

4 artificial reproductive technology

4 Artificial Reproductive Technologies: A Comprehensive Overview

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Summary: This article explores four key artificial reproductive technologies (ART): In Vitro Fertilization (IVF), Intracytoplasmic Sperm Injection (ICSI), Gamete Intrafallopian Transfer (GIFT), and Zygote Intrafallopian Transfer (ZIFT). It details the methodologies of each technique, highlighting their applications, success rates, advantages, and disadvantages. The article aims to provide a comprehensive understanding of these 4 artificial reproductive technologies for both patients and healthcare professionals.

Introduction to 4 Artificial Reproductive Technologies

Infertility affects a significant portion of the global population, with many couples seeking assistance through artificial reproductive technologies (ART). These advanced medical procedures offer hope and the chance to build a family for those struggling with conception. This article focuses on four prominent ARTs that represent a range of approaches and techniques within this field: In Vitro Fertilization (IVF), Intracytoplasmic Sperm Injection (ICSI), Gamete Intrafallopian Transfer (GIFT), and Zygote Intrafallopian Transfer (ZIFT). Understanding the nuances of these 4 artificial reproductive technologies is crucial for making informed decisions about fertility treatment.

1. In Vitro Fertilization (IVF): The Cornerstone of ART

IVF is arguably the most widely known and utilized of the 4 artificial reproductive technologies. It involves several key steps:

Ovarian Stimulation: Medications are administered to stimulate the ovaries to produce multiple mature eggs.

Egg Retrieval: A minor surgical procedure is performed to retrieve the eggs from the ovaries using a needle guided by ultrasound.

Sperm Collection: A semen sample is collected from the male partner or a donor.

Fertilization: The eggs and sperm are combined in a laboratory dish, allowing fertilization to occur naturally.

Embryo Culture: The fertilized eggs (embryos) are cultured in a specialized incubator for several days, allowing them to develop.

Embryo Transfer: One or more embryos are carefully transferred into the uterus using a thin catheter.

Pregnancy Test: A pregnancy test is conducted several weeks after the embryo transfer.

Advantages of IVF: High success rates, particularly for women with fallopian tube damage or unexplained infertility. Can be used with donor eggs or sperm.

Disadvantages of IVF: Can be expensive and emotionally taxing. Multiple gestation pregnancy (twins, triplets, etc.) is a potential risk due to the transfer of multiple embryos. There is a small risk of ovarian hyperstimulation syndrome (OHSS).

2. Intracytoplasmic Sperm Injection (ICSI): Addressing Male Factor Infertility

ICSI is another widely used technique within the 4 artificial reproductive technologies, addressing cases of male infertility, particularly severe male factor infertility where sperm count is low or sperm motility is poor. This procedure involves:

Egg Retrieval: Similar to IVF, eggs are retrieved from the ovaries.

Sperm Selection: A single sperm is selected under a microscope.

Injection: The selected sperm is directly injected into a mature egg using a microneedle.

Embryo Culture and Transfer: Similar to IVF, the fertilized egg is cultured and then transferred to the uterus.

Advantages of ICSI: High success rates even with severe male factor infertility. Can be combined with other ART techniques.

Disadvantages of ICSI: Slightly higher risk of genetic abnormalities in offspring compared to IVF. Can be more technically challenging and expensive than IVF.

3. Gamete Intrafallopian Transfer (GIFT): A Less Invasive Approach

GIFT is one of the 4 artificial reproductive technologies that avoids the fertilization process in the laboratory. Instead, fertilization occurs within the fallopian tubes:

Ovarian Stimulation and Egg Retrieval: Similar to IVF.

Sperm Collection: Similar to IVF.

Transfer: The eggs and sperm are placed directly into the fallopian tubes through a laparoscope (a small incision in the abdomen).

Advantages of GIFT: Less invasive than IVF. Fertilization occurs naturally in the fallopian tubes, mimicking the natural conception process.

Disadvantages of GIFT: Lower success rates compared to IVF. Requires open surgery, which carries inherent risks. Not suitable for women with damaged fallopian tubes.

4. Zygote Intrafallopian Transfer (ZIFT): A Hybrid Approach

ZIFT combines aspects of IVF and GIFT. Fertilization occurs in vitro, but the resulting zygotes (fertilized eggs) are transferred into the fallopian tubes:

Ovarian Stimulation, Egg Retrieval, and Fertilization: Similar to IVF.

Zygote Culture: The fertilized eggs are cultured for a short period.

Transfer: The zygotes are transferred into the fallopian tubes via laparoscopy.

Advantages of ZIFT: Combines the benefits of IVF (controlled fertilization) and GIFT (natural development in the fallopian tubes).

