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Adequate physical activity in students with and without asthma
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Background: Early childhood is decisive for the adoption of opinions concerning the physical activity which contributes to the decrease of death risk due to chronic diseases.

Aim: To examine differences in physical activity in young students with and without asthma.

Method: 578 Physical therapy students in Athens, Greece, aged 18-30 (±2.07) participated in the study. Adequate physical activity was assessed according the guidelines of the American Cardiology Association and the American College of Sports Medicine (yes-no). Differences in physical activity between students with and without asthma were examined through χ².

Results: Only the 4.3% of the total sample reported diagnosed asthma. Adequate physical activity was stated by 40% of students with asthma and by 53.3% of students without asthma. No significant differences were found in physical activity between the two groups (p>0.132). Students with asthma didn’t differ in physical activity regarding gender, BMI, sleep duration, alcohol consumption, income, and health-belief (p>0.055), while they differed as for smoking (p=0.018). Students without asthma didn’t differ (p>0.05) in physical activity with regard to BMI, sleep duration, alcohol consumption smoking, income, and their health-belief, while they revealed differences as for sex (p<0.001).

Conclusion: The results of the present study in one hand are encouraging because students with asthma are active as those without asthma, but in the other hand they are disappointing because both groups didn’t met American guidelines for the adequate physical activity that have shown to contribute to chronic illnesses prevention.

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Cardiorespiratory fitness, pulmonary function and C-reactive protein levels in adults with diabetes
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Background/Aim: Diabetes Mellitus (DM) is associated with impairment of cardiorespiratory fitness and pulmonary function; increasing evidences have suggested that comorbidities and systemic inflammation may be involved. The objective of this study was to evaluate changes in metabolic variables, C-reactive protein (CRP) levels, cardiorespiratory fitness and pulmonary function in DM patients compared with healthy subjects.

Method: 19 men with diabetes (49.2±2 years) and 19 healthy control subjects (51.4±1 years) were studied. All patients performed a spirometry and an incremental exercise test on a cycleergometer with electromagnetic breaking (workload increases, range 13-22W/min). Cardiopulmonary data were continuously collected with a metabolic unit. Heart rate (HR) was continuously monitored.

Results: See table 1.

Table 1. Lung function, physical capacity parameters and CRP levels

<table>
<thead>
<tr>
<th></th>
<th>Control (n=19)</th>
<th>DM (n=19)</th>
<th>P-values</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRP (mg/L)</td>
<td>0.66±0.15</td>
<td>0.88±0.21</td>
<td>NS</td>
</tr>
<tr>
<td>HbA1c (%)</td>
<td>5.73±0.01</td>
<td>8.39±0.36</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>FVC (%)</td>
<td>100±2.3</td>
<td>103.4±3.9</td>
<td>NS</td>
</tr>
<tr>
<td>FEVI (%)</td>
<td>99.3±2.5</td>
<td>103.9±3.0</td>
<td>NS</td>
</tr>
<tr>
<td>FEV1/FVC</td>
<td>80.4±1.2</td>
<td>82.6±0.9</td>
<td>NS</td>
</tr>
<tr>
<td>PEF25-75%</td>
<td>100.5±6.6</td>
<td>115.6±5.8</td>
<td>NS</td>
</tr>
<tr>
<td>PEF (%)</td>
<td>94.7±5.0</td>
<td>89.9±3.5</td>
<td>NS</td>
</tr>
<tr>
<td>Peak HR (beats/min)</td>
<td>149±3</td>
<td>139±2</td>
<td>0.009</td>
</tr>
<tr>
<td>Work load (Watts)</td>
<td>154±5</td>
<td>135±6</td>
<td>0.005</td>
</tr>
<tr>
<td>REL</td>
<td>1.0±0.02</td>
<td>1.1±0.03</td>
<td>0.044</td>
</tr>
<tr>
<td>VO2peak (ml/kg/min)</td>
<td>24.1±0.7</td>
<td>18.9±1.7</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>VO2peak (ml/kg/min)</td>
<td>14.1±0.8</td>
<td>12.7±2.5</td>
<td>0.044</td>
</tr>
</tbody>
</table>

Conclusion: The cardiorespiratory fitness is reduced in patients with diabetes but the spirometric values are preserved, and the CRP did not differ of the control subjects.

