuate, however insignificantly, as a function of age. Administration of a 12-week Nordic Walking program results in significant changes in the parameters studied. The only exception is HDL level in postmenopausal women.

CONCLUSIONS: Significant decreases in BMI, TF, LDL, TGs, and WC and increase in HDL in premenopausal and perimenopausal women indicate the outstanding role the appropriately chosen moderate endurance training may play in the quality of daily life in perimenopausal women.
Schiffer T, Knicker A, Dannöhl R, Strüder HK.
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Abstract

INTRODUCTION: The purpose of the study was to identify the effect of three
different surfaces on energy consumption and the forces acting on the walking poles
during ground contact in Nordic walking (NW).

METHODS: Thirteen female NW instructors (age = 26 +/- 4 yr, weight = 58.5 +/- 4.2
kg, height = 168.1 +/- 4.6 cm) volunteered in the study. The subjects walked a
distance of 1200 m at a controlled, constant speed of 2.2 m x s(-1) on each of a
concrete surface (C), an artificial athletics track (A), and a naturally grown soccer
lawn (G). They used NW poles with inbuilt strain gauge force transducers to measure
ground reaction forces acting along the long axes of the poles. Oxygen uptake,
capillary blood lactate (La), HR, and RPE were measured before and after the tests.

RESULTS: Impact forces, maximum forces, force rates during ground contact
identified from the registered force time histories, displayed significant differences
related to the surface conditions. However, force time integrals did not show surface-
related differences. Relative oxygen consumption showed significant differences
between NW on C and on G whereas no surface-related differences could be
identified between the surface conditions for the parameters La, HR, and RPE.

CONCLUSION: Our data indicate that the impulse that is generated by the poles on
the subjects is identical between the varying surfaces. Because there are differences
for the oxygen uptake between C and G, the main regulator for the propulsion must
be the musculature of the lower extremities. The work of the upper extremities seems
to be a luxury effort for Nordic walkers with a proper technique.

PMID: 19204583 [PubMed - indexed for MEDLINE]

Related citations

13.
Physical activity of depressed patients and their motivation to
exercise: Nordic Walking in family practice.

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Abstract

The objectives of this study were to find out how motivated depressed patients are to
exercise regularly, to measure the physical activity of depressed patients and to find
out how regular Nordic Walking affects the mood and physical fitness of depressed
patients. A cross-sectional study was carried out. Three years after the Prediction of
Primary Episodes of Depression in Primary Medical Care study, telephone calls were
made to 178 patients who had had depression during that study. We enquired whether and why they would be interested in starting regular Nordic Walking three times a week, at least 30 min at a time, for 24 weeks. Furthermore, there were questions about the patients' earlier physical activity. The Composite International Diagnostic Interview was used to assess depression. To measure physical fitness, we used an outdoor 2 km walking test. Altogether, 106 patients were interviewed, 48 (45%) of them were depressed and 58 (55%) were nondepressed. Of the depressed patients, 16, and of the nondepressed patients, five, started the training programme. During the past 2 years, 12 of the patients had not had any regular physical activity. One-fourth of the depressed patients completed the study. Mean fitness index was 21.99+/−20.38 at week 0 and 38.72+/−26.12 at week 24. The feedback of the patients and their families to the programme was positive. Depressed patients in family practice were physically inactive. About one-third of the depressed patients were motivated to start regular physical activity. Nordic Walking increased the patients' physical activity and improved their mood.

PMID: 19065108 [PubMed - indexed for MEDLINE]

Related citations


Turk Z, Vidensek S, Micetic Turk D.
Ojdel za fizikalnu i rehabilitacijsku medicinu, Opća bolnica Maribor, Fakultet za zdravstvene znanosti, Univerzitet u Mariboru, Maribor, Slovenija.

