| Author Year<br>Country<br>Research Design<br>PEDro Score<br>Total Sample Size | Methods | Outcome |
|---|---|---|
| Akkurt et al., (2017)<br>Turkey<br>RCT<br>PEDro=5<br>N=33 | **Population:** Mean age: Not reported; Median age: Intervention group=33 yr, Control group=37 yr; Gender: males=29, females=4; Time since injury=>1 mo, not specified further; Level of injury: C=1, T=22, L=10; Severity of injury: AIS A=19, B=1, C=10, D=3.<br>**Intervention:** Participants were enrolled in a 12-wk program comparing arm ergometer exercises and general exercises to those that receive only general exercises.<br>**Outcome Measures:** Psychological status (Center for Epidemiologic Studies Depression Scale and Hospital Anxiety and Depression Scale). | 1. No intergroup differences were seen in HADS and CES-D.<br>2. No statistically significant differences over the assessment period between the intervention and control groups in disability levels, QOL, or metabolic syndrome parameters (p=>0.05 for all). |
| Curtis et al., (2017)<br>Canada<br>RCT Crossover<br>PEDro=6<br>N=22 | **Population:** Yoga group (n=10): Mean age=47.9±19.5 yr; Gender: Not reported; Level of injury: paraplegia=6, tetraplegia=0, ambulatory/unspecified=4; Severity of injury: complete=2, incomplete/disease-related=8.<br>Control group (n=12): Mean age=54.8±10.1 yr; Gender: Not reported; Level of injury: paraplegia=4, tetraplegia=4, ambulatory/unspecified=4; Severity of injury: complete=5, incomplete/disease-related=7.<br>**Intervention:** Participants were randomized to a 6 wk, twice wkly Iyengar yoga group or a 6 wk wait-listed control group, then after the first yoga group completed their sessions, the wait-list control group engaged in the yoga protocol.<br>**Outcome Measures:** Pain (brief pain inventory (BPI), pain catastrophizing scale (PCS)), psychological (acceptance and action questionnaire (AAQ), hospital anxiety and depression scale (HADS), general self-efficacy scale (GSES), posttraumatic growth inventory (PTGI-SF), Connor-Davidson resilience scale (CD-RISC), self-compassionate scale (SCS)) and mindfulness (five-facet mindfulness questionnaire (FFMQ) measures taken 1-2 wk before and after the program. | 1. Yoga group had significantly lower scores for the HADS (p<0.05) and significantly higher scores for the SCS (p<0.05) at post-intervention than at baseline.<br>2. Fixed-factor models showed significantly lower HADS scores postintervention compared to preintervention (p<0.05) with time being the main predictor of HADS scores (p<0.05).<br>3. There was a trend noticed for FFMQ scores from preintervention to postintervention for total scores (p=0.09) and observing scores (p=0.06).<br>4. Postintervention scores for the SCS and FFMQ were both significantly higher than at preintervention (p>0.05). |
| Latimer et al., (2004)<br>Canada<br>RCT<br>PEDro=1<br>N=23 | **Population:** Intervention group: Mean age:37.54 yr; Gender: 9 males, 4 females; Level of injury: Tetraplegia (7), Paraplegia (6); Mean time post-injury: 9.23 yr; Control group: Mean age:43.30 yr; Gender: 5 males, 5 females; Level of injury: Tetraplegia (4), | 1. At baseline, ↑ stress levels were related to ↑ depression rates (p<0.05). At 6 mos, the exercise group's stress and depression association had ↓ but remained significant in the control group (p<0.05).<br>2. At baseline, ↑ stress levels were associated to ↓perceived QOL (p<0.05). At 3 and 6 mo the exercise group's stress and QOL association ↓, but remained ↑ across all time points for the control group (p<0.05).<br>3. Exercise was found to buffer the effects |

| Author Year<br>Country<br>Research Design<br>PEDro Score<br>Total Sample Size | Methods | Outcome |
|---|---|---|
| | Paraplegia (6); Mean time post-injury:15.70 yr<br>**Intervention:** Intervention group: A 6 mo exercise program 2d/wk in small groups (avg 3-5 people), ran by student volunteer personal trainers. Control group: Asked to continue normal daily activities and not begin an exercise routine within 6 mo<br>**Outcome Measures**: Perceived Stress Scale (PSS); Center for Epidemiologic Studies Depression Scale (CES-D); Perceived Quality of Life (PQOL); measured at at baseline, 3 and 6 mo | of stress on QOL and depression. |