Financial support: Capes, FAPESP

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Respiratory function, functional capacity, and physical activity in patients with scleroderma
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Aim: Scleroderma is a chronic multisystem disease of unknown origin, charac-
terized by fibrosis on the connective tissue of skin and internal organs. Because of pulmonary involvement, patients’ exercise tolerance is poor and functional capacity is impaired. The purpose of this study was to compare lung function, functional capacity, and physical activity, between patients with scleroderma and healthy controls.

Materials and methods: Ten scleroderma patients (9F, 1M, 53.3±9.4 years) and ten healthy controls (9F, 2M, 45.5±12.6 years) participated in the study. Pulmonary function test was performed using spirometry. Functional capacity was evaluated using six-minute walk test (6MWT). Heart rate, oxygen saturation, dyspnea and fatigue perception using modified Borg Scale was recorded before and after the test. Subject’s physical activity level was assessed using the International Physical Activity Questionnaire (IPAQ).

Results: All scleroderma patients involved in this study had interstitial lung in-
volve. The FEV1, FEF25-75%, and 6MWT distance were significantly, lower in patients with scleroderma (p<0.05). The %MWT distance of the patients was 64.5±23.2%. Oxygen desaturation, dyspnea and fatigue perception at the end of 6MWT were significantly higher in patients with scleroderma as compared with the healthy controls (p<0.05). The IPAQ moderate physical activity score and IPAQ total score were significantly lower in patients with scleroderma (p<0.05).

Conclusions: Lung function, functional exercise capacity, and physical activity level is adversely affected in patients with scleroderma. Exercise training programs may be useful in scleroderma patients.

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Effects of exacerbation risk on symptoms and clinical characteristics in patients with bronchiectasis
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Aim: Exacerbations may deteriorate symptoms and clinical features in patients with bronchiectasis. The purpose of this study was to investigate effects of exacer-
bation risk on muscle strength, exercise capacity, dyspnea, fatigue, and quality of life in patients with bronchiectasis.

Method: Fifteen low risk patients (0 exacerbation per year) and 15 high risk patients (≥1 exacerbations per year) participated in this study. Lung function, quadriceps muscle strength (hand held dynamometer), dyspnea (modified Medical Research Council dyspnea scale, MRC), fatigue (Fatigue Severity Scale, FSS), exercise capacity (six-minute walk test, 6MWT), and cough specific (Leicester Cough Questionnaire, LCQ) and general (Nottingham Health Profile, NHP) were determined.

Results: No significant difference was found in lung function between the groups (p>0.05). Number of females was significantly higher in high risk group as com-
pared to low risk group (p<0.05). Quadriceps muscle strength, 6MWT distance, and LCQ physical score were significantly lower; and MRC, FSS score, and NHP energy, emotional reactions, pain, physical mobility, and total scores were significantly higher in high risk bronchiectasis patients than those of low risk patients (p<0.05).

Conclusion: High risk of having exacerbations adversely affects quadriceps strength; exercise capacity, dyspnea and fatigue perception, and cough specific and general health in patients with bronchiectasis. Number of exacerbations in the previous year may be a determinant of characteristics and function in bronchiectasis.

Financial support: Capes, FAPESP
P4148 Comparison of functional capacity, muscle strength, body composition in patients with cystic fibrosis, non-cystic bronchiectasis and healthy controls
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Aim: We aimed to compare functional capacity, respiratory and peripheral muscle strength, and body composition in patients with cystic fibrosis, non-cystic bronchiectasis and healthy controls.

Methods: 43 with bronchiectasis, 36 patients with cystic fibrosis, and 35 age-sex matched controls included. Body composition was evaluated using bielectrical impedance analysis. Pulmonary function test was performed. Respiratory muscle strength (MIP and MEP) was evaluated using a mouth pressure device, quadriceps muscle strength using a dynamometer, functional capacity using six-minute walk test (6MWT).

