



## VIEWS AND REVIEWS

### 1 Aging gonads, glands, and gametes: immutable or partially reversible changes?



D. R. Meldrum  
*Redondo Beach, California*

Decreased ovarian testosterone production, granulosa cell dysfunction, oocyte telomere shortening and mitochondrial defects, and sperm DNA fragmentation all contribute to reproductive aging. Mitigating strategies are discussed.

### 5 Role of decreased androgens in the ovarian response to stimulation in older women



D. R. Meldrum, R. J. Chang, L. C. Giudice, J. Balasch, and R. L. Barbieri  
*Redondo Beach, San Diego, and San Francisco, California; Barcelona, Spain; and Boston, Massachusetts*

As decreased ovarian testosterone production with age may compromise ovarian stimulation, we review maneuvers aimed at increasing ovarian testosterone and the likely potentiating effects of insulin-like growth factor I.

### 12 The aging ovary—the poor granulosa cells



C. Tatone and F. Amicarelli  
*L'Aquila, Italy*

This review focuses on current knowledge about possible involvement of oxidative and carbonyl stress in the aging follicle.

### 18 The aging oocyte—can mitochondrial function be improved?



Y. Bentov and R. F. Casper  
*Toronto, Ontario, Canada*

We describe the role of mitochondrial dysfunction in ovarian senescence and suggest a treatment to improve reproductive outcome with mitochondrial nutrients.

### 23 Telomeres and human reproduction



K. H. Kalmbach, D. M. Fontes Antunes, R. C. Dracxler, T. W. Knier, M. L. Seth-Smith, F. Wang, L. Liu, and D. L. Keefe  
*New York City, New York; Brasília and São Paulo, Brazil; and Tianjin, People's Republic of China*

Telomere dynamics differ between the female and male germ lines: oocytes have short telomeres, and their erosion recapitulates the reproductive aging phenotype, and telomere length in sperm increases with age.

### 30 Role of increased male age in IVF and egg donation: is sperm DNA fragmentation responsible?



K. C. Humm and D. Sakkas  
*Waltham and Boston, Massachusetts*

A review of potential risks to offspring as well as the impact on fertility of advancing male age and a discussion of mechanisms by which male age may impact sperm.

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**37 Mature oocyte cryopreservation: a guideline**

The Practice Committees of the American Society for Reproductive Medicine and the Society for Assisted Reproductive Technology  
*Birmingham, Alabama*

Evidence indicates that vitrification and warming of unfertilized oocytes followed by fertilization, commonly by intracytoplasmic sperm injection (ICSI), result in subsequent pregnancy rates that are acceptable, and this technique should no longer be considered experimental.

**44 Criteria for number of embryos to transfer: a committee opinion**

The Practice Committee of the American Society for Reproductive Medicine and the Practice Committee of the Society for Assisted Reproductive Technology  
*Birmingham, Alabama*

ASRM/SART guidelines for the number of embryos to be transferred in in vitro fertilization cycles are presented.

**47 Recommendations for gamete and embryo donation: a committee opinion**

The Practice Committee of the American Society for Reproductive Medicine and the Practice Committee of the Society for Assisted Reproductive Technology  
*Birmingham, Alabama*



This document provides the latest recommendations for evaluation of potential sperm, oocyte, and embryo donors.

**63 Definitions of infertility and recurrent pregnancy loss: a committee opinion**

Practice Committee of the American Society for Reproductive Medicine  
*Birmingham, Alabama*

This document contains the definitions for infertility and recurrent pregnancy loss as defined by the Practice Committee of the American Society for Reproductive Medicine.

**64 What proteomic analysis of semen can tell us?**

J. L. Marmar  
*Camden, New Jersey*

**66 The significance of insulin-like factor 3 as a marker of intratesticular testosterone**

J. R. Kovac and L. I. Lipshultz  
*Houston, Texas*

**68 Modifiable aspects of in vitro fertilization to reduce perinatal morbidity**

K. Barnhart  
*Philadelphia, Pennsylvania*

## ORIGINAL ARTICLES

## ANDROLOGY

**69 G-protein  $\beta 3$  subunit gene 825C/T polymorphism and its association with the presence, severity, and duration of vasculogenic erectile dysfunction**

M. R. Safarinejad, S. Safarinejad, N. Shafiei, and S. Safarinejad  
*Tehran, Iran*



The CT genotype of GNB3 gene was more prevalent in patients with erectile dysfunction. The interaction between the T allele and erectile dysfunction was significant.

**76 Phospholipase C $\zeta$  rescues failed oocyte activation in a prototype of male factor infertility**

M. Nomikos, Y. Yu, K. Elgmati, M. Theodoridou, K. Campbell, V. Vassilakopoulou, C. Zikos, E. Livaniou, N. Amso, G. Nounesis, K. Swann, and F. A. Lai  
*Cardiff, United Kingdom; and Aghia Paraskevi, Greece*

Oocytes expressing mutant sperm phospholipase C $\zeta$  (PLC $\zeta$ ) fail to activate, but microinjection of wild-type human PLC $\zeta$  rescues failed activation and triggers embryo development.

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