233 Kinect active video game in cystic fibrosis: Exercise or fun?

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Background: Physical activity plays an important role in the management of patients with cystic fibrosis (CF) especially during hospital admission. Recently interactive games have been proposed as a training method; however studies involving CF are few and the role of this new training strategy is not clear.
Objectives: To determine whether an exercise using a gaming console Xbox Kinect™ (XB) results in similar respiratory-cardiovascular demand as traditional stationary cycle training (CY) in young CF. To evaluate patient satisfaction with XB versus CY.
Methods: Patients admitted to hospital for annual follow-up, who met inclusion criteria, underwent a single exercise session with XB and CY on separate days. The objective was to reach heart rate target (HR target) for this population. Heart rate (HR), oxygen saturation (SpO_2) were measured together with perception of dyspnoea and fatigue rated respectively with visual analogue scale and Children's OMNI Perceived Exertion Scale. Patient's satisfaction was tested with a 5-point Likert-type scale.
Results: 30 CF patients (36.7% M, age 8–17 yrs, FEV_1: 45–101% pred.) were enrolled. There was no significant difference in the maximum value of HR between XB and CY ($p = 0.2$). CY was associated more frequently with achievement of HR target ($p = 0.02$). XB provided a lower level of dyspnoea ($p = 0.001$) and fatigue ($p < 0.0001$). XB was more enjoyable than CY ($p < 0.001$).
Conclusions: XB might provide a cardiovascular demand similar to CY, although the modality is different (interval versus continuous training). Patients expressed greater enjoyment in XB. Further studies on the impact of interactive games are warranted.

234 Physical activity level in thirteen children with CF, at Stockholm CF-center

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Objectives: Physical activity is known to have a positive influence on lung function, working capacity, survival and quality of life in CF patients. In Sweden physical activity is an important part of the daily routine in combination with chest physiotherapy for all children with CF. The aim of this study was to investigate how physically active the CF children at Stockholm CF-center are.
Methods: The physical activity, MET, was measured by SenseWear-Armband (SWA), the measurement initiated at the annual check-up with the children in a stable condition. MET (Metabolic Equivalent) is a unit used to estimate O2 consumption. The children wore a SWA, an activity multi-sensor, for 7 days, during which they also filled in a diary regarding type of activities and time duration. A lung function test and a working-capacity test (Godfrey protocol) were preformed during the annual check-up. Thirteen children (out of 16) fulfilled the study (8 M), mean age 12.2 (±3.3) years, mean FEV1 2.2 liter (58–133% Solymar), and mean working capacity test of 133 (±49) watt. The three drop outs were due to technical problems with SWA.
Results: Mean high METs (6–9) was 64 (7–147) min/day and mean moderate METs (3–6) 225 (69–389) min/day. The children wore the SWA for mean 6.69±0.63 days. Four children had a higher level of working-capacity than expected value, 8 children a normal level and only one child had lower level. No relation to pulmonary functions was seen ($r = 0.57$). Typically activities were: dance, floorball, skiing, football, hockey, running and bicycling.
Conclusion: All the children in this study have a physical level above the Nordic recommendations for healthy children.

235 Prevalence of urinary incontinence in women with cystic fibrosis

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Introduction: The prevalence of urinary incontinence (UI) in women with CF has been reported to be higher (30–68%) compared to healthy female population (8.5–30%), mainly because of chronic coughing. The aim of our study was to evaluate the prevalence of UI in a cohort of adult female patients, and its impact on quality of life and chest physiotherapy.
Methods: 100 patients completed a self-administered questionnaire during an outpatient visit or hospital stay. It included the international CONTILIFE, a quality of life questionnaire for UI (the score was rated from 27 for no impact to 135 for a major impact).
Results: Mean age was 29.7 years (±9.7), mean BMI 20.2 kg/m^2 (±3.1), mean FEV1 51.4% pred. (±22.6). Twenty % of the patients had had a pregnancy. The prevalence of UI was 47% and began at a mean age of 24 years. Twenty % of women with UI had urinary leakage every day and 42% only rarely. Urinary leakage increased with pulmonary exacerbations and cough. Only 19% had had a treatment. Most of the patients didn't change their habits after the onset of UI: they continued to practise sports and to drink as much as before; during physical therapy or pulmonary function tests, they did not breathe slower (90%) and did not cough less (73%). Only 50% had talked about it, usually with their physician. CONTILIFE mean score was 42.6 (±12.9). 75% of the patients considered that UI did not impact their life and most of them did not know about treatment for UI.
Conclusion: Despite its high prevalence in our patients, UI had little impact on their daily life. UI is understated and undertreated in patients with CF. Caregivers should ask about it more often.

236 Agreement between real-time auscultation and computerised respiratory analyses

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Objectives: Inter-rater subjectivity has been reported when detecting adventitious lung sounds (ALS) with standard auscultation, questioning its routine use as an outcome measure. Computerised respiratory analyses might overcome this limitation, however the agreement between this approach and standard auscultation has been based in audio-recorded rather than real-time auscultation. This study aimed to analyse the agreement between computerised respiratory analyses and health professionals' real-time ALS (crackles and wheezes) detection.
Methods: Seven outpatients with cystic fibrosis (aged 30±12 yrs; 3 male) were treated with airway clearance techniques. Respiratory sound recordings were collected before and after treatment, with a digital stethoscope following the CORSA guidelines (7 chest locations). Simultaneously, the physiotherapist registered the number and position of each ALS in the breathing cycle (BC). Validated algorithms were used for ALS and BC automatic detection. The agreement was examined using Kappa statistics.
Conclusion: Before treatment, the agreement in the number and position of crackles and wheezes in the BC was poor to fair ($-0.20 < \text{kappa} < 0.30$) for almost all locations (moderate for wheezes position at posterior locations, $\text{kappa} = 0.60$). After treatment, agreement in the number and position in the BC was poor to moderate for crackles ($-0.29 < \text{kappa} < 0.58$) and wheezes ($-0.23 < \text{kappa} < 0.58$). The lack of agreement between the two methods enhances the need to develop real-time computerised respiratory analyses that can be used as an outcome measure in the clinical setting. This would contribute for the respiratory physiotherapy evidence base practice among cystic fibrosis.