

Categorizing physical activities into intensity levels in relation to peak oxygen consumption - para- and tetraplegia.

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Conclusion

The main scoop of this study is that we have identified activities that possibly fit into intensity levels such as light, moderate and vigorous expressed as percentage of peak oxygen uptake, percentage of maximal heart rate and Borg RPE. The clinical implication of the study is the extended opportunity to better guide persons with SCI into a physically activity lifestyle.

Level of intensity	Relative intensity Fyss 2015, ACSM	Relative intensity Paraplegia.	Activities, Paraplegia.	Relative intensity Tetraplegia.	Activities, Tetraplegia.
Sedentary	< 20 % VO ₂ max < 40 % max HR RPE <8	< 20% VO ₂ peak < 45 % HR _{peak} RPE <8	<ul style="list-style-type: none"> ▪ Watch TV ▪ Desk work 	< 20% VO ₂ peak < 50 % HR _{peak} RPE <8	
Light intensity	20–39 % VO ₂ max 40–59 % max HR RPE 8–11	20–39 % VO ₂ peak 46–55 % HR _{peak} RPE 8-10	<ul style="list-style-type: none"> ▪ Setting table 	20–39 % VO ₂ peak 51–69 % HR _{peak} RPE 8–10	<ul style="list-style-type: none"> ▪ Watch TV ▪ Desk work
Moderate intensity	40–59 % VO ₂ max 60–74 % max HR RPE 12–13	40–59 % VO ₂ peak 56–65 % HR _{peak} RPE 11-12	<ul style="list-style-type: none"> ▪ Wheeling indoors ▪ Wheeling outdoors "walk" ▪ Arm-crank (18, 24 W) 	40–59% VO ₂ peak 70– 82% HR _{peak} RPE 11–13	<ul style="list-style-type: none"> ▪ Setting table ▪ Weight training
Vigorous intensity	60–89 % VO ₂ max 75–94 % max HR RPE 14–17	60–89 % VO ₂ peak 66–90 % HR _{peak} RPE 13–17	<ul style="list-style-type: none"> ▪ Wheeling outdoors "exercise" ▪ Circuit resistance ▪ Ski-ergo ▪ Arm crank (36, 48W) 	60–89 % VO ₂ peak 83–94% HR _{peak} RPE 14–17	<ul style="list-style-type: none"> ▪ Arm-crank (5 - 10 W) ▪ Wheeling indoors/outdoors "walk" ▪ Wheeling outdoors "exercise" ▪ Circuit resistance ▪ Ski ergo/armcrank (36, 48W)

HR=Heart rate, VO_{2peak/max}=Highest measured oxygen consumption during exertion test, W=watt, RPE= Rating of Perceived Exertion (Borg)

Aim

The study aim to, in defined cohorts of person's with a tetraplegia (C5-C8) AIS A-B and paraplegia (T7-T12) AIS A-B, to: describe and categorize 11 different standardized activities as % of VO_{2peak}, % maximal HR and Borg rate of perceived exertion (RPE).

Introduction

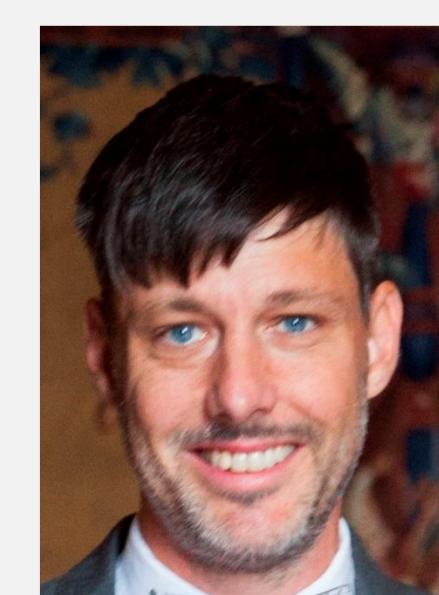
There's limited data describing intensity's of commonly performed activities in homogenous cohorts of the SCI-population. The intensity of an activity is best described in relative terms of peak capacity, often expressed as a percentage of peak oxygen uptake (%VO_{2peak}), percentage of maximal heart rate (%HR_{peak}) or Borg RPE.

Method

A total of sixty-three persons, thirty-seven with a motor-complete paraplegia T7–T12, AIS A-B (27 man 10 women) and twenty-six persons (9 women and 17 men) with motor-complete tetraplegia (C5–C8), AIS A-B . All activity and VO_{2peak} data were collected in a clinical rehabilitation setting by indirect calorimetry.

Result

Description of intensity levels expressed as % of VO_{2peak} or, % of HR_{peak} and ratings of perceived exertion, in the general population and for individuals with motor-complete paraplegia and tetraplegia in the present study, se figure above



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