

# Effect of Age On the Rates of Postoperative Complications Following the Removal of Lower Third Molars – A Narrative Review

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## Abstract

**Introduction:** Surgical removal of mandibular third molars (M3Ms) is a common oral surgery procedure with well-recognized associated short and long-term complications. The aim of this article was to review the effect of age on the rate of postoperative complications following the removal of lower third molars.

**Method:** A narrative review was performed via a comprehensive search of the past 20 years of articles on this topic. A PEO (Population, Exposure, Outcome) search strategy was used to generate potentially relevant articles. Secondary research and non-English articles were excluded. The generated articles were then screened for relevance before being included in a comprehensive review.

**Results:** The initial search, following the application of inclusion and exclusion criteria to the search, generated 170 articles. Following the careful screening of these articles against defined inclusion and exclusion criteria 24 articles were included in this narrative review.

**Discussion:** Eighteen of the 24 selected articles (75%) revealed a positive correlation between increasing complication rates and increasing age. None of the articles demonstrated that complication rates decrease as we age. Six of the articles were unable to demonstrate a significant difference between the age groups although the validity of some of these articles is questionable.

**Conclusion:** There is a clear correlation between an increase in experience of postoperative complications and increasing age with a suggestion that 25 years is a significant milestone for this.

**Keywords:** Mandibular third molars • Complications • Age

## Introduction

### Background

Mandibular third molars usually erupt anytime from the age of 16 to 25 years of age and are the most common tooth to become impacted. Surgical removal of lower third molars is one of the most commonly performed surgical procedures undertaken in secondary care within the NHS. And when the figures for both primary and secondary care are combined it is arguably the most common surgical procedure in the whole of the NHS averaging around 60,000 per year [1]. When the national guidelines from the National Institute for Health and Care Excellence (NICE) for wisdom teeth assessment sometimes negate the removal of potentially disruptive impacted wisdom teeth are we potentially increasing the risks to the patient for its future removal?

[2]. It would be prudent to question what the long-term impact may be for delaying the removal of the patient. Since the production of the NICE guidelines for wisdom teeth removal with the aim to reduce NHS expenditure on a procedure, that was costing it in excess of £ 12 million per annum, do these same patients who have had their surgery delayed until later in life eventually end up costing the NHS more money than had they been treated earlier in life? [1].

Post-operative complications that patients may experience following removal of lower third molars are as follows; pain, swelling, infection, alveolar osteitis, paraesthesia, trismus, bleeding, bruising, tooth dislodgement, mandible fracture, and bony necrosis (e.g. MRONJ/osteomyelitis/osteoradionecrosis) [3-10].

The aim of this narrative review was to try and ascertain if patient age had any positive or negative influence over complication rates following the removal of M3Ms.

## Data and Methodology

This was a narrative review of current literature answering the research question which was designed by using a Population, Exposure, Outcome (PEO) search strategy. The search engines used to identify included studies were; PubMed/Medline, Google Scholar, and Science Direct with the master search being carried out within Medline. The inclusion criteria for articles for this study were as follows; Primary source studies; e.g. randomized-controlled trials, controlled trials, cohort studies, case reports, case-controlled studies, pragmatic prospective, and retrospective trials. Studies assessing rates of postoperative complications from lower third molars mention the age of the patients involved. Papers are written in English. Studies published in the last 20 years (1999 - 2019). The exclusion criteria for articles for this study were as follows; Secondary source studies; i.e. systematic reviews and meta-analyses. Papers not written in English. Papers not fulfilling the inclusion criteria.

For the "Population" component, patients requiring lower third molar removal, the MeSH terms searched were conducted in three phases; first ("extraction" or "removal") and "teeth", then "wisdom teeth" or "third molars". Finally, these two separate searches were combined via an and to produce the final selection of articles for "P" of PEO. Then for the "Exposure/Risk Factor" component, age, the MeSH terms used were; "age" or "elderly" or "young" or "old". For the "Outcome" component, rates of postoperative complications, the MeSH terms used were again conducted in three phases; first "complications" and "post-operative", secondly "pain" or "swelling" or "bruising" or "bleeding" or "trismus" or "paraesthesia" or "bone necrosis" or "mandible fracture" or "dry socket" or "alveolar osteitis" or "infection" or "MRONJ". Then finally these two searches were then combined to produce the final selection of articles for Outcome. Then finally the input was the final results of P, E, and O combined to produce the final selection of journal articles for the study. This search strategy is displayed visually in Table 1. Studies obtained were then screened against the inclusion and exclusion criteria. Those selected studies that fulfilled the criteria were critically appraised using the Critical Appraisal Skills Program (CASP), the JADAD scale, and the Cochrane risk of bias tool used to assess the risk of bias.

## Result

The search generated 4,753 articles assessing third molar removal (Population), 3,813,283 articles discussing age (Exposure), and 103,775 discussing postoperative complications (Outcome). The final combined search generated 204 articles that satisfied the Population, Exposure, and Outcome criteria. The search was then completed by disregarding all articles not written in English and