**Table 1. Characteristics of included studies**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| First author (publication year) | Country | Study design | Intervention group sample size | Control group sample size | Age (mean± SD) | Sex (%) | Primary diagnoses (%) | Mechanical ventilation or non-invasive ventilation |
| Azevedo, P.  (2022) | Portugal | Non-randomized study | 21 | 21 | Intervention  48.6 ± 13.6, Control  57.2 ± 15.7 | Male 60%, female 40% | Pneumonia (12%), polytraumatized (12%), respiratory failure (7%) | Mechanical ventilation |
| Koyuncu, F.  (2022) | Turkey | Non-randomized study | 21 | 21 | Intervention  62.81 ± 11.57, Control  63.62 ± 8.99 | Not specified | Abdominal surgery (pancreatic, gastrointestinal and colorectal cancer) (100%) | Not specified |
| Winkelman, C.  (2012) | USA | Non-randomized study | 55 | 20 | Intervention  65 ± 13.27, Control 66 ± 11.03 | Male 51%, female 49% | Respiratory failure or acute lung injury (31%), cardiovascular surgery (21%), gastrointestinal medicine or surgery (21%) | Mechanical ventilation |
| Winkelman, C.  (2018) | USA | RCT | 25 | 29 | Intervention  52.68 ± 18.53, Control  59.48 ± 15.56 | Male 46%, female 54% | Pulmonary disease (43%), cardiovascular disease (20%) | Mechanical ventilation |
| Morris, P. E. (2016) | USA | RCT | 150 | 150 | Intervention 55 ± 17, Control 58 ± 14 | Male 44.7%, female 55.3% | Acute respiratory failure (98.3%), shock (23%) | Mechanical ventilation or Non-invasive ventilation |
| Nydahl, P. (2020) | Germany | RCT | 120 | 152 | Intervention  74 ± 10, Control 70 ± 10.85 | Male 55.1%, female 44.9% | Cardiological, endocrinological disease (28%), surgery (43.8%), pulmonary disease (8.5%) | Not specified |
| Hodgson, C. L.  (2016) | Australia | RCT | 29 | 21 | Intervention 64 ± 12, Control  53 ± 15 | Male 60%, female 40% | Sepsis (66%) | Mechanical ventilation |
| Schaller, S. J.  (2016) | Germany | RCT | 104 | 96 | Intervention 66 ± 12.5, Control 64 ± 15.5 | Male 63%, female 37% | Visceral surgery (27%), trauma (26%), vascular surgery (17%) | Mechanical ventilation |
| Dong, Z. H.  (2014) | China | RCT | 30 | 30 | Intervention  55.3 ± 16.1, Control  55.5 ± 16.2 | Male 68%, female 32% | Acute respiratory distress syndrome (32%), abdominal infections (18%), aspiration pneumonia (18%) | Mechanical ventilation |

**Table 2. The contents of early mobilization**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Study | Nurse-led interventions | | | | Multidisciplinary team approach | | | | |
| **Paulo Azevedo**  **(2022)** | **Koyuncu, F.**  **(2022)** | **Winkelman, C.**  **(2012)** | **Winkelman, C.**  **(2018)** | **Morris, P. E. (2016)** | **Nydahl, P.**  **(2020)** | **Hodgson**  **(2016)** | **Stefan J Schaller**  **(2016)** | **Ze-hua Dong**  **(2014)** |
| Providers | Rehabilitation nurses | Nurses | Bedside nurses | Trained registered nurses | A physical therapist, an ICU nurse, a nursing assistant | The physiotherapist and/or staff nurses | The physiotherapist, a health assistant, the bedside nurse | Medical doctors, nurses, physical therapists | A physician and a nurse |
| Name of intervention | Systematized rehabilitation nursing program | Mobilization protocol | Mobility protocol | Early  therapeutic mobility | Standardized rehabilitation therapy | Professional protocol-based  mobilization | Early goal-directed mobilization | Early, goal- directed mobilization score algorithm | Rehabilitation therapy |
| Detailed contents |  |  |  |  |  |  |  |  |  |
| • Head  elevation | ✔ |  |  |  |  |  |  |  | ✔ |
| • Range of  motion | ✔ |  | ✔ | ✔ | ✔ |  | ✔ | ✔ | ✔ |
| • Turning  (rolling) | ✔ |  | ✔ | ✔ |  | ✔ | ✔ |  |  |
| • Sitting | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| • Dangling | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |  | ✔ |
| • Standing | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| • Walking | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ |
| Time of initiation | Not specified | When the vital signs and RASS scores of the patients reached normal values | On the day of enrollment | After 48 h or more on mechanical ventilation | On the day of enrollment | Not specified | After meeting the eligibility criteria | Not specified | Not specified |
| Duration | 10.2 days (mean) | 1 day (after completion of surgery on the day of surgery) | 2-7 days | 4 days (mean) | 7 days per week | Not specified | 7 days | Not specified | Until discharge from hospital or returning to the pre-admission level of function |
| Intervention time (intervention dose) | Applied differently at each stage (sitting minimum 20 min-  2 h) | Total 4 times (for 15, 25, 35, and 45 min) | 20 min of exercise once daily | Twice daily | A total of 3 separate sessions every day | 30 min once a day | 20 min (median), twice daily | 60 min (mean) | Twice daily |
| Staff training | Not specified | Not specified | + | + | Not specified | + | Not specified | Not specified | Not specified |