| Hicks et al., (2003)<br>Canada<br>RCT<br>PEDro=8<br>$N_{Initial}$=43 $N_{Final}$=32 | **Population:** Age=19-65 yr; Gender: both; Time since injury=1-24 yr.<br>**Intervention:** Experimental group participated in a progressive exercise training program twice weekly for 9 mo on alternative day's 90-120 min starting with warm up, upper extremity stretching, and 15 to 30 min of aerobic training. As the rate of perceived exertion decreased, workload was increased. Some resistance training took place.<br>**Outcome Measures:** Changes in depression, cardiovascular function, muscle strength and quality of life. | 1. Quality of life components: Exercisers reported less stress, fewer depressive symptoms, and greater satisfaction with their physical functioning than the controls. (p=0.06). Exercisers reported less pain (p<0.01) and a better Q of L (p<0.05). |
| Martin Ginis et al., (2003)<br>Canada<br>RCT<br>PEDro=6<br>$N_{Initial}$=34 $N_{Final}$=34 | **Population:** Mean age=8.6 yr; Gender: 23 males, 11 females; Mean time post-injury: 10.4 yr<br>**Intervention:** Intervention group: 5 min of stretching, 15 -30 min of aerobic arm ergometry exercise & 45-60 min of resistance exercise, 2d/wk, in small groups. Control group: Asked to continue normal daily activities and not begin an exercise routine for 3 mo<br>**Outcome Measures:** Perceived Quality of Life (PQOL); Center for Epidemiologic Studies Depression Scale (CES-D). | 1. After 3 months, when compared to controls, exercisers had:<br>- ↑ QOL (p=0.007)<br>- ↓depression (p=0.02) |
| Diego et al., (2002)<br>USA<br>RCT<br>PEDro=8<br>N=20 | **Population:** Mean age=39 yr; Gender: males=15, females=5; Level of injury: tetraplegia; Time since injury=>1 yr.<br>**Intervention:** One group received a 40 min massage 2x/wk for 5 wk by a massage therapist while the other was taught an exercise routine that they performed 2x/wk for 5 wk on their own. | 1. CES-D scores obtained on first day versus last day assessment by group. Repeated measures ANOVA showed a group by day interaction effect (p<0.05).<br>2. T-tests revealed greater decrease in CES-D depression scores for the massage therapy group (p<0.05). |

| Author Year<br>Country<br>Research Design<br>PEDro Score<br>Total Sample Size | Methods | Outcome |
|---|---|---|
| | **Outcome Measures:** State Trait Anxiety Inventory (STAI), Center for Epidemiologic Studies Depression Scale (CES-D). | |
| Crane et al., (2017)<br>USA<br>Pre-Post<br>$N_{Initial}$=89 $N_{Final}$=45 | **Population:** Intervention Group:Mean age=43.8±15.3 yr; Gender: males=34, females=11; Level of injury: Paraplegia=11, Tetraplegia (C1-C4)=4, Tetraplegia (C5-C8)=8, Other=22; Severity of injury: AIS A/B=23, C/D=22.<br>**Intervention:** Participants engaged in a 3-mo physical therapy group exercise class, twice per wk.<br>**Outcome Measures:** Pre-post intervention interviews about exercise frequency and intensity, perceived health, pain, mood, sleep and television watching habits. | 1. Significant improvement in state of health as well as a significant increase in days per week of moderate to vigorous activity ($p<0.05$ for both).<br>2. Total Patient Health Questionnaire-2 depression scores were significantly lower at post-intervention assessment ($p<0.05$).<br>3. Participant comments from the interviews reinforced the program's positive influence on their health. |