Results: The weight, height, body mass index (BMI), and fat free mass, pulmonary functions. MIP and MEP, quadriceps muscle strength, 6MWT distance, were significantly lower in patients with bronchiectasis and cystic fibrosis compared with healthy controls (p<0.05). 24 patients (56%) with bronchiectasis, 23 (64%) patients with cystic fibrosis had malnutrition. 12 (28%) bronchiectasis, 16 (44%) cystic fibrosis patients’ MIP were weaker than 95% CI (80-150 cmH2O) of the controls. 8 (19%) bronchiectasis, 8 (22%) cystic fibrosis patients’ 6MWT distance were shorter than 95% CI (576-871 m) of the controls. 9 (21%) bronchiectasis, 7 (19%) cystic fibrosis patients’ quadriceps muscle were weaker than 95% CI (160-500 N) of the controls.

Conclusion: Body composition, pulmonary function, respiratory and peripheral muscle strength and functional capacity are impaired in bronchiectasis and cystic fibrosis patients. Malnutrition may lead these impairments. Pulmonary rehabilitation programs should be adjusted to improve these outcomes.

P4149 Peripher al and respiratory muscle strength in pulmonary artery hypertension
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Background and aim: Pulmonary arterial hypertension (PAH) is a rare pulmonary vascular disease characterized by increased pulmonary arterial pressure. The PAH patients experience dyspnea and fatigue limiting performance in activities of daily life. The aim of this study was to compare lung function, respiratory muscle strength, and peripheral muscle strength between patients with PAH and healthy subjects.

Materials and methods: Seventeen patients with PAH (4 M, 13 F) and fifteen age-matched healthy controls (7 M, 8 F) participated in this study. Pulmonary function test was performed using spirometry. Respiratory muscle strength was measured using a mouth pressure device. Lower and upper peripheral muscle strength was measured from quadriceps femoris, shoulder abductors a hand held dynamometer, and hand grip was recorded.

Results: The mean pulmonary arterial pressure was 63.57±31.77 mmHg. In PAH patients, maximal inspiratory pressure was significantly correlated with mean pulmonary arterial pressure (r=0.67, p<0.05). The mean maximal inspiratory pressure (p=0.0001) and expiratory muscle pressures (p=0.001) of patients with PAH were significantly lower than those of healthy controls. Quadriceps muscle force (p=0.05), shoulder abduction force (p=0.001), and hand grip force (p=0.018) were significantly lower in patients with PAH as compared with healthy controls.

Conclusions: High pulmonary arterial pressure results in reduced peripheral, inspiratory and expiratory muscle strength. Effects of respiratory and peripheral muscle training in patients with PAH needs further investigation.

P4150 Comparison of exercise capacity, pulmonary functions, respiratory and peripheral muscle strength between patients with idiopathic pulmonary arterial hypertension and Eisenmenger syndrome
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This study was designed to study exercise capacity, pulmonary functions, respiratory and peripheral muscle strength between patients with idiopathic pulmonary arterial hypertension (IPAH) and Eisenmenger syndrome. Thirty-three patients with PAH of either IPAH (mean age 45.31; 12 female and 4 male) or Eisenmenger syndrome (mean age 38.41; 10 female and 7 male) were studied. Exercise capacity was determined by using six minute walk test. Also pulmonary functions, respiratory muscle strength (maximal inspiratory (MIP) and maximal expiratory (MEP) pressure) and handgrip strength were measured. Unpaired t, Mann-Whitney and Fisher’s exact tests have been used for the statistical analysis of the data. There were no significant differences in exercise capacity, respiratory and peripheral muscle strength between the two groups. FVC% (p=0.0025), FEV% (%=0.01) and PEF% (p=0.02) of patients with Eisenmenger syndrome were significantly lower than those of patients with IPAH. In conclusion, exercise capacity, respiratory and peripheral muscle strength were similar for patients with Eisenmenger syndrome compared to those IPAH. In addition, the present study provides evidence that pulmonary functions are reduced in patients with Eisenmenger syndrome compared with IPAH.

