

HandbikeBattle

Associations between meeting
exercise guidelines and mental
health and life satisfaction in
individuals with spinal cord injury
during and after the
HandbikeBattle training period

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WHO 2020 GUIDELINE ON PHYSICAL ACTIVITY



WHO GUIDELINE

MODERATE ACTIVITY

150
MINUTES

OR

VIGOROUS ACTIVITY

75
MINUTES

AND

STRENGTH TRAINING

2x
A WEEK

for each major muscle group



Frequency and session duration is not taken into account

“The evidence for those with disability was considered together with the evidence for those without disability and the resulting recommendations were extrapolated to be applicable to people with disability in general”.

EXERCISE GUIDELINES FOR ADULTS WITH SPINAL CORD INJURY

FITNESS GUIDELINE

AEROBIC ACTIVITY

20 **2x**
MINUTES A WEEK
of moderate to vigorous intensity



AND

STRENGTH TRAINING

3 **2x**
SETS A WEEK
for each major muscle group



CARDIOMETABOLIC HEALTH GUIDELINE

AEROBIC ACTIVITY

30 **3x**
MINUTES A WEEK
of moderate to vigorous intensity



These guidelines are stricter regarding frequency and session duration, but they are less demanding in total weekly volume compared to the WHO guideline.

Given that individuals with SCI are among the least physically active clinical populations, and that some physical activity is better than none, the guidelines by Martin Ginis et al. reflect the minimum dose of exercise required to achieve benefits.

Do individuals with SCI meet these guidelines?

Australia

- Cross-sectional study
- Aus-InSCI dataset
- N = 1579 persons with SCI
- M/F: 73/27%
- Age: 57 ± 14 years
- TSI: 17 ± 14 years
- Paraplegia: 61%
- Motor complete: 33%

The Netherlands

- Cross-sectional study
- Dutch Umbrella & ALLRISC datasets
- N = 358 persons with SCI
- M/F: 73/27%
- Age: 47 ± 11 years
- TSI: 19 ± 11 years
- Paraplegia: 53%
- Motor complete: 78%

Physical Activity Scale for Individuals with Physical Disabilities (PASIPD)

13%

Long term adherence?
(longitudinal) associations with quality of life?

29%

HandbikeBattle



- Uphill handcycling mountain “race” (21 km, 900 m)
- Annual event in Austria since 2013
- Teams: ex-rehabilitation patients from 14 Dutch centers
- ± 120 participants each year
- Free-living training for 5 months
- Aim: To initiate and maintain an active lifestyle





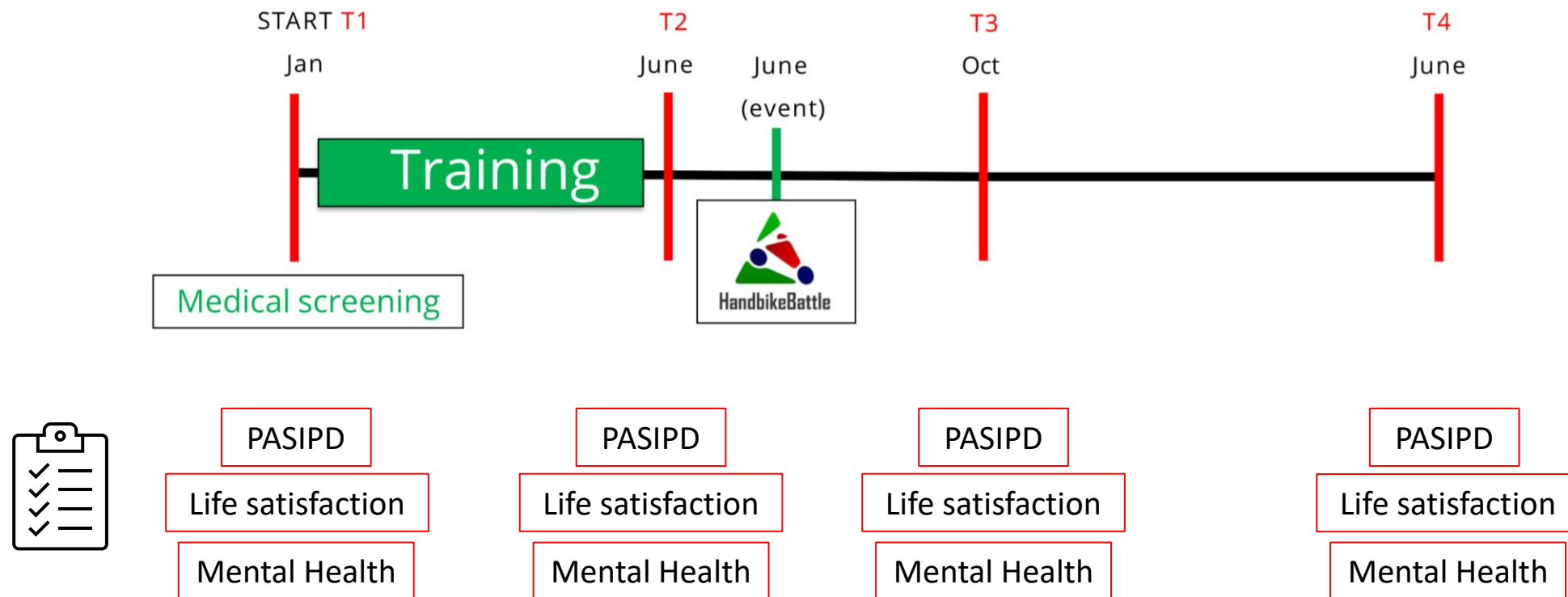
Hand Bike Battle 2016
Kaunertal, Austria