Abstract
Nordic walking is a form of kinesiologic activity recognized in the Scandinavian countries more than ten years ago. This physical activity activates muscles of the whole body. The use of special sticks for Nordic walking has a simultaneous impact on the strength of shoulder, arm and trunk muscles. Walking with sticks is suitable for all seasons, age groups and all levels of physical ability. The results of studies conducted in the Scandinavian countries confirm that Nordic walking is more effective than walking without sticks.

PMID: 18949923 [PubMed - indexed for MEDLINE]

Related citations

Nordic poles immediately improve walking distance in patients with intermittent claudication.

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Abstract
OBJECTIVES: To investigate the immediate effects of Nordic pole walking (NPW) on walking distance and cardiopulmonary workload in patients with intermittent claudication.

METHODS: Using a standardised treadmill test (3.2 km h(-1) at 4% gradient), walking distance, cardiopulmonary responses, leg pain and perceived exertion during NPW were compared to responses evoked by normal walking in 20 patients with intermittent claudication. The distance to onset of claudication pain (claudication distance: CD) and to maximum walking distance (MWD), heart rate (HR), expired gas parameters, leg pain (Borg's CR-10 Scale) and perceived exertion (Borg's Rating of Perceived Exertion: RPE Scale) were compared.

RESULTS: CD increased significantly from a median (range) distance of 77 m (28-503) to 130 m (41-1080) and MWD increased significantly from 206 m (81-1078) to 285 m (107-1080) when patients used the Nordic poles (P=0.000). The level of leg pain at MWD was also significantly reduced during NPW (P=0.002). Perceived exertion at MWD did not increase despite an increase in cardiopulmonary work, as indicated by an increase in oxygen consumption (16.5%; P=0.000).

CONCLUSION: These results show that NPW immediately enables patients with intermittent claudication to walk further with less pain, despite a higher workload. NPW might also be a useful exercise strategy for improving the cardiovascular fitness of patients with intermittent claudication.

PMID: 18835794 [PubMed - indexed for MEDLINE]

Related citations


van Eijkeren FJ, Reijmers RS, Kleinveld MJ, Minten A, Bruggen JP, Bloem BR.
Department of Neurology, Jeroen Bosch Hospital, 's-Hertogenbosch, The Netherlands.

Abstract
Nordic walking may improve mobility in Parkinson's disease (PD). Here, we examined whether the beneficial effects persist after the training period. We included 19 PD patients [14 men; mean age 67.0 years (range 58-76); Hoehn and Yahr stage
range 1-3) who received a 6-week Nordic walking exercise program. Outcome was assessed prior to training (T1), immediately after the training period (T2) and in a subgroup of 9 patients—5 months after training (T3). At T2, we observed a significant improvement in timed 10-m walking, the timed get-up-and-go-test (TUG), the 6-min walking test and quality of life (PDQ-39). All treatment effects persisted at T3. Compliance was excellent, and there were no adverse effects. These preliminary findings suggest that Nordic walking could provide a safe, effective, and enjoyable way to reduce physical inactivity in PD and to improve the quality of life. A large randomized clinical trial now appears justified.

PMID: 18816697 [PubMed - indexed for MEDLINE]

Related citations


Wendlova J.
University Derer's Hospital and Policlinic, Osteological Centre, Bratislava, Slovakia.
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Abstract
This article brings the biomechanical analysis of sport—Nordic walking—for patients with osteoporotic fractured vertebrae and shows that it is suitable for them. Based on the biomechanical model of skeletal load we have developed a method of walking movement for patients, different from the method of walking movement for healthy people. And so came into being the "first sport" for patients with osteoporotic fractures. They can go for regular walks in easy terrains outdoors with friends and family, and so be liberated from social isolation. It requires only one-off financial costs of buying the poles and special footwear (Tab. 7, Fig. 3, Ref. 14). Full Text (Free, PDF) www.bmj.sk.