Disadvantages of ZIFT: Lower success rates than IVF. Requires laparoscopy, which is more invasive than IVF. Not suitable for women with damaged fallopian tubes.

Choosing the Right ART: A Personalized Approach

The selection of the most appropriate ART among these 4 artificial reproductive technologies depends on various factors, including the cause of infertility, the age of the woman, the health of the partners, and personal preferences. A thorough evaluation by a reproductive endocrinologist is crucial to determine the best course of action. The success rates of these procedures vary depending on these factors and the specific clinic.

Conclusion

The four artificial reproductive technologies discussed – IVF, ICSI, GIFT, and ZIFT – represent significant advancements in the field of reproductive medicine, offering hope to countless couples struggling with infertility. While IVF and ICSI remain the most commonly used techniques due to their higher success rates and broader applicability, GIFT and ZIFT provide alternative options for specific situations. The continued development and refinement of these and other ARTs promise to further improve the chances of successful conception for those facing infertility challenges. Open communication with a fertility specialist is paramount in navigating the complexities of these technologies and making informed decisions about the best path toward parenthood.

FAQs

1. What is the success rate of IVF? Success rates vary depending on factors such as age, cause of infertility, and clinic, but generally range from 30-50% per cycle.
1. Is ICSI more risky than IVF? ICSI carries a slightly increased risk of genetic abnormalities compared to IVF, but this risk is generally considered small.
1. Is GIFT or ZIFT better? The choice between GIFT and ZIFT depends on individual circumstances. GIFT is less invasive, but ZIFT offers more control over fertilization.
1. How much does IVF cost? The cost of IVF varies widely depending on location and the specific procedures required.
1. What are the potential side effects of ovarian stimulation? Side effects can include bloating, ovarian hyperstimulation syndrome (OHSS), and mood changes.

1. How long does the IVF process take? The entire process, from initial consultation to potential pregnancy, typically takes several months.
1. Can I use donor eggs or sperm with these techniques? Yes, donor eggs or sperm can be used with all four techniques.
1. What is the age limit for IVF? There is no strict age limit, but success rates decline significantly after age 35.
1. What if the first attempt fails? Many couples require multiple cycles of ART to achieve pregnancy. Your fertility specialist can discuss options and strategies for subsequent cycles.

Related Articles:

1. "IVF Success Rates: A Comprehensive Analysis": This article delves into the factors influencing IVF success rates, including age, cause of infertility, and clinic protocols.
1. "ICSI: A Detailed Guide for Patients": A comprehensive guide for patients considering ICSI, addressing procedure details, risks, and potential outcomes.
1. "GIFT vs. ZIFT: Comparing Two ART Approaches": This article compares and contrasts GIFT and ZIFT, outlining their respective advantages and disadvantages.
1. "The Ethical Considerations of ART": Explores the ethical implications of ART, including issues surrounding multiple births, embryo selection, and genetic testing.

1. "Ovarian Hyperstimulation Syndrome (OHSS): Prevention and Management": Focuses on OHSS, a potential complication of ovarian stimulation, outlining its symptoms, treatment, and prevention strategies.

1. "Male Factor Infertility and ART Options": Explores various ART options specifically for couples dealing with male factor infertility.

1. "Donor Eggs and Sperm: Understanding the Process and Considerations": Discusses the use of donor gametes in ART, outlining the process and addressing ethical concerns.

1. "Financial Aspects of ART: Budgeting and Insurance Coverage": Provides practical guidance on the financial aspects of ART, covering costs, insurance coverage, and financing options.

1. "Emotional Well-being During ART Treatment": Addresses the emotional challenges couples may face during ART treatment and offers strategies for coping with stress and anxiety.

4 artificial reproductive technology: *Scientific and Medical Aspects of Human Reproductive Cloning* National Research Council, Division on Earth and Life Studies, Board on Life Sciences, Policy and Global Affairs, Committee on Science, Engineering, and Public Policy, 2002-06-17 Human reproductive cloning is an assisted reproductive technology that would be carried out with the goal of creating a newborn genetically identical to another human being. It is currently the subject of much debate around the world, involving a variety of ethical, religious, societal, scientific, and medical issues. *Scientific and Medical Aspects of Human Reproductive Cloning* considers the scientific and medical sides of this issue, plus ethical issues that pertain to human-subjects research. Based on experience with reproductive cloning in animals, the report concludes that human reproductive cloning would be dangerous for the woman, fetus, and newborn, and is likely to fail. The study panel did not address the issue of whether human reproductive cloning, even if it were found to be medically safe, would be acceptable to individuals or society.