HandbikeBattle



Prospective cohort study



Methods



Participants

- N = 80
- 70% male, 30% female
- Age: 43 ± 14 years
- TSI: 9 ± 11 years
- 67% paraplegia, 23% tetraplegia, 10% spina
- 55% motor complete (AIS A/B), 45% motor incomplete (C/D)

Statistics

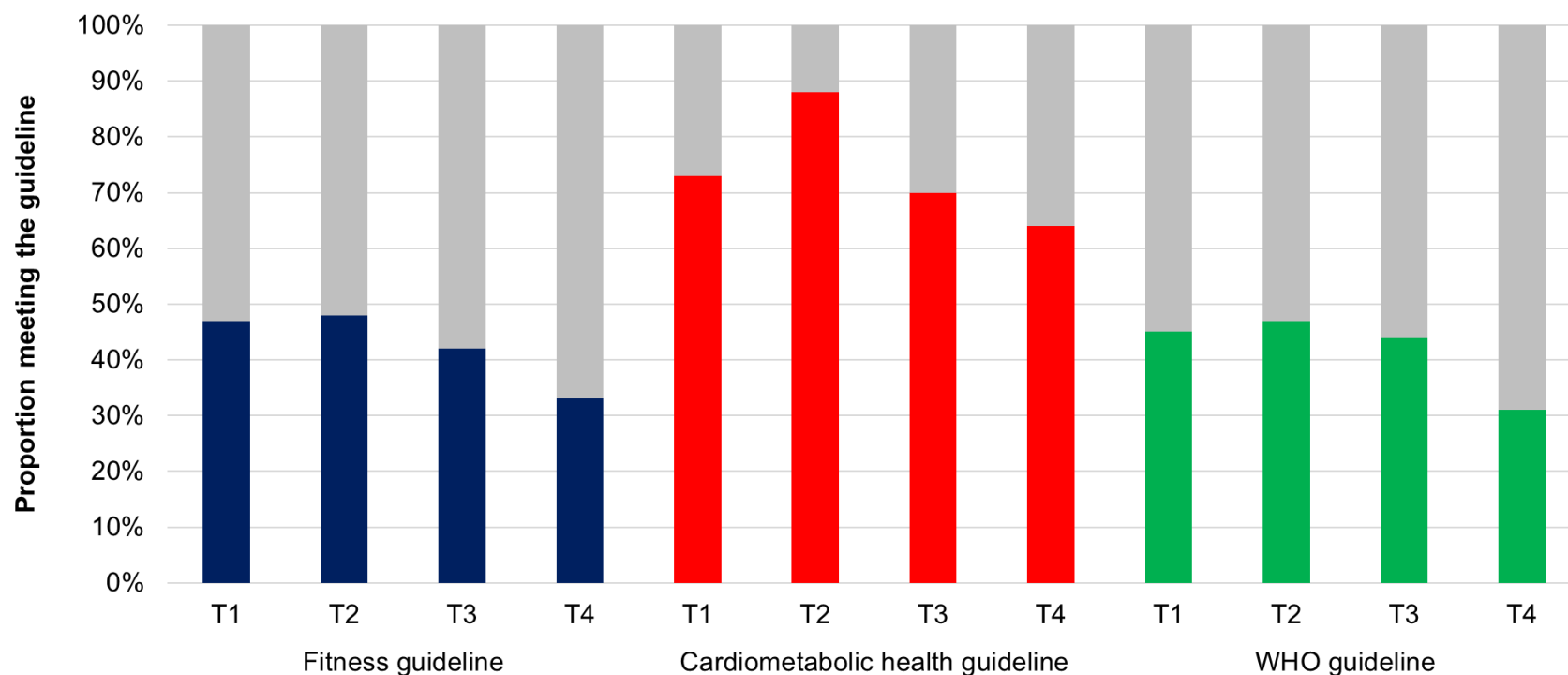
Multilevel (longitudinal) regression models



Results



Proportion that meets the guidelines



Only the cardiometabolic health guideline changed significantly over time.

The odds of meeting the guideline at T3 and T4 was 3.2 and 4.2 lower than at T2, respectively.

When T1 was used as reference, there were no significant changes between T1 and T3 or T4.

