

## Increased pregnancy rate after appendectomy and tonsillectomy

Appendectomy and tonsillectomy are amongst the most common surgical procedures, particularly in children and young adults. The appendix and tonsils are secondary lymphoid organs and prominent constituents of the mucosa-associated lymphoid tissue (MALT) system. The lymphoid function of these tissues is particularly pronounced at young age.

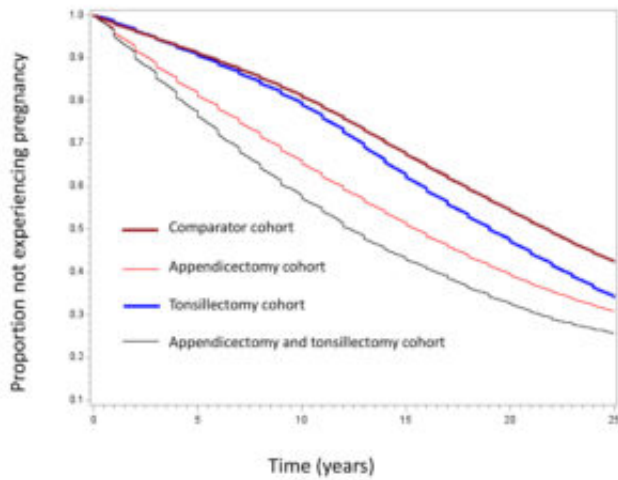


Fig. 1. Kaplan-Meier plot of pregnancy outcome between the cohorts showing increased pregnancy rate and shorter time to pregnancy in women who had appendectomy, tonsillectomy or both procedures in comparison with the comparator cohort.

We have previously shown that appendectomy in females is associated with an increased subsequent pregnancy rate and shorter time to pregnancy (TTP) in two different populations. Although we were surprised by our findings, we postulated that the increased pregnancy rate following appendectomy might be related to removal of the appendix, which can have episodes of subclinical, chronic or recurrent inflammation. The removal of the cause of local inflammation or inflammatory adhesions in the vicinity of the pelvic fallopian tubes protects their patency. In order to further explore the possible mechanisms of this association, we selected another cohort of females who had removal of a different lymphoid organ located at a remote site from the pelvis. We examined and compared the subsequent pregnancy rate in cohorts of females who had previous appendectomy, tonsillectomy, or both operations in comparison with controls who did not have previous surgery.

We examined the pregnancy rates using the United Kingdom (U.K.) primary health care-based Clinical Practice Research Datalink (CPRD). The database identified 54,675 appendectomy-only

patients; 112,607 tonsillectomy-only patients; 10,340 patients who had both appendectomy and tonsillectomy between 1987 and 2012. Exact age and primary care practice matched comparators (n=355,244) were selected from the rest of the female patients in the database. Cox regression models were used to analyse the association between surgery and subsequent pregnancy. Sensitivity analyses were carried out to ensure the robustness of the findings.

There were 29,732 (54.4%), 60,078 (53.4%), and 6,169 (59.7%) pregnancies in the appendectomy-only, tonsillectomy-only, and both appendectomy tonsillectomy cohorts, respectively versus 155,079 (43.7%) in the comparator cohort during a mean follow-up of  $14.7 \pm 9.7$  years. This represents a statistically significant association between prior appendectomy, tonsillectomy or both and subsequent increase in the rate of pregnancy. In addition, the time to pregnancy was found to be shorter in women who had either operation and shortest in the women who had both appendectomy and tonsillectomy.

In conclusion, appendectomy and/or tonsillectomy were associated with increased subsequent pregnancy rates and shorter time to pregnancy. The effect of the surgical procedures on the pregnancy outcome was found to be cumulative. The exact reasons for this association are speculative.

The authors are not advocating that young women should seek appendectomy or tonsillectomy to increase their chances of pregnancy. However, females who require appendectomy or tonsillectomy should be reassured that their future chances of pregnancy may not be jeopardized but on the contrary may increase.

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## Publications

[Association between prior appendectomy and/or tonsillectomy in women and subsequent pregnancy rate: a cohort study.](#)

Wei L, MacDonald T, Shimi S  
*Fertil Steril.* 2016 Oct

[Association between appendicectomy in females and subsequent pregnancy rate: a cohort study.](#)

Wei L, MacDonald T, Shimi S  
*Fertil Steril.* 2012 Aug

[Appendicectomy is associated with increased pregnancy rate: a cohort study.](#)

Wei L, Macdonald TM, Shimi SM

*Ann Surg. 2012 Dec*