PMID: 18814434 [PubMed - indexed for MEDLINE]

Related citations


Hansen L, Henriksen M, Larsen P, Alkjaer T.
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Abstract
The use of Nordic Walking (NW) as a rehabilitation modality has increased considerably. NW (walking with poles) is advocated as a healthy physical activity that reduces the load on the knees. Few studies using the techniques of NW exist, and the findings are contradictory. The aim of this study was to investigate whether NW reduces the loadings upon the knee joint compared with walking without poles (NP). Seven experienced female NW instructors volunteered. Three-dimensional gait analyses were performed. Internal flexor and extensor joint moments were calculated using an inverse dynamics approach and the knee joint compressive forces were calculated. No differences in compression or shear forces between NW and NP were found. The peak knee flexion angles were larger during NW (-32.5+/−6.0 degrees) compared with NP (-28.2+/−4.2 degrees). The hip range of motion (ROM) was significantly increased during NW (64.4+/−10.2 degrees) compared with NP (57.8+/−9.7 degrees); no differences in the knee and ankle joint ROM were observed. The changes in the joint angles were not followed by changes in the joint dynamics. The present study does not support the statement that NW reduces the load on the knees.

PMID: 18208430 [PubMed - indexed for MEDLINE]

Related citations

Effects of exercise on aerobic capacity and fatigue in women with primary Sjogren's syndrome.
Strömbeck BE, Theander E, Jacobsson LT.
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Abstract
OBJECTIVE: To investigate the effect of a moderate to high intensive exercise program on two primary outcomes (aerobic capacity, fatigue), and three secondary outcomes [anxiety, depression and health-related quality of life (HRQoL)] in women with primary Sjögren's syndrome (primary SS).
METHODS: Twenty-one women with primary SS were ranked according to degree of fatigue and allocated to an exercise group (TG; n = 11) or a control group (CG; n = 10). The exercise method was Nordic walking for 45 min three times a week for 12 weeks. Outcome measures assessed at baseline and after 12 weeks were aerobic capacity, fatigue, ratings of perceived exertion (RPE), anxiety, depression and HRQoL.
RESULTS: Nine women in the TG and 10 women in the CG completed the study. Analysis showed significant differences between the groups regarding aerobic capacity (P = 0.03), fatigue (P = 0.03), RPE (P = 0.03), and depression (P = 0.02) with the better values for the TG. There were no differences in anxiety or HRQoL.
CONCLUSION: Our findings support the use of appropriate aerobic exercise in the treatment of primary SS.

PMID: 17308315 [PubMed - indexed for MEDLINE]

Related citations

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Abstract
Walking with poles (Nordic walking, NW) has become popular. We compared training responses of brisk walking (W) or NW on cardiorespiratory and neuromuscular fitness. We randomized 121 non-obese sedentary women (aged 50-60) to an NW or W group (NWG, WG), to train 40 min four times weekly for 13 weeks. Intensity was based on subjective perception of exertion. Cardiorespiratory performance was assessed in four levels corresponding to 50%, 65%, 80% and 100% of peak VO(2). Fifty-four NWG and 53 WG subjects completed the study. The mean intensity was about 50% of heart rate (HR) reserve. The baseline peak VO(2) was 25.8 (SD 3.9) mL/min/kg. Both groups improved peak VO(2) similarly (NWG 2.5 mL/min/kg, 95% confidence interval (CI) 1.9-3.3; WG 2.6, CI 1.9-3.3). In the submaximal stages while walking with or without poles, HR and lactate decreased after training in both groups, but the changes were not statistically significantly different between the groups. Of the neuromuscular tests after training, the only significant difference between the groups was in the leg strength in the one-leg squat, favoring WG. In conclusion, both training modes improved similarly health-enhancing physical fitness, and they were feasible and safe.

