MS-fit: a comprehensive, two-month circuit training in people with multiple sclerosis - adherence and satisfaction

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Exercise therapy in people with multiple sclerosis (MS)

• Might improve strength, aerobic capacity, fatigue, balance and manual dexterity
• Circuit training poorly investigated
• Exercise adherence and patient satisfaction rarely investigated

PURPOSE

Study aims

- **Adherence** of people with MS to structured circuit training
- Determine overall **satisfaction** with the program

Ethical approval obtained by local Research Ethics Committee
Funded by the Swiss Multiple Sclerosis Society
No conflicts of interest to declare
METHODS: PARTICIPANTS

Included
- People with MS-related disability affecting activities of daily living and/or quality of life
- Age between 18-75 y

Excluded
- Relapse within 60 days prior to screening
- Rapidly progressive disease
- Additional neurological condition
- Medical conditions limiting training capacity or completing the study
METHODS: TRAINING PROGRAM

- 2-6 participants
- 2x2 hours weekly
- 2-month duration
- Supervised by an experienced PT
METHODS: TRAINING PROGRAM

<table>
<thead>
<tr>
<th>Skalenwert nach Borg</th>
<th>Anstrengungsgrad</th>
<th>% der max. Beanspruchung/Leistung</th>
<th>Trainingsbereich</th>
<th>Emotionen</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Überhaupt keine Anstrengung</td>
<td>20%</td>
<td>Aufbau/Regeneration</td>
<td>🎉</td>
</tr>
<tr>
<td>7</td>
<td>Extrem leicht</td>
<td>30%</td>
<td></td>
<td>😃</td>
</tr>
<tr>
<td>8</td>
<td>Sehr leicht</td>
<td>40%</td>
<td></td>
<td>😃</td>
</tr>
<tr>
<td>9</td>
<td>Sehr leicht</td>
<td>50%</td>
<td></td>
<td>😃</td>
</tr>
<tr>
<td>10</td>
<td>leicht</td>
<td>60%</td>
<td>Grundlagen/Ziele</td>
<td>😃</td>
</tr>
<tr>
<td>11</td>
<td>Optimierter Trainingsbereich</td>
<td>70%</td>
<td></td>
<td>😃</td>
</tr>
<tr>
<td>12</td>
<td>Mittleres Schwierig</td>
<td>85%</td>
<td>Training/Stärkung</td>
<td>😃</td>
</tr>
<tr>
<td>13</td>
<td>Schwierig</td>
<td>90%</td>
<td></td>
<td>😃</td>
</tr>
<tr>
<td>14</td>
<td>sehr schwierig</td>
<td>95%</td>
<td></td>
<td>😃</td>
</tr>
<tr>
<td>15</td>
<td>Extrem schwierig</td>
<td>100%</td>
<td></td>
<td>😃</td>
</tr>
<tr>
<td>16</td>
<td>Gesamtwert</td>
<td>85%</td>
<td></td>
<td>😃</td>
</tr>
</tbody>
</table>

20-point Borg’s scale (RPE) (Borg, 1998)

Workstation 4
Dexterity

<table>
<thead>
<tr>
<th>Vorgabe</th>
<th>60 Sek</th>
<th>60 Sek</th>
<th>60 Sek</th>
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<tbody>
<tr>
<td>Woche 1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Woche 2</td>
<td></td>
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</table>
METHODS: ASSESSMENTS

Study design: randomized-controlled cross over study

Adherence
- Number of attended training session (%)
- Maximal session 16
- Reason for drop out

The program quality
- Face-validated questionnaire
- 10-Items -> 5-point-Likert-scales
- Sum score
- Overall program satisfaction (Likert scale 0-10)
RESULTS: PARTICIPANTS

51 people with MS eligible

14 (7 women) did not exercise
- Mean age 44.9 (SD 12.7)
- EDSS: 4.0 (min 3.0 to 6.5)

37 (27 women) exercised
- Mean age 52.7 (SD 10.3)
- EDSS: 3.5 (min 2.0 to 6.5)

sent the Questionnaire back
RESULTS: ADHERENCE

All 37 participants achieved >80% (mean 90.5%±8.2) of attendance rate

Reason for drop out (n=14)
**RESULTS: PROGRAM QUALITY**

Program quality: good with an overall median score of 39/50 (min 26, max 50)

<table>
<thead>
<tr>
<th></th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Very poor</th>
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</thead>
<tbody>
<tr>
<td>Program duration</td>
<td>4 (11%)</td>
<td>17 (46%)</td>
<td>15 (41%)</td>
<td>1 (2%)</td>
<td>0</td>
</tr>
<tr>
<td>Exercise intensity</td>
<td>4 (11%)</td>
<td>21 (57%)</td>
<td>10 (27%)</td>
<td>2 (5%)</td>
<td>0</td>
</tr>
<tr>
<td>Booklet</td>
<td>4 (11%)</td>
<td>9 (24%)</td>
<td>13 (35%)</td>
<td>11 (30%)</td>
<td>0</td>
</tr>
<tr>
<td>Exercises choices</td>
<td>7 (20%)</td>
<td>16 (43%)</td>
<td>13 (35%)</td>
<td>0</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Physical strain</td>
<td>4 (11%)</td>
<td>21 (57%)</td>
<td>10 (27%)</td>
<td>2 (5%)</td>
<td>0</td>
</tr>
</tbody>
</table>
RESULTS: OVERALL PROGRAM SATISFACTION

95% of participants would recommend the program to others
Overall program satisfaction median 8
CONCLUSIONS AND RECOMMENDATIONS

- MS-fit circuit training highly appreciated
- Exercising 2x/week over 2 months is acceptable
- Time and family issues

Recommendations
- Further research is needed to evaluate the functional, mental and physical effects of the program
Family/work and exercise are real challenges

It is important to me to exercise with peers

MS-fit as a permanent option?
ACKNOWLEDGMENTS

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