P4151 Associations between measurements of health related quality of life (HRQoL) and physical activity (PA) in patients with intestinal lung disease (ILD)
Viviana Barbagia¹, Silvia Perez-Bogerd¹, Miek Hornikx¹, Hulya Nilgun Gurses¹, Semiramis Ozyilmaz², Selvina Perez-Bogerd¹, Miek Hornikx¹, Daniel Langer¹, ¹Department of Cardiology, Istanbul University, Institute of Cardiology, Istanbul, Turkey; ²School of Physiotherapy and Rehabilitation, Hacettepe University, Bisan Dogramaci Children’s Hospital, Ankara, Turkey

Purpose: PA is well studied in patients with ILD. It is unknown to what extent PA relates to HRQoL in these patients. The aim of this study was to investigate associations between HRQoL and PA.

Methods: We studied 54 patients with ILD (Age: 64±11 years; FVC: 81±23%; DLco: 45±13% of the predicted). HRQoL was assessed by the Chronic Respiratory Disease Questionnaire (CRDQ) and the Saint Georges Respiratory Questionnaire (SGRQ). The SenseWear Armband was used to assess PA. Mean steps (STEPS) and moderate increase activity (MOD PA) were calculated over 7 consecutive days.

Results: Baseline characteristics are presented in Table 1.

Table 1. Baseline characteristics

<table>
<thead>
<tr>
<th>No.</th>
<th>Variable</th>
<th>Mean±SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Age (years)</td>
<td>64±11</td>
</tr>
<tr>
<td>2</td>
<td>FVC (%)</td>
<td>81±23</td>
</tr>
<tr>
<td>3</td>
<td>DLco (%)</td>
<td>45±13%</td>
</tr>
<tr>
<td>4</td>
<td>SGRQ (Total)</td>
<td>40±15</td>
</tr>
<tr>
<td>5</td>
<td>CRDQ (Total)</td>
<td>15±5</td>
</tr>
<tr>
<td>6</td>
<td>STEPS (STEPS/day)</td>
<td>663±3</td>
</tr>
<tr>
<td>7</td>
<td>MOD PA (MOD PA/day)</td>
<td>2±1</td>
</tr>
</tbody>
</table>

Table 2: Spearman Correlation Coefficients

<table>
<thead>
<tr>
<th></th>
<th>SGRQ (Total)</th>
<th>CRDQ (Total)</th>
<th>STEPS (STEPS/day)</th>
<th>MOD PA (MOD PA/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.25</td>
<td>0.26</td>
<td>0.02</td>
<td>0.23</td>
</tr>
<tr>
<td>2</td>
<td>0.20</td>
<td>0.17</td>
<td>0.01</td>
<td>0.25</td>
</tr>
<tr>
<td>3</td>
<td>0.02</td>
<td>0.01</td>
<td>0.00</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Conclusion: The SGRQ and CRDQ are measuring similar concepts but HRQoL is unrelated to PA levels in patients with ILD.

P4152 Thoracobdominal dysynchrony and it relationship with muscle strength in patients with COPD: Preliminary results
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Purpose: To verify the TD in rest and UL exercises comparing sitting and standing posture and IMS.

Methods: Fifteen patients with COPD (FEV1: 47±16%pred, age 66±9, MIP: 58±21cmH2O) performed flexion-extension exercises at the shoulder (1), above the shoulder (2) and horizontal abduction-adduction (3) in sitting and standing postures. The respiratory inductive plethysmography was performed (LifeShirt) and the Borg scale was reported. The PhIRB (Phase Relation during Inspiration),

Abstract printing supported by GChiesi Visit Chiesi at Stand B2.10
P4153 Correlation between daily physical activity using a compact accelerometer and clinical parameters in patients with COPD
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Background: Physical activity (PA) monitoring is becoming increasingly important in patients with COPD. However, the correlation between clinical parameters in COPD and PA has not yet been well studied.

