Splinting duration and periodontal outcomes for replanted avulsed teeth: a systematic review

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CRD summary
The authors concluded that there was inconclusive evidence about the relationship between short-term splinting of replanted avulsed permanent teeth and periodontal outcomes and no evidence contrary to current guidelines. The authors’ conclusions reflected the limited and diverse evidence, but lack of reporting of review methods made it difficult to assess their reliability.

Authors’ objectives
To compare the effects on periodontal outcomes of short-term splinting (14 days or less) versus longer-term splinting (over 14 days) of replanted avulsed permanent teeth.

Searching
MEDLINE, The Cochrane Library and Web of Science were searched for studies reported in English. Search terms were reported, but search dates were not.

Study selection
Studies that compared short-term splinting (<14 days) with longer-term splinting (>14 days) of replanted avulsed permanent teeth were eligible for inclusion. Studies had to report the following information: details of case selection; sample size; withdrawals; assessor blinding; size of both treatment groups; outcomes described in relation to emergency treatment; and duration of splinting.

Periodontal healing outcomes reported in the review were: functional healing; acceptable healing; and development of replacement resorption. Included studies defined these outcomes differently (details were reported).

Patient ages in the included studies ranged from six to 48 years.

Titles and abstracts were screened. The authors did not state how many reviewers selected studies.

Assessment of study quality
The authors did not perform a validity assessment.

Data extraction
Numbers of teeth with the outcome of interest were presented for each treatment group within each study. Attempts were made to contact authors for additional information.

The authors did not state how many reviewers performed data extraction.

Methods of synthesis
Studies were grouped by outcome and overall percentages of teeth with each outcome of interest were reported. The review excluded some teeth from analyses due to insufficient data or use of ineligible splinting periods.

Results of the review
Four studies were included (n=138 teeth; 66 teeth subjected to short-term splinting and 72 to longer-term splinting). There were two prospective studies (n=87 teeth) and two retrospective clinical audits (n=51 teeth).

Favourable periodontal outcomes (four studies, n=138 teeth): Favourable outcomes occurred in 33 out of 66 (50%) short-term splinted teeth and 32 out of 72 (44%) longer-term splinted teeth. Rates of favourable outcomes varied widely among studies for both time periods.
Functional healing (three studies, n=87 teeth): Functional healing occurred in eight out of 42 (19%) short-term splinted teeth and 14 out of 45 (31%) longer-term splinted teeth.

Acceptable healing (four studies, n=138 teeth): Acceptable healing occurred in 33 out of 66 (50%) short-term splinted teeth and 32 out of 72 (44%) longer-term splinted teeth.

Development of replacement resorption (two studies, n=87 teeth): Replacement resorption developed in 24 out of 54 (44%) short-term splinted teeth and 16 out of 33 (48%) longer-term splinted teeth.

Authors’ conclusions
There was inconclusive evidence about the relationship between short-term splinting of replanted avulsed permanent teeth and functional healing, acceptable healing and development of replacement resorption. There was no evidence contrary to current guidelines.

CRD commentary
The review question was clearly stated and inclusion criteria were appropriately defined. Several relevant sources were searched, but search dates were not reported and no attempts were made to minimise publication and language biases. Methods used to select studies and extract data were not described and so it was unknown whether efforts were made to reduce reviewer errors and bias. A limited assessment of study validity was applied from inclusion criteria in selecting studies.

The authors discussed some limitations of the evidence that included small sample size, retrospective studies and differences between studies. A narrative synthesis was appropriate in view of the differences between studies. Reporting an average outcome rate over all studies did not take account of differences between studies or differences between treatments within individual studies.

The authors’ conclusions reflected the limited and diverse evidence, but lack of reporting of review methods made it difficult to assess their reliability.

Implications of the review for practice and research
Practice: The authors stated that until further data was available, clinicians should adhere to current recommendations about duration of splinting for replanted permanent teeth.

Research: The authors stated that there was a need for standardised data about replanted traumatised teeth to be gathered electronically. They also stated that future studies of teeth replanted immediately with vital periodontal ligament cells could be useful for evaluating the effect of long splinting periods on development of replacement reabsorption.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.