

# Effects of Structured Exercise Intervention During Umbilical Cord Blood Transplantation in Children and Adolescents with Leukemia

Lu Huang<sup>1</sup>, Yun Wu<sup>1</sup>, Ming Xu<sup>1</sup>, Yingying Wang<sup>1</sup>, Chengzhen Jia<sup>1</sup>, Guiqi Song<sup>1</sup>, Kaidi Song<sup>1</sup>, Yao-Hua Wu<sup>2</sup>, and Yongliang Zhang<sup>1</sup>

<sup>1</sup>Affiliated Hospital of USTC

<sup>2</sup>University of Science and Technology of China School of Management

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## Abstract

**Background:** Children and adolescents undergoing umbilical cord blood transplantation (UCBT) are faced with severe challenges and a decline in quality of life (QoL) during the inpatient period. This prospective study investigated the effect of structured exercise intervention on fatigue, QoL and clinical outcomes. **Methods:** Participants (n=48) were randomized to a control group (CG: usual care) or an intervention group (IG: structured exercise intervention). Fatigue and QoL were assessed at hospital admission, 14 days after UCBT, and at discharge using repeated measures analysis of variances. In addition, engraftment kinetics, supportive care, and transplant-related complications were derived from medical records. **Results:** Forty-four patients completed the study, and the IG participated in an average of 2.12 (1.36-2.8) training sessions with a duration of 24 (16-34) min weekly. Fatigue increased at 14 days after UCBT ( $76.04 \pm 15.88$  vs.  $69.03 \pm 15.36$ ,  $p=0.031$ ), but it returned to pre-UCBT levels at discharge ( $74.10 \pm 16.31$  vs.  $76.04 \pm 15.88$ ,  $p=0.578$ ), with patients' QoL was positively maintained during the exercise intervention ( $75.16 \pm 11.27$  vs.  $74.77 \pm 10.58$  vs.  $77.40 \pm 14.33$ ,  $p < 0.05$ ). However, no significant differences were observed for the remainder of clinical outcomes ( $p > 0.05$ ). **Conclusion:** Our randomized study indicated that structured exercise intervention might exert a protective effect by attenuating the decline in fatigue and QoL.

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