

BEHRMAN
& KISTNER
**PROGRESS IN
INFERTILITY**

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Progress in Infertility

BY 50 AUTHORS

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Little, Brown and Company

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Library of Congress catalog card No. 68-23931

First Edition

Published in Great Britain by J. & A. Churchill Ltd., London

British Standard Book No. 7000 0125 3

PRINTED IN THE UNITED STATES OF AMERICA

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PREFACE

The rapidly expanding field of reproductive biology and its clinical application to the problems of infertility can no longer be contained within the confines of a traditional textbook. The rate of production and the scope of research contributions are of such magnitude that the editors found it necessary to select judiciously subjects of major interest and immediate clinical value.

The purpose of this book is to emphasize specific research aspects of infertility in the fields of genetics, reproductive biology, immunology, endocrinology, and surgery. Particular emphasis has been given to ovulation control, habitual abortion, hormonal endocrinopathies, and the frequently neglected area of male infertility. Newer diagnostic techniques, particularly those utilized in thyroid and adrenal disorders, have received full consideration. We have attempted to place fundamental research in clear perspective so that direct application to clinical problems can be facilitated.

The editors believe that this task is best accomplished by providing a comprehensive, authoritative, and current compendium prepared by those who have made outstanding contributions in the field of infertility. The authors have not attempted to reexamine the complete area of their contributions or to provide lengthy historical data. Instead they have reported the most recent progress in the clinical, experimental, and theoretical aspects of their designed topics. Many of these developments are presented for the first time, and the majority have gained prominence within the last four or five years.

The contributors are recognized authorities in their specific fields; their observations reflect extensive personal experience and backgrounds of both basic and clinical science. They were limited in their presentation by space alone, and therefore many original concepts and

controversial issues appear as presented by the authors. Opinions of the editors have been sparsely added for clarification and are indicated as such.

The interest and cooperation of the individual authors reaffirm our belief in the necessity for a book on this subject. We are indebted to them for their time and effort. In future volumes we hope to continue the high level of contributions and will again seek the expert assistance of our colleagues.

S. J. B.
R. W. K.

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1. A RATIONAL APPROACH TO THE EVALUATION OF INFERTILITY

S. J. Behrman and Robert W. Kistner

Table 1-1. Fecundability (Fertility) Rate and Mean Delay in Conception

Age at Marriage	Fecundability Rate per 1000 Women	Mean Conception Delay in Months
12-15	90	13.4
16	93	11.7
17	128	10.4
18	131	9.2
19	131	8.7
20	180	7.2
21	209	6.3

For every 85 married couples producing offspring there are still 15 couples in this country who are unable to conceive. As physicians, we must therefore concern ourselves with the challenge of helping more than three million involuntarily childless couples in the United States. Depending on the country of origin, certain geographic and socioeconomic variations must also be considered before broad statements are made regarding specific etiological factors. Thus, in France there is a high incidence of oviduct closure; in Israel and Scotland genital tuberculosis is a major cause of infertility in women. In the United States gynecological clinics affiliated with large metropolitan hospitals are frequented by indigent patients or patients in the lower income brackets where pelvic inflammatory disease (gonococcal and enterococcal) and postabortal sepsis (streptococcal) are major causes of tubal closure but endometriosis and hormonal abnormalities are rarely seen. An overall review of recent literature dealing with the major causes of infertility reveals a gradient of this order: cervical factor, 20 per cent; tubal factor, 30-35 per cent; male factor, 30-35 per cent; hormonal factor, 15 per cent. Among private patients the cervical factor is much lower and the hormonal factor much higher.

Certain demographic correlates pertaining to fecundability bear discussion. According to the United Nations Multilingual Demographic Dictionary, fecundity is the capacity of a man, a woman, or a couple to participate in the production of a live child. As we are interested in the probability of conception in the absence of contraception, the term *fecundability* is preferable. Generally speaking, then, four factors affecting the chances of fertility or fecundability emerge and will be discussed.

AGE OF WIFE

Fertility is maximal in the female around the age of 24 years, after which it gradually tapers down to the age of 30 and rapidly declines thereafter (see Table 1-1).

Table 1-1. Fecundability (Fertility) Rate and Mean Delay in Conception

Age at Marriage	Fecundability Rates per 1000 Women	Mean Conception Delay in Months
12-15	90	13.4
16	93	11.7
17	128	10.4
18	121	9.2
19	151	8.7
20	180	7.2
21	209	6.4
22	226	6.4
23	203	6.0
24	276	5.3
25	214	6.4
26	180	8.9

SOURCE: After Jain [3], Tables 4.3, 4.4.

AGE OF HUSBAND AT TIME OF MARRIAGE

Once again fecundability is maximal around 24-25 years of age (see Table 1-2), as gauged by the number of conceptions that occurred less than six months after marriage.

Table 1-2. Conceptions Occurring Less Than Six Months After Marriage at Various Age Levels of the Male

Age	No. Cases	Conceptions in Less Than 6 Months (%)
25	126	74.6
25-29	132	47.7
30-34	76	38.2
35-39	55	25.5
40 and over	44	22.7

SOURCE: From MacLeod and Gold [6], p. 28.