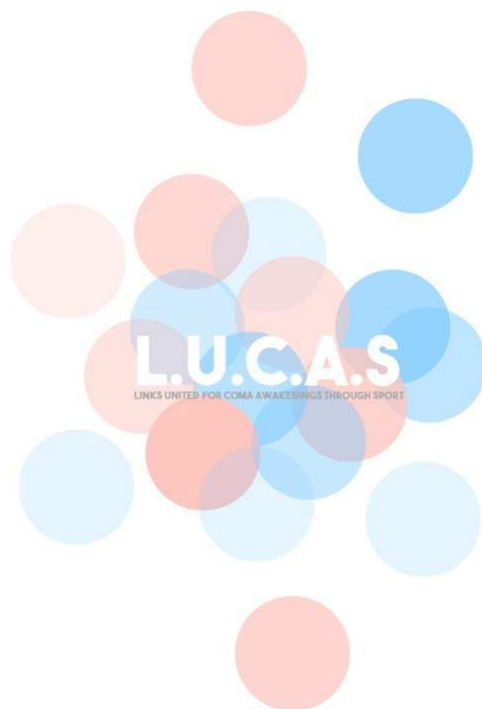




LUCAS

Links United for Coma Awakenings through Sport

Final Results



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1. Participants

A total of 87 participants with the following characteristics were recruited for this project.

- 49 patients
 - 34 men, 15 women
 - Average age 40 ± 16 years
 - Injury
 - 37 patients with Traumatic Brain Injury (mostly due to head trauma or stroke)
 - 12 patients with Spinal Cord Injury
 - Average time since injury 8 ± 7 years
- 38 caregivers
 - 10 men, 28 women
 - Average age 53 ± 13 years
 - Relationship with patient
 - Spouse (6)
 - Parent (19)
 - Grandparent (2)
 - Sibling (5)
 - Friend (1)
 - Not specified (5)

2. Analyses & results

A comparative analysis of patient and caregiver characteristics across all partner countries indicated that an overall pre- versus post-intervention comparison was allowed. This means that the characteristics between patients and caregivers, but also between the partner countries were similar. Consequently, all data were pooled into one large data-set. As such, the effect of the 24 week physical activity programs was analysed for all participants. An additional analysis on the effect of the intervention on patients and caregivers separately was completed to provide a more complete understanding of the results.

Statistical analysis (Pearson χ^2 with significance level $p < 0,05$) revealed the following findings:

- Quality of Life (SF-36)
 - Physical Functioning: No significant improvement
 - Role Limitations due to Physical Health: Significant improvement for patients, not for caregivers
 - Role Limitations due to Emotional Problems: Significant improvement for patients, not for caregivers
 - Energy/Fatigue: Significant improvement for patients and caregivers
 - Emotional Well-Being: Significant improvement for caregivers, not for patients
 - Social Functioning: Significant improvement for patients, not for caregivers
 - Pain: No significant improvement
 - General Health: Significant improvement for patients, not for caregivers

- Competency (PCRS)
 - No significant improvement
- Community Integration (CIQ)
 - Home Integration: Significant improvement for patients and caregivers
 - Social Integration: Significant improvement for patients and caregivers
 - Integration into Productive Activities: No significant improvement
- Activities of Daily Living Scale (ADL) – *For participants only*
 - No significant improvement
- Experienced Pressure by the Informal Caregiver (EPIC) – *For caregivers only*
 - No significant improvement

3. Conclusions & considerations

The results of the study suggest that a 24 week physical activity program increase the general health and quality of life of patients awakened from a coma after Traumatic Brain Injury (TBI) or Spinal Cord Injury (SCI), as well as their informal caregiver(s). The increased quality of life of patients seems to be manifested in both physical, psychological and social aspects of quality of life, whereas in caregivers, the improvements are mainly situated in psychological and social aspects (which can be expected given the physical consequences of TBI or SCI versus the unchanged physical abilities of caregivers). Furthermore, the results also suggest a positive effect of physical activity on the social (re-)integration of patients and caregivers. On the other hand, no significant improvements could be demonstrated based on this study with respect to pain treatment, functioning in ADL, and experienced pressure by the caregiver(s).

Further investigations are now necessary to provide more understanding and insight in the following:

- FITT (Frequency – Intensity – Timing – Type) recommendations in physical activity for persons with TBI or SCI and their caregivers cannot be further optimized based on this project.
- The following influencing variables affect the effects of the interventions, and need as such to be taken into account in the development of future programs.
 - Baseline Quality of Life and physical functioning: Data in this study already suggest that those patients and caregivers who already have a “normal” quality of life and physical functioning profile do not improve any further after the intervention. Other (more objective) measures are necessary to demonstrate the health benefits of regular physical activity (e.g. bone mineral density measurements, exercise capacity assessments, etc.)
 - Relevance of activities: Particularly for caregivers, the choice of the physical activities seems to play an important role with respect to program adherence. For example, one partner is now setting up workshops for caregivers on ergonomic aspects of lifting heavy weights.

- Existing opportunities: Particularly for patients, the uniqueness of the physical activity program seems to be influential. Physical activity as a part of the rehabilitation program of persons with TBI is currently not widely accepted and has as such that unique aspect. Persons with SCI on the other hand have a wide variety of physical activity opportunities, and are therefore less prone to improve in an additional program.
- Combined activities: The nature and content of the combined activities seem to be less important than the combined-ness of the activity. The concept of bringing a number of patients and caregivers together seems to have an important psychological and social effect that supersedes the effect of physical activity alone.

In conclusion, physical activity improves the physical, psychological and social well-being of patients awakened from a coma after Traumatic Brain Injury (TBI) or Spinal Cord Injury (SCI), as well as their informal caregiver(s). Further project are now necessary to optimize the nature and content of the activities.