Objective: To evaluate the correlation between PA using a compact accelerometer and clinical parameters in patients with COPD.

Methods: We studied daily physical activity in 30 stable COPD patients (29 males; 72.1 ± 9.5 years of age; %FEV1 54.8 ± 23.3%; GOLD classification I – 5 patients, II – 11, III – 7, IV – 7; BMI 21.6 ± 3.2 kg/m2) using a single-axis accelerometer (LifeEcorde, Surakun, Japan) for 1 month. Five PA measures were monitored: total energy expenditure (kcal/day), number of steps per day, walking distance (meters/day), and the time spent performing PA (minutes/day) at light (below 3 metabolic equivalent values [METs]) and moderate (3-6 METs) intensities.

Clinical parameters included age, BMI, MRC scale, %FEV1, six-minute walk test (6MWT; distance, oxygen saturation (SpO2), heart rate, dyspnea and leg fatigue on Borg scale), and nutritional conditions (serum pre-albumin, transferrin, and retinol-binding protein (RBP)).

Results: Significant differences (p<0.05) were observed between GOLD classifications for age, BMI, MRC scale, %FEV1, six-minute walk test (6MWT; distance, oxygen saturation (SpO2), heart rate, dyspnea and leg fatigue on Borg scale), and nutritional conditions (serum pre-albumin, transferrin, and retinol-binding protein (RBP)).

Conclusion: Borg scale, although not significantly different among GOLD classifications, and MRC scale were strongly correlated with PA. 

P4154 What is the relationship between inspiratory capacity and different measures of exercise capacity in patients with COPD? 
Leila Donaria1, Ralfo Mesquita1,2, Camila Monteiro Mazzarin1, Isabel Cristina Hilzert Genn1, Vanessa Suziane Probst1, Nadia Aparecida Hernandez1, Fabio Pitta1, 1Laboratório de Pesquisa em Fisioterapia Pulmonar - Departamento de Fisioterapia, Universidade Estadual de Londrina, PR, Brazil; 2Centro de Pesquisa em Ciências da Saúde - Departamento de Fisioterapia, Universidade Norte do Paraná, Londrina, PR, Brazil

Background: In patients with chronic obstructive pulmonary disease (COPD), the relationship between energy expenditure (EE) and measures of lung function has attracted attention. Weak to moderate associations were demonstrated between daily EE and measures of respiratory muscle strength, maximal voluntary ventilation (MVV), inspiratory capacity (IC) and forced expiratory volume in one second (FEV1) in patients with moderate to severe disease. However, as this earlier work measured EE over a 12-hour period, it is unclear to what extent the EE elicited during individual and simple activities of daily living were associated with these measures of lung function.

Objective: To explore the extent to which energy expenditure (EE) elicited during individual and simple activities of daily living is associated with different measures of lung function in patients with COPD.

Methods: Thirty-six patients (20 males; FEV1 48±15%predicted; body mass index 25.7±5.8 kg ·m-2) underwent assessment of lung function followed by measurement of indirect calorimetry whilst performing five simple activities of daily living (modified from the Glitl-test).

Results: MVV was the only parameter of lung function associated with EE elicited during each activity of daily living as well as with the total EE over the 5 tasks (r=-0.59<0.05, p<0.05).

Conclusion: These data highlight the limited extent to which traditional measures of lung function, such as the FEV1, are related to the functional performance of patients with COPD, and confirm the role of MVV as a correlate of functionality in this population.