4 artificial reproductive technology: Assisted Reproductive Technology Surveillance Dmitry M. Kissin, G. David Adamson, Georgina Chambers, Christian De Geyter, 2019-07-04 Offers a

comprehensive guide to assisted reproductive technology surveillance, describing its history, global variations, and best practices.

4 artificial reproductive technology: Assisted Reproduction Techniques Khaldoun Sharif, Arri Coomarasamy, 2012-03-26 Assisted reproduction techniques have led to the birth of 4 million babies worldwide. Assisted reproduction techniques (ART), in particular in-vitro fertilization and intra-cytoplasmic sperm injection, are the most advanced forms of infertility treatment. They involve numerous counseling, medical, surgical and laboratory-based steps. At each step various problems and complications could be encountered that challenge even the most experienced ART practitioners. Moreover, patients with complex medical disorders may require ART, presenting further challenges. Assisted Reproduction Techniques will stimulate resourceful thinking in the ART practitioner when faced with these challenges. It outlines various management options, the reasoning behind them, and the evidence on which they are based to enable the practitioner to choose the most suitable solution for the needs of each patient. Written by 122 internationally renowned experts, Assisted Reproduction Techniques follows the patient's journey throughout the whole ART process, with chapters on: Counseling and preparation Ovarian stimulation Oocyte retrieval Embryo transfer The luteal phase The ART laboratory The male patient The ART pregnancy. Each of the 100 concise chapters includes clinical cases, background, evidence-based practical management options, preventive measures and key-point summaries of the important details. Assisted Reproduction Techniques gives a wide-ranging practical guide to all those wishing to support couples who cannot conceive naturally.

4 artificial reproductive technology: Reproductive Technologies in Animals Giorgio Presicce, 2020-05-28 Reproductive Technologies in Animals provides the most updated and comprehensive knowledge on the various aspects and applications of reproductive technologies in production animals as well as companion, wild, exotic, and laboratory animals and birds. The text synthesizes historical information and recent discoveries, while dealing with economical and geographical issues related to the implementation of the same technologies. It also presents the effects of reproductive technology implementation on animal welfare and the possible threat of pathogen transmission. Reproductive Technologies in Animals is an important resource for academics, researchers, professionals in public and private animal business, and students at the undergraduate and graduate levels, as it gives a full and detailed first-hand analysis of all species subjected to the use of reproductive technologies. - Provides research from a team of scientists and researchers whose expertise spans all aspects of animal reproductive technologies - Addresses the use of reproductive technologies in a wide range of animal species - Offers a complete description and historical background for each species described - Discusses successes and failure as well as future challenges in reproductive technologies

4 artificial reproductive technology: Contemporary Bioethics Mohammed Ali Al-Bar, Hassan Chamsi-Pasha, 2015-05-27 This book discusses the common principles of morality and ethics derived from divinely endowed intuitive reason through the creation of al-fitr' a (nature) and human intellect (al-'aql). Biomedical topics are presented and ethical issues related to topics such as genetic testing, assisted reproduction and organ transplantation are discussed. Whereas these natural sources are God's special gifts to human beings, God's revelation as given to the prophets is the supernatural source of divine guidance through which human communities have been guided at all times through history. The second part of the book concentrates on the objectives of Islamic religious practice - the maqa' sid - which include: Preservation of Faith, Preservation of Life, Preservation of Mind (intellect and reason), Preservation of Progeny (al-nasl) and Preservation of Property. Lastly, the third part of the book discusses selected topical issues, including abortion, assisted reproduction devices, genetics, organ transplantation, brain death and end-of-life aspects. For each topic, the current medical evidence is followed by a detailed discussion of the ethical issues involved.

4 artificial reproductive technology: Science and Babies Institute of Medicine, Suzanne Wymelenberg, 1990-02-01 By all indicators, the reproductive health of Americans has been deteriorating since 1980. Our nation is troubled by rates of teen pregnancies and newborn deaths

that are worse than almost all others in the Western world. *Science and Babies* is a straightforward presentation of the major reproductive issues we face that suggests answers for the public. The book discusses how the clash of opinions on sex and family planning prevents us from making a national commitment to reproductive health; why people in the United States have fewer contraceptive choices than those in many other countries; what we need to do to improve social and medical services for teens and people living in poverty; how couples should shop for a fertility service and make consumer-wise decisions; and what we can expect in the future—featuring interesting accounts of potential scientific advances.

4 artificial reproductive technology: Infertility Around the Globe Marcia C. Inhorn, Frank van Balen, 2002-05-30 These essays examine the global impact of infertility as a major reproductive health issue, one that has profoundly affected the lives of countless women and men. The contