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| **The ESpA-study: Cardiorespiratory fitness test** |
| Cardiorespiratory fitness was assessed with a maximal test on a treadmill involving walking uphill until exhaustion according to the modified Balke protocol.  The test started with a warm-up by walking on the treadmill for five minutes, with an individually adapted speed and 2.5% inclination, and participants were told to avoid using the handrail. Based on the heart rate (HR) during the warm-up, the speed of the treadmill was decided in order to attain an optimal test time (20 min).  The speed was kept constant in the beginning of the test, and the inclination was increased by 1.5% every minute. If 15% inclination was reached, the speed was increased by 0.3 km/h. At the end of each minute, the, rating of perceived exertion was obtained by the Borg Scale (6-20), and HR was recorded by a pulse watch.  The test was stopped when the participants could not further increase the workload. |
| Based on the workload at the end of the test, peak oxygen uptake (VO2peakml/kg/min) was estimated using the formula for graded walking (speeds≤8 km/t) published by American College of Sports Medicine.21  VO2peak = (0.1 x ms) + (1.8 x ms x inclination [%]) + 3.5  (ms; speed in m/min, 1 km/h=16.75 m/min) |

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| **ESpA: test manual cardiorespiratory fitness (Balke protocol)** | | | | | |
| Equipment:   * Treadmill * Puls watch * Poster of Borg Scale (6-20) | | | | | |
| Maximal test on treadmill. Walking uphill until exhaustion (18 on Borg [6-20]).  Warm-up in 5 minutes at 2.5% inclination. Speed at 5.3m km/h, or individually adapted higher or lower speed. If 15% inclination is reach, the speed is increased by 0.3 km/h. | | | | | |
| **AGE** | **AGE-PREDICTED MAXIMAL HEART RATE**  (220-age) | | | | |
| **Speed (km/h)** | | ( 4.3) | **4.8** | **5.3** | **Other** . |
| **MINUTE** | | **INCLINATION %** | **BORG** | **HEART**  **RATE** | **COMMENT** |
| **1** | | **4.5** |  |  |  |
| **2** | | **6.0** |  |  |  |
| **3** | | **7.5** |  |  |  |
| **4** | | **9.0** |  |  |  |
| **5** | | **10.5** |  |  |  |
| **6** | | **12.0** |  |  |  |
| **7** | | **13.5** |  |  |  |
| **8** | | **15.0** |  |  |  |
|  | | **SPEED** |  |  |  |
| **9** | | **+ 0,3** . |  |  |  |
| **10** | | **+ 0,3** . |  |  |  |
| **11** | | **+ 0,3** . |  |  |  |
| **12** | | **+ 0,3** . |  |  |  |
| **13** | | **+ 0,3** . |  |  |  |
| **14** | | **+ 0,3** . |  |  |  |
| **15** | | **+ 0,3** . |  |  |  |
| **16** | | **+ 0,3** . |  |  |  |
| **17** | | **+ 0,3** . |  |  |  |
| **TIME** | | min  s |  |  |  |
| **REASON TO STOP THE TEST** | | General exhaustion | Local exhaustion | Breathing | Other symptoms |