P4155 Maximum voluntary ventilation is a better correlate of energy expenditure during simple activities of daily living than measures of airflow obstruction or respiratory muscle strength in patients with COPD
Vinicius Cavalhieri1,2, Kyle Hill1, Leila Donaria1, Carlos Augusto Camilli1, Fabio Pitta1, 1Laboratório de Pesquisa em Fisioterapia Pulmonar (LPFP), Department of Physiotherapy, Universidade Estadual de Londrina (UEL), Londrina, PR, Brazil; 2School of Physiotherapy and Curtin Health Innovation Research Institute, Curtin University, Perth, WA, Australia; 3School of Physiotherapy, University of Western Australia, University of Western Australia, Perth, WA, Australia

Background: In patients with chronic obstructive pulmonary disease (COPD), the relationship between energy expenditure (EE) and measures of lung function has attracted attention. Weak to moderate associations were demonstrated between daily EE and measures of respiratory muscle strength, maximal voluntary ventilation (MVV), inspiratory capacity (IC) and forced expiratory volume in one second (FEV1) in patients with moderate to severe disease. However, as this earlier work measured EE over a 12-hour period, it is unclear to what extent the EE elicited during individual and simple activities of daily living were associated with these measures of lung function.

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Conclusion: These data highlight the limited extent to which traditional measures of lung function, such as the FEV1, are related to the functional performance of patients with COPD, and confirm the role of MVV as a correlate of functionality in this population.

P4156 Sensation of leg effort at rest is related to lower peripheral muscle strength in patients with COPD
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Introduction: Sensation of leg effort (SLE) is known as a limiting factor in exercise capacity during a maximal exercise test in patients with COPD. The Borg scale scores this discomfort of the peripheral muscles before and during an exercise test. A high score in a maximal exercise test is known to correlate with lower skeletal muscle strength. However some patients experience SLE already at rest before the exercise test and other do not.

Objective: To evaluate if SLE at rest before exercise also could be related to peripheral muscle strength.

Conclusion: The inspiratory capacity significantly contributes, albeit modestly, to some key variables of exercise capacity tests. This indicates that a greater ventilatory reserve may be related to better physical fitness, and hence to a lower chance of hyperinflation.

Abstract printing supported by Chiesi Visit Chiesi at Stand B2.10
A comparison of pulmonary function, functional exercise capacity and sleep quality in patients with chronic obstructive pulmonary disease and obstructive sleep apnea syndrome

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Introduction: The aim of this study was to determine if there was a difference in six-minute walk distance (6MWD) when two six-minute walk tests (6MWTs) were performed in people with pulmonary hypertension (PH) prior to attendance at the PH clinic.

Methods: Participants with PH performed two 6MWTS for the first time prior to attendance at the PH Clinic. The tests were performed on a 32 metre continuous track in an outpatient hospital setting using standard instructions and encouragement.

Results: 212 participants completed two 6MWTS [mean (SD) age 57 (16) years; BMI 27 (6) kg/m²]. Using the better 6MWT the mean distance was 438 (139) metres and 6MWT % predicted was 87% (24). There was a significant increase in 6MWT performance for each of the 6MWTs (p < 0.0001) with 66% of participants walking further on the second walk than the first walk. There were no adverse events during testing.

Conclusion: In people with PH, when a second 6MWT was performed the increase in walk distance was significant but small. This may indicate that one test at baseline may be adequate.

P4161 Effects of radical treatment in patients with intrathoracic cancer

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Introduction: In patients (pts) with intrathoracic cancer radical treatment aims to prolong life and restore quality of life. Data on its effect on exercise capacity and muscle force are limited.

Aim: To investigate the effect of radical treatment on exercise capacity, muscle force and quality of life in pts with newly diagnosed intrathoracic cancer.

Methods: Exercise capacity, peripheral muscle force and quality of life were assessed before and after radical therapy. Data are presented as median with 95% CI.

Results: (table): 117 pts (86 male, age: 64 y (47 - 77); BMI: 25 kg/m² (18 - 34), 40% COPD; 35 PY (0 - 70)) 105 NSCLC, 6 SCLC and 6 mesothelioma were enrolled: 50% underwent surgery as sole therapy, 12% surgery + chemotherapy, 24% chemotherapy + radiotherapy, 10% surgery + chemotherapy + radiotherapy

P4147 Use of the six-minute walk test to assess exercise capacity in people with pulmonary hypertension

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Introduction: The aim of the study was to determine if there was a difference in six-minute walk distance (6MWD) when two six-minute walk tests (6MWTs) were performed in people with pulmonary hypertension (PH) prior to attendance at the PH clinic.