PMID: 17038158 [PubMed - indexed for MEDLINE]

Related citations

Abstract

Background: Low Back Pain is a major public health problem all over the western world. Active approaches including exercise in the treatment of low back pain results in better outcomes for patients, but it is not known exactly which types of back exercises are most beneficial or whether general physical activity provide similar benefits. Nordic Walking is a popular and fast growing type of exercise in Northern Europe. Initial studies have demonstrated that persons performing Nordic Walking are able to exercise longer and harder compared to normal walking thereby increasing their cardiovascular metabolism. Until now no studies have been performed to investigate whether Nordic Walking has beneficial effects in relation to low back pain. The primary aim of this study is to investigate whether supervised Nordic Walking can reduce pain and improve function in a population of chronic low back pain patients when compared to unsupervised Nordic Walking and advice to stay active. In addition we investigate whether there is an increase in the cardiovascular metabolism in persons performing supervised Nordic Walking compared to persons who are advised to stay active. Finally, we investigate whether there is a difference in compliance between persons receiving supervised Nordic Walking and persons doing unsupervised Nordic Walking.

Methods: One hundred and fifty patients with low back pain for at least eight weeks and referred to a specialized secondary sector outpatient back pain clinic are included in the study. After completion of the standard back centre treatment patients are randomized into one of three groups: A) Nordic Walking twice a week for eight weeks under supervision of a specially trained instructor; B) Unsupervised Nordic Walking for eight weeks after one training session with an instructor; C) A one hour motivational talk including advice to stay active. Outcome measures are pain, function, overall health, cardiovascular ability and activity level.

Results: No results available at this point.

Discussion: This study will investigate the effect of Nordic Walking on pain and function in a population of people with chronic LBP.

PMCID: PMC1610114 Free PMC Article

PMID: 17014731 [PubMed - indexed for MEDLINE]

Related citations

22. Sportverletz Sportschaden. 2006 Sep;20(3):137-42. [Nordic pole walking injuries--nordic walking thumb as novel injury entity] [Article in German]
Knobloch K, Vogt PM. Unfallchirurgische Klinik, Medizinische Hochschule Hannover. knobi@yahoo.com

Abstract

BACKGROUND: Nordic pole Walking (NW) as trend sport is associated with beneficial effects on the cardiovascular system. Data regarding the injury and overload injury rates are pending.

METHODS: 137 athletes (74 % females, 53 +/- 12 years, weight 73 +/- 13 kg, height 169 +/- 11 cm) were prospectively asked using a two-sided questionnaire. Mean NW experience was 212.8 weeks with 2.9 +/- 1.8 hours/week. The overall exposure was 29,160 h.

RESULTS: NW injury rate was 0.926/1000 h. Falls were evident in 0.24/1000 h. The upper extremity was involved more frequently (0.549/1000 h) than the lower extremity (0.344/1000 h). The most severe injury was a concomitant shoulder dislocation and luxation of the proximal interphalangeal joint of the index finger after a fall. The most frequent injury in NW was a distorsion of the ulnar collateral ligament of the thumb (0.206/1000 h) after fall. Shoulder injuries account for 0.171/1000 h with 0.069/1000 h shoulder dislocations. Distal radius fractures were rare as ankle sprains and shin splints (0.034/1000 h). Muscle injuries were encountered only at the gastrocnemius muscle (0.137/1000 h). No knee ligament injuries were noted. In 5%, NW injuries caused interruption of the performance, with all patients returning to sport within 4 weeks on the same level as before.

DISCUSSION: Nordic Walking is safe. Most frequently, a Nordic walking thumb is encountered during a fall with the athlete holding on to the NW pole until the very last moment before the hand hits the ground with the pole handle as hypomochlium that forces the thumb into abduction and extension. Modifications of the grip construction as well as information of the athlete and behaviour changes may be preventive measures.

