

# EFFECT OF MELATONIN ON OVARIAN FUNCTION AND IVF OUTCOMES: A SYSTEMATIC LITERATURE REVIEW

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## INTRODUCTION

Overproduction of reactive oxygen species (ROS) causes poor oocyte quality, which may lead to infertility and unsuccessful IVF outcomes. Therefore, as an antioxidant melatonin (MT) prevents cellular damage and may be useful in managing infertility.

## METHODS

A search was conducted in PubMed and Researchgate databases using keywords „melatonin AND fertility“. Studies with animals and studies older than 5 years were not included. Forward and backward citations were inspected, resulting in a total of 11 studies included in this study. PRISMA guidelines were used. Presented results were statistically significant ( $p < 0,05$ ).

## CONCLUSIONS

Higher MT levels in the FF have positive correlation with IVF outcomes. This can be explained by MT's antioxidant and ROS scavenging properties, also by its ability to improve follicle, oocyte, and embryo quality. Also, intrafollicular MT may be used as an ovarian reserve marker.

## AIM

To present the most up-to-date research in the field of human reproductive sciences concerning the effect of MT on ovarian function and IVF outcomes.

## RESULTS

The effects of MT were studied by introducing oral supplementation (3mg/day), evaluating MT concentrations in the follicular fluid (FF) and in MT-containing media in which collected oocytes were placed. 1) Higher MT levels are linked to bigger follicles, higher antral and mean follicular count, higher average number of retrieved and fertilized oocytes. 2) MT improves corpus luteum function. 3) MT improves oocyte quality and protects them from oxidative stress. 4) MT promotes oocyte maturation, early embryo development and improves embryo quality 5) MT is a relevant biomarker for ovarian reserve. 6) Higher MT levels in the FF positively correlated with higher IVF success rates