Methods: Participants with PH performed two 6MWTS for the first time prior to attendance at the PH Clinic. The tests were performed on a 32 metre continuous track in an outpatient hospital setting using standard instructions and encouragement.

Results: 212 participants completed two 6MWTS [mean (SD) age 57 (16) years; BMI 27 (6) kg/m²]. Using the better 6MWT the mean distance was 438 (139) metres and 6MWT % predicted was 87% (24). There was a significant increase in 6MWT performance for each of the 6MWTs (p < 0.0001) with 66% of participants walking further on the second walk than the first walk. There were no adverse events during testing.

Conclusion: In people with PH, when a second 6MWT was performed the increase in walk distance was significant but small. This may indicate that one test at baseline may be adequate.

P4157 Measurement of quadriceps strength in patients with COPD using a rig-supported handheld dynamometer

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Background: Quadriceps strength (QS) predicts prognosis in COPD. Measurement using a non portable isokinetic dynamometer (ID) is the gold standard. Handheld dynamometers (HHD) are portable, but measurements of QS obtained using HHD may be affected by operator strength. We therefore constructed a portable rig that can be bolted to a chair to support a HHD, and evaluated its performance in measurement of QS in COPD patients.

Objectives: To determine whether use of a rig to support a HHD reduces interobserver variability in QS measurement, and generates data which correlate with those obtained using an ID.

Methods: Two operators (A-male, BMI 25.5 kg/m²; B-female, BMI 19.3 kg/m²) measured QS using unsupported HHD (12 patients) and rig-supported HHD (15 patients); values obtained for each patient were compared between operators. QS was then measured in 30 patients using both rig-supported HHD and ID; values obtained for each patient were compared between methods.

Results: Measurements of QS obtained using unsupported HHD differed between operator A vs. B (mean QS 49.5 kg vs 35.3 kg respectively; 95% CI for difference: 5.9 to 22.6 kg). Inter-operator variability for QS measured by unsupported rig to support the HHD (mean QS 32.1 kg vs. 32.1 kg for operators A vs. B respectively; 95% CI for difference: -1.4 to 1.5, p=0.96). Measures of QS using rig-supported HHD vs. ID were highly correlated (r = 0.92, 95% CI 0.76 to 0.97, p<0.0001).

Conclusions: Use of a portable rig to support a HHD in the measurement of QS in COPD patients eliminates observer effects, and generates values which correlate highly with those obtained using the gold standard methodology.

P4158 Comparison of pulmonary function, functional exercise capacity and sleep quality in patients with chronic obstructive pulmonary disease and obstructive sleep apnea syndrome

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Aim: Chronic obstructive pulmonary disease (COPD) and obstructive sleep apnea syndrome (OSAS) are two diseases that are characterized by obstruction of pulmonary airways. The aim of this study was to compare pulmonary function, functional exercise capacity and sleep quality in patients with COPD and OSAS.

Materials and methods: Twenty-five COPD patients (21 M, 4 F) and 25 OSAS patients (16 M, 9 F) participated in the study. Pulmonary function were measured using a spirometer. Functional exercise capacity was evaluated using a six-minute walk test (6MWMT). Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI).

Results: Parameters of pulmonary function, 6MWMT distance and %6MWMT distance were significantly lower in patients with COPD than those of OSAS (p < 0.05). In patients with COPD, Borg dyspnea and fatigue were significantly increased and oxygen saturation was significantly decreased during 6MWMT compared with OSAS patients (p < 0.05). The PSQI sleep duration score was significantly lower, and PSQI sleep disturbances and subjective sleep quality scores were significantly higher in patients with COPD than OSAS (p < 0.05).