PMID: 16998767 [PubMed - indexed for MEDLINE]

Related citations


Knobloch K, Schreibmueller L, Jagodzinski M, Zeichen J, Krettek C. Trauma Department, Medical School Hannover, Carl-Neuberg-Str 1, 30625, Hannover, Germany. knobi@yahoo.com

Abstract

Stress fractures occur in normal bone due to mechanical overload by cyclic stress increasing the osteoclast activity, thus facilitating weakening leading to fracture of bones. Long-distance running may lead to stress fractures of the mid- and distal tibia.
and of the metatarsal bones. Stress fractures to the sacrum are rare. Certain factors for stress fractures in runners have been identified, such as leg-length inequality, a high longitudinal arch of the foot, forefoot varus, and menstrual irregularities in case of female athlete triad. We report on a 22-year-old female runner (usually training 140 km/week) suffering a sacral fatigue-type fracture. The female athlete triad with eating disorders, dysmenorrhea, and osteopenia was ruled out. Sexual hormone blood samples proofed normal values. The diagnosis was performed using magnetic resonance imaging 2 weeks after the onset of buttock pain. A conservative treatment regimen was initiated with strict physical rest for the first 2 weeks, and then gradual increase of physical activity with 60-90 min of daily cycling and moderate 2 x 60 min cross-training. After another 2 weeks time, daily 60-90 min of walking, Nordic pole walking, and moderate strength training two times a week was performed. At 7 weeks running was started, gradually increased to 90 km/week without any pain. A rapid rehabilitation programme after sacral stress fractures involving low impact physical activity, such as Walking and Nordic pole walking, is applicable to female athletes after ruling out the female athlete triad.

PMID: 16906424 [PubMed - indexed for MEDLINE]

Related citations

[Questions on "Whole body sport kind with drive". Nordic walking after disk prolapse, too?]

[Article in German]

Bachfischer K, Modersohn-Meyer G, Niederhuber H, Schlüter J.

PMID: 16218223 [PubMed - indexed for MEDLINE]

Related citations

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

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Abstract

BACKGROUND: Proper balance seems to be a critical factor in terms of fall prevention among the elderly.
OBJECTIVE: The purpose of this cross-sectional study was to examine factors that are associated with dynamic balance and health-related quality of life in home-dwelling elderly women.

METHODS: One hundred and fifty-three healthy postmenopausal women (mean age: 72 years, height: 159 cm, weight: 72 kg) were examined. General health and physical activity were assessed by a questionnaire. Quality of life was measured using a health-related quality of life questionnaire (Rand 36-Item Health Survey 1.0). Dynamic balance (agility) was tested by a figure-of-eight running test. Static balance (postural sway) was tested on an unstable platform. Maximal isometric strength of the leg extensors was measured with a leg press dynamometer. Dynamic muscle strength of lower limbs was tested by measuring ground reaction forces with a force platform during common daily activities (sit-to-stand and step-on-a-stair tests).

RESULTS: Concerning physical activity, 33% of the subjects reported brisk exercise (walking, Nordic walking, cross-country skiing, swimming and aquatic exercises) at least twice a week, and 22% some kind of brisk activity once a week in addition to lighter physical exercise. The remaining 45% did not exercise regularly and were classified as sedentary. The correlations of step-on-a-stair and sit-to-stand ground reaction forces, and leg extensor strength to dynamic balance were from -0.32 to -0.43 (the better the strength, the better the balance). In the regression analysis with backward elimination, step-on-a-stair and sit-to-stand ground reaction forces, and leg extensor strength, age, brisk physical activity, number of diseases and dynamic postural stability explained 42% of the variance in the dynamic balance. Similarly, dynamic balance (figure-of-eight running time), number of diseases and walking more than 3 km per day explained 14% of the variance in the quality of life score. Of these, figure-of-eight running time was the strongest predictor of the quality of life score, explaining 9% of its variance.

CONCLUSION: This study emphasizes the concept that in home-dwelling elderly women good muscle strength in lower limbs is crucial for proper body balance and that dynamic balance is an independent predictor of a standardized quality of life estimate. The results provide important and useful information when planning meaningful contents for studies related to fall prevention and quality of life and interventions in elderly women.

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