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Original Articles

## Impaction and Retention of Second Molars: Diagnosis, Treatment and Outcome A Retrospective Follow-up Study

Cathrine Magnusson<sup>a</sup> and Heidrun Kjellberg<sup>b</sup>

### Abstract

**Objective:** To evaluate treatment outcome in patients with second molar impaction and retention.

**Materials and Methods:** A total of 135 second molars, 65 in the maxilla and 70 in the mandible were collected from 87 patients (45 girls and 42 boys) with a mean age of 15 years (range: 11–19 years). Available patient records, x-rays, study casts, and photos were studied. The mean follow-up period was 22 months (range: 4–106 months).

**Results:** A total of 166 second molars were diagnosed as impacted, 24 as primary and 5 as secondarily retained; 80% of the second molars were orthodontically or surgically treated. In more than half of the treated patients the second molars failed to erupt into a proper position. Surgical exposure of the retained or impacted second molar was the treatment found most successful (71%). The least successful treatment (11%) used the third molar to replace the second molar after the second molar was extracted. No clear difference in treatment outcome could be detected between the impacted and the primary or secondary retained teeth. However, a clear difference was found between the impacted and the primary retained second molars regarding treatment strategy: 9% of the impacted and 67% of the primary retained teeth were left untreated. Dental crowding was found in 70% of the patients.

**Conclusion:** In more than half of the treated patients the second molars failed to erupt into a proper position. The most common treatment given (extraction of the second molar) was the least successful.

**Keywords:** [Second molar impaction and retention](#), [Orthodontic treatment evaluation](#), [Surgical treatment evaluation](#)

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