Conclusion: Pulmonary function and functional exercise capacity deteriorated in patients with COPD compared to OSAS patients. Exercise dyspnea and fatigue increases and oxygen saturation decreases in patients with COPD. In comparison with COPD patients, sleep duration and subjective sleep quality are adversely affected in patients with OSAS. Differences in sleep quality and exercise rat-
and 4% radiotherapy only. 24 pts dropped out and 18 are still under treatment. The maximal exercise capacity and 6MWD decreased significantly after treatment (from 100 Watt (48 - 184) to 82 Watt (38 - 147) and from 515 m (388 - 632) to 482 m (328 – 617)), respectively. Fatigue and pain increased significantly after treatment: FACT-F from 9 pts (3 - 30) to 13 pts (3 - 33) and VAS pain from 1 pts (0 - 9) to 2 pts (0 - 8)).

**Conclusion:** Radical therapy for intrathoracic cancer significantly decreases exercise capacity, muscle force, and increases pain and fatigue. Mature data on all pts will be available at the meeting.

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**P4162**

Oxygen uptake is slower than heart rate on-kinetics in recent myocardial infarction patients

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**Background:** The heart rate (HR) and oxygen uptake (VO2) on-kinetics analysis provides information about the individual response to aerobic exercise, which may be reduced after recent myocardial infarction (MI), mainly due to impairment in the oxygen transport system.

**Design:** To determine whether the HR and VO2 onset dynamics were affected by recent MI, we evaluated the VO2 and HR on-kinetics in three groups of subjects with preserved ventricular (VF) and pulmonary function (PF).

**Methods:** Eight men (49±8 years) with a recent MI (RMI), eleven men (52±7 years) with a late MI (LMI) and ten apparently healthy men (48±8 years) (CG) underwent to PF assessment, ramp cardiopulmonary exercise test (CPX) and two constant workload exercise tests (CWETs) on treadmill at moderate and high workloads, corresponding to 75% and 125% of the gas exchange threshold identified at CPX. VO2 was registered breath-by-breath and analyzed after smoothed by moving averages of 8 respiratory cycles. HR was recorded by digital telemetry system. A monoexponential fit was applied to analyze VO2 and HR on-transient response to the first 360 seconds of the CWETs. Intragroup and intergroup comparisons were realized (p<0.05).

**Results:** RMI group presented τVO2 slower than τHR at moderate and high workloads. All groups presented faster τHR and τVO2 at high workload. RMI group presented slower τVO2 than τHR at moderate and high workloads. When compared to LMI and CG, RMI presented slower τVO2 at high workload. All groups presented faster τHR and τVO2 at moderate when compared to high workload.

**Conclusion:** Recent uncomplicated MI patients present slowing of τVO2 at aerobic exercise, which suggests impairment of oxygen delivery and extraction mechanisms.

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**P4163**

Exercise induced dyspnea among 12-13 year old children

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**Introduction:** Many children are limited in their physical activity because of exercise induced dyspnea (EID). The aim was to investigate the prevalence of EID, asthma and physical activity level among a population of 12-13 year old children in Uppsala, Sweden.

**Method:** A questionnaire was sent to 3815 parents asking them to answer the questionnaire together with their child.

**Results:** The response rate was 61% (n=2312). EID during the last 12 months was reported by 14.3% (n=330) (girls 16.9% vs. boys 11.8%, p<0.001). Of all the children reporting EID, 48% reported wheezing and 30% rhinitis during the last year, and 39% had ever had physician diagnosed asthma. Children with EID and asthma used bronchodilators and inhaled corticosteroids (ICS) to a larger extent than children with EID but no diagnosis of asthma (bronchodilators; 27.3 vs. 11.3%, p<0.01 and ICS; 31.2 vs. 4.4%, p<0.001). Only 12.4% of the total population (n=2312) reached the international physical activity recommendations (≥1 hour/day, 7 days/week on a moderate to vigorous level). 13% among children with EID and 12.3% in children without EID reached the recommendations (p=0.72).

**Conclusion:** Self reported exercise induced dyspnea is common in children and the majority of those children do not have an asthma diagnosis or asthma treatment. Only a minority of Swedish children have a self reported physical activity level that is in line with international recommendations.