| Curtis et al., (2015)<br>Canada<br>Pre-Post<br>N=11 | **Population:** Mean age=48.4±15 yr; Gender: males=1, females=10; Time since injury=157.4±191.8 mo; Level of injury: complete=3, incomplete=6; unknown=1, not reported=1; Severity of injury: tetraplegia=2, paraplegia=6, unknown=1, not reported=2.<br>**Intervention:** Participants took part in an 8-wk modified yoga program with assessments taken at baseline and post-intervention.<br>**Outcome Measures:** Pain (Brief Pain inventory (BPI), Pain Catastrophizing Scale (PCS), fatigue (Fatigue Severity Scale (FSS), psychological factors (General Self-Efficacy Scale (GSES), The Positive and Negative Affect Scale (PANAS)) and mindfulness (Toronto Mindfulness Scale (TMS) through self-report. | 1. 5 of the 11 participants finished at least 4 sessions and Fisher's exact test revealed that participants who were outpatients were significantly more likely to complete the program than in-patients ($p<0.05$).<br>2. No significant differences between baseline and exit scores for any measure ($p>0.05$). |
| Kennedy et al., (2006)<br>United Kingdom<br>Pre-Post<br>N=35 | **Population:** Gender: males=30, females=5; Age: 18-61 yr, Level of injury: paraplegia=20, tetraplegia=15.<br>**Intervention:** Back-Up: 1 wk single or multi-activity course in an integrated, residential environment. Activities include skiing, horseback riding, waterskiing, canoeing, rappelling and gliding. Questionnaires were completed at baseline and end of 1 wk activity courses<br>**Outcome Measures:** Life Satisfaction Questionnaire (LSQ), Hospital Anxiety and Depression Scale (HADS) | 1. HADS scores demonstrated significant ($p<0.01$) improvement in anxiety levels over the duration of the course. |
| Hicks et al., (2005)<br>Canada<br>Pre-Post<br>N=14 | **Population:** Chronic incomplete SCI: N=14; Tetraplegic=11, Paraplegic=3; Gender: males=11, females=3; Age range=20-53 yr; Mean time post injury=7.4 yr; ASIA: B=2, C=12.<br>**Intervention:** Body weight supported treadmill training (BWSTT) -robotic – up to 45 min, 3x/week, 144 sessions (12 mo).<br>**Outcome Measures:** Center for | 1. Increased life satisfaction and increased physical function satisfaction ($p<0.05$), after BWSTT.<br>2. No change in depression or perceived health. |

| Author Year<br>Country<br>Research Design<br>PEDro Score<br>Total Sample Size | Methods | Outcome |
|---|---|---|
| | Epidemiologic Studies Depression Scale(CES-D) | |
| Warms et al., (2004)<br>USA<br>Pre-Post<br>N=16 | **Population:** Gender: males=13, females=3; Mean age=43.2 yr; Mean time post injury=14.4 yr.<br>**Intervention:** "Be Active in Life" program: included educational materials (2 pamphlets, 2 handouts), a home visit with a nurse (90 min. scripted motivational interview, goal and personal action plan establishment), and follow up calls at day 4, 7, 11 & 28 (approx. 8 min each). Program lasted for 6 wk, and had a final follow up 2 wk post-completion.<br>**Outcome Measures:** Self Rated Health Scale (SRHS), Center for Epidemiologic Studies Depression Scale (CES-D) | 1. Physical activity: Counts/day increased in 60% of subjects and self-reported activity increased in 69% of subjects, but both were not significant.<br>2. Depression: no change. |
| Guest et al., (1997)<br>USA<br>Pre-Post<br>N=15 | **Population:** Traumatic complete paraplegics; N=15; Gender: males=12, females=3; Mean age=28.8 yr; Mean time post injury=3.8 yr.<br>**Intervention:** Electrically stimulated walking program-32-sessions, using the Parastep® FNS ambulation system.<br>**Outcome Measures:** Tennessee Self-Concept Scale (TSCS), Beck Depression Inventory (BDI) | 1. Physical Self-Concept: decreased after electrically stimulated walking ($p<0.05$). Those with lower baseline score had the most significant improvements.<br>2. Depression: decreased after electrically stimulated walking ($p<0.05$). |
| Bradley et al., (1994)<br>USA<br>Cohort<br>N=37 | **Population:** Gender: males=24, females=13; Mean age=32.03 yr; Level of injury: tetraplegic=12, paraplegic=25; Mean time post injury=6.51 yr<br>**Intervention:** Intervention group: 3 mos. Functional Electrical Stimulation (FES) exercise program; Control group: no intervention.<br>**Outcome Measures:** Multiple Affect Adjective Check List (MAACLR) | 1. Increased in depression & hostility for those who had unrealistic expectations of the FES program ($p<0.01$ & $p<0.05$, respectively). |