**Supplementary Table 1.** Search strategy.

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| ***PubMed***  ("mechanical ventilation"[All Fields] OR "mechanical respiration"[All Fields] OR "Artificial ventilation"[All Fields] OR "Artificial respiration"[All Fields]) AND ("weaning "[MeSH Terms] OR "weaning"[All Fields] OR "Ventilator Weaning"[All Fields]) AND (“acute patients” [All Fields] OR “spinal cord injury” [All Fields] OR “cervical injuries” [All Fields]) AND ("rehabilitation"[MeSH Terms] OR "rehabilitation"[All Fields] OR "physiotherapy"[All Fields] OR "mobilization"[All Fields] OR "early mobilization"[All Fields] OR "pronation"[All Fields] OR "posture"[All Fields] OR "airway clearance"[All Fields] OR "respiratory muscle training"[All Fields] OR "inspiratory muscle training"[All Fields] OR "strength training"[All Fields] OR "resistance training"[All Fields] OR "strength exercise"[All Fields] OR "resistance exercise"[All Fields] OR "training"[All Fields] OR "exercise"[MeSH Terms] OR "exercise"[All Fields] OR "physical exercise"[All Fields] OR "physical therapy"[All Fields]) |
| ***Scopus***  TITLE-ABS-KEY (((mechanical ventilation) OR (mechanical respiration) OR (Artificial ventilation) OR (Artificial respiration)) AND ((weaning) OR (Ventilator Weaning)) AND ((acute patients) OR (spinal cord injury) OR (cervical injuries)) AND ((rehabilitation) OR (physiotherapy) OR (mobilization) OR (early mobilization) OR (pronation) OR (posture) OR (airway clearance) OR (respiratory muscle training) OR (inspiratory muscle training) OR (strength training) OR (resistance training) OR (strength exercise) OR (resistance exercise) OR (training) OR (exercise) OR (Physical exercise) OR (physical therapy))) |
| ***Web of Science***  TS=(((mechanical ventilation) OR (Artificial ventilation)) AND ((weaning) OR (Ventilator Weaning)) AND ((spinal cord injury) OR (cervical injuries)) AND ((rehabilitation) OR (physiotherapy) OR (mobilization) OR (early mobilization) OR (pronation) OR (posture) OR (airway clearance) OR (respiratory muscle training) OR (inspiratory muscle training) OR (strength training) OR (resistance training) OR (strength exercise) OR (resistance exercise) OR (training) OR (exercise) OR (Physical exercise) OR (physical therapy))) |
| ***Cochrane Central Register of Controlled Trials (CENTRAL):***  #1 MeSH descriptor: [Mechanical Ventilation] explode all trees  #2 MeSH descriptor: [Artificial Ventilation] explode all trees  #3 MeSH descriptor: [Weaning] explode all trees  #4 MeSH descriptor: [Spinal Cord Injury] explode all trees  #5 MeSH descriptor: [Rehabilitation] explode all trees  #6 MeSH descriptor: [Mobilization] explode all trees  #7 MeSH descriptor: [Training] explode all trees  #8 MeSH descriptor: [Exercise] explode all trees  #9 (#1 OR #2) AND #3 AND #4 AND (#5 OR #6 OR #7 OR #8) |
| ***Physiotherapy Evidence Database (PEDro):***  Mechanical Ventilation Weaning Spinal Cord Injury Rehabilitation |

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| Supplementary Table 2. Characteristics of excluded studies assessed in full-text. | |
| *Study* | ***Reason for exclusion*** |
| Cavka et al. 2021 | Literature review |
| Chawla et al. 1993 | No weaning outcomes |
| Chiodo et al. 2008 | No rehabilitative treatment |
| Erokhin et al. 2020 | Age < 18 |
| Goode-Roberts et al. 2021 | Age < 18 |
| Lamid et al. 1985 | No rehabilitative treatment |
| McCaughey et al. 2019 | Literature review |
| Onders et al. 2007 | Age < 18 |
| Onders et al. 2022 | No rehabilitative treatment |
| Oo et al. 1999 | No rehabilitative treatment |
| Romero-Ganuza et al. 2015 | No rehabilitative treatment |
| Rybczynski et al. | Age < 18 |
| Sharma et al. 2021 | No rehabilitative treatment |
| Strakowski et al. 2007 | No rehabilitative treatment |
| Wallbom et al. 2005 | Literature review |
| Wang et al. 2019 | No rehabilitative treatment |
| Zakrasek et al. 2017 | No rehabilitative treatment |
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