Results



Associations with life satisfaction and mental health

	Life satisfaction	Mental health
Meeting at least one guideline		
<i>A guideline vs. inactive</i>	-	+
Meeting the WHO guideline		
<i>WHO guideline vs. inactive</i>	-	-
Meeting the SCI guidelines		
<i>Fitness vs. inactive</i>	-	-
<i>Cardiometabolic vs. inactive</i>	-	+
<i>Cardiometabolic vs. Fitness</i>	-	+

Participants who met the cardiometabolic health guideline had significantly better mental health than those who did not meet any guidelines or only the fitness guideline.

Results



Associations with life satisfaction and mental health

	Life satisfaction	Mental health
Moderate exercise (min/week)		
<i>Cross-sectional association</i>	-	-
<i>Longitudinal association</i>	+	+
Vigorous exercise (min/week)		
<i>Cross-sectional association</i>	-	-
<i>Longitudinal association</i>	-	-
Strength exercise (min/week)		
<i>Cross-sectional association</i>	-	-
<i>Longitudinal association</i>	-	-

Moderate exercise showed significant positive longitudinal associations with life satisfaction and mental health, in contrast to vigorous and strength exercise.



Conclusion

Promoting regular *moderate-intensity* exercise appears important if you would like to improve mental health and subjective well-being.

The *cardiometabolic guideline* may serve as an effective starting point, given its positive association with mental health.

However, sustained and targeted interventions are essential to support long-term adherence to this guideline.



Thank you! Questions?

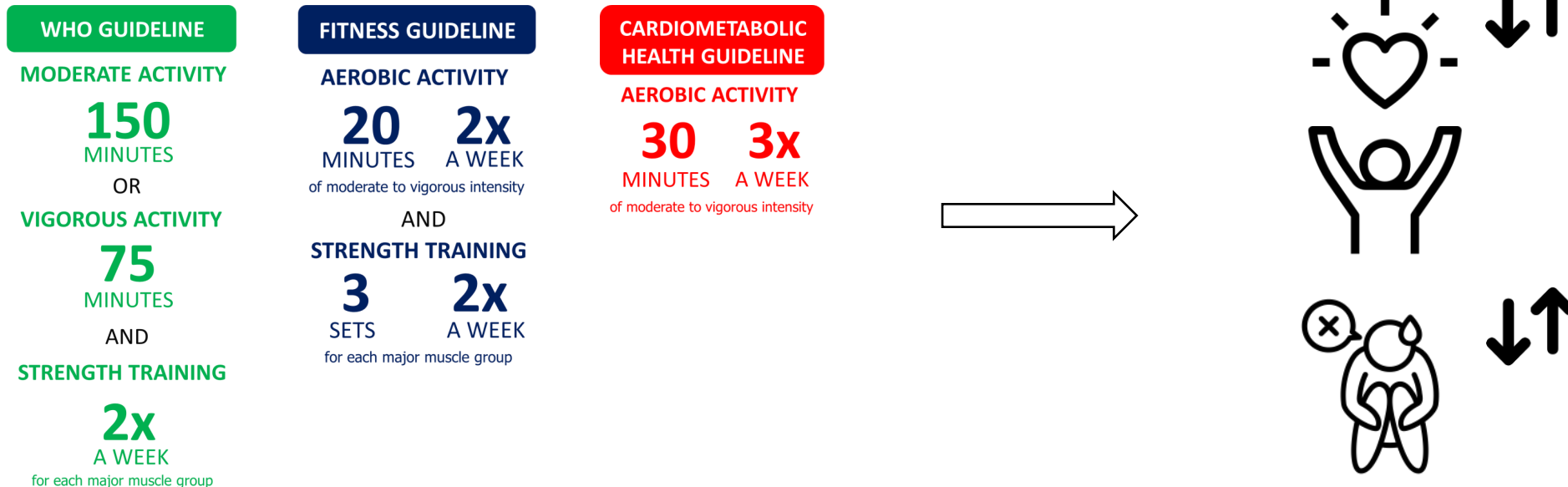
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Purpose

To examine:

1. The proportion that meets exercise guidelines during a one year follow-up period after a five-month handcycle training period
2. Whether meeting these guidelines is positively associated with life satisfaction and mental health
3. Which components of exercise (moderate or vigorous, strength exercise) are longitudinally associated with life satisfaction and mental health



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- Uphill handcycling mountain “race” (21 km, 900 m)
- Annual event since 2013
- Teams: ex-rehabilitation patients from 14 Dutch centers
- ± 120 participants each year
- Free-living training for 5 months
- Aim:
 - To initiate and maintain an active lifestyle
 - Confidence, new goal in life, learning from others
 - Not only elite able-bodied athletes are capable of incredible performances; wheelchair-users as well!



umcg



adelante
haal het beste uit jezelf



RJNDAM



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Sint Maartenskliniek



De Hoogstraat
Revalidatie



Libra
REVALIDATIE & AUDIOLOGIE



vogellanden



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