

Cardiorespiratory functions

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Evaluation and key points of the 6 minute-walking-test in combination of mobile spiroergometry: methodical and physiological aspects

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Patients with coal worker's pneumoconiosis (CWP) often suffer from shortness of breath on exertion. Especially in very old patients maximal bicycle-based exercise tests (CPET) may be contraindicated. New techniques allow to perform 6 minute-walking-tests with mobile spiroergometry devices (mCPET). The aim of our study was to describe methodical and physiological aspects of mCPET in very older patients with CWP.

Material and Methods: 21 former hard coal miners (83±5 years), with CWP were examined by spirometry, bodyplethysmography, CO transfer factor measurement and X-ray. CPET was not considered due to contraindications. mCPET was performed according to ATS recommendations with an Qxycon Mobile[®] (Carefusion, Germany).

Results: Under treatment lung function showed no obstructive pattern, but a restriction or reduced CO transfer factor (n=5/20). All patients completed the mCPET. No adverse events were noted. Nearly all parameters showed a plateau after the 3rd min (steps, velocity, distance). Mean walking distance and heart rate reached 60%_{pred.} and 79%_{pred.} VO₂ and AaDO₂ were to 63.8±13.4%_{pred.} and 37.0±11.0mmHg. There was a correlation between VO₂ and FEV₁ (r=0.80), but no correlation between ILO-profusion and VO₂ or FEV₁.

Discussion: mCPET was feasible and yielded additional and objective information in old patients than a normal 6 minute-walking-tests, without adverse events.