Yen & Jaffe's

REPRODUCTIVE ENDOCRINOLOGY

PHYSIOLOGY, PATHOPHYSIOLOGY, AND CLINICAL MANAGEMENT

SEVENTH EDITION



STRAUSS - BARBIERI

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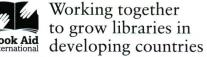
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Yen & Jaffe's Reproductive Endocrinology

Remembrance

Samuel S. C. Yen, MD, DSc 1927–2006

In 2006, endocrinology in general, and reproductive endocrinology in particular, lost a giant in clinical and translational reproductive endocrinologic research, Samuel S. C. Yen. He was insightful and a visionary and demanded excellence from his trainees, but no more so than from himself. He was arguably the leading clinical reproductive neuroendocrinologist of his time.

He and I coedited the first four editions of this text-book, which has since been translated from English into five languages—including a pirated version from China. The genesis of our textbook was crystallized during our time at the magnificent, idyllic Rockefeller Foundation retreat, the Villa Serbelloni, at the nexus of the three legs of Lake Como in Italy. It was there, surrounded by scholars from a panoply of disciplines and countries (Sam and I were the only physicians in the group), that we had the time and freedom to finalize the chapters. We mutually selected the authors, most of whom were outstanding investigators and clinicians in the areas about which they wrote (albeit not all as expeditiously as we had hoped).

Fortunately, our first editor, John Hanley, was a true scholar who shared our passion for quality and excellence. Our original publisher, W. B. Saunders, shared that same passion.

Sam continued his insistence on excellence for each edition, and he cajoled several of our authors until they did the same.

Sam's chapters on neuroendocrine regulation of the brain and of the hypothalamic-pituitary-ovarian axis are classic. His extensive and productive collaboration with his very close friend, the Nobel Laureate Roger Guillemin, who characterized many of the hypothalamic secretagogues that Sam used in his clinical studies, enabled him to base many of his comments in the textbook on his own laboratory's studies.

Sam was hard-driving, yet charming, as demanding of himself and our authors as he was of the myriad investigators with whom he worked and trained. His was a rich, full, productive, and creative life. He was a unique and colorful individual.

His like comes along very rarely.

Robert B. Jaffe, MD University of California, San Francisco 2008

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Preface

A centerpiece of reproductive endocrinology is the utilization of assisted reproductive technologies, including *in vitro fertilization* (IVF), to build healthy families. In 1978, the first baby born from IVF, Louise Brown, was proof of the concept that successful human pregnancy was possible following *in vitro* fertilization. In the same year, the first edition of Yen and Jaffe was published and represented the birth of a field with a strong research foundation, whose findings had direct applicability to health. Three decades later, the 2010 Nobel Prize in Medicine or Physiology was awarded to Sir Robert G. Edwards, Ph.D. (b. 1925, d. 2013), for his seminal contributions to the field of reproductive endocrinology and infertility. The publication of the 7th edition of Yen and Jaffe is dedicated to Dr. Edwards and all the pioneers who have devoted their energies to advancing the field.

In the first years of the development of the field, a major focus was on the endocrine mechanisms that supported the optimal development of oocyte and sperm, their interaction and the implantation of an embryo in the developmentally prepared endometrium. Today, interest in germ cell development and germ cell biology has gained great prominence, raising the possibility of application of stem cell-based therapeutics to treat infertility and gene disorders. Fertility preservation through the cryopreservation of sperm and oocytes has emerged as a key element of care for the cancer patient and others who face concerns regarding retention of reproductive potential. The importance of these translational advances is recognized by the addition of new chapters to this edition.

The completion of the sequencing of the human genome and the reduction in cost in whole genome analysis have opened new opportunities for finding genes that affect different aspects of reproduction, such as genes that affect the age of menarche and the age of menopause; genes that predispose to endometriosis, uterine fibroids, and polycystic ovary syndrome; and genes that influence ovarian reserve and spermatogenesis. These important discoveries, which will shed light on pathophysiology and new avenues for diagnosis and treatment, are highlighted in the present edition.

Since the publication of the last edition of this text, we have achieved a better understanding of environmental factors influencing fertility, including obesity. These contemporary issues have been addressed in this edition. Epigenetic factors are thought to mediate the impact of environmental exposures on gametes and embryos and the developing fetus. They are also believed to be responsible for intergenerational effects. Although still in its infancy, the science of epigenetics holds promise for explaining reproductive phenotypes and reproductive outcomes.

We appreciate the collaboration of past and new authors for their critical evaluation of the state of their respective fields. Their contributions have enriched this text and we are grateful for their efforts. They have helped carry forward the tradition of excellence that Drs. Jaffe and Yen created when they brought forward the first edition of this text.

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PART 1

ENDOCRINOLOGY OF REPRODUCTION