Is There an Optimal Time to Initiate an Active Rehabilitation Protocol for Concussion Management in Children? A Case Series

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Abstract

Objective:
To estimate the time frame during which initiating an active rehabilitation intervention (aerobic exercise, balance, and sport specific skills) after concussion contributed to improvement in symptoms at follow-up in children and adolescents who are slow to recover (symptoms persisting beyond 2 weeks) from concussion.

Setting:
Concussion clinic at a tertiary care pediatric teaching hospital.

Participants:
A total of 677 children and adolescents with concussion aged 7 to 18 years.

Design:
Case series of participants starting active rehabilitation less than 2, 2, 3, 4, 5, or 6 or more weeks postconcussion.

Main Measure:
Symptom severity measured by the 22-item Post-Concussion Scale (PCS)-revised.
**Results:**
All patients experienced significant improvement of symptoms while participating in active rehabilitation, irrespective of the start time postonset. Patients initiating active rehabilitation at 2 (P < .001) or 3 (P = .039) weeks postinjury demonstrated lower symptom severity at follow-up than those starting at 6 weeks or later. Patients starting at 2 weeks had lower symptom severity than patients starting less than 2 (P = .02), 4 (P = .20), or 5 weeks postinjury (P = .04). Lastly, patients starting less than 2 and 6 weeks or more postinjury yielded equivalent outcomes.

**Conclusions:**
The findings support the use of active rehabilitation in children and adolescents who are slow to recover from concussion. Participants starting active rehabilitation less than 2 weeks and up to 6 or more weeks postconcussion demonstrated significant symptom improvements, but improvement was observed in all groups, regardless of the time to start active rehabilitation.

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