

Preface

Assisted reproduction has become a very common treatment option for couples dealing with infertility. Despite the successes of these *in vitro* technologies, it is impossible to fully reproduce the *in vivo* environment. Not only are the gametes and embryos exposed to unnatural conditions, but they are also manually manipulated. All of these interventions can lead to the generation of excess reactive oxygen species. Under such conditions, natural antioxidant defences cannot preclude these pathological ROS levels. Ultimately, this leads to the development of oxidative stress which affects gamete survival, fertilization and embryogenesis negatively. It is therefore imperative to find and pursue solutions, such as antioxidant treatment, that may help ameliorate this process.

Antioxidant therapies in ART are written by leaders in the field of oxidative stress in both male and female reproductive medicine. This manuscript aims to bridge the gap between basic research, the role of the embryologist as well as the clinician with regard to antioxidant treatment both *in vivo* and in the ART laboratory. It eloquently covers all aspects of ROS generation (both endogenous and exogenous) as well as the complex interplay of oxidative stress in the ART setting. Various antioxidants and their plausible therapeutic effects to minimize ROS and oxidative stress are also comprehensively discussed.

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Strategies to Ameliorate Oxidative Stress During
Assisted Reproduction

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2014, XIV, 52 p. 7 illus. in color., Softcover

ISBN: 978-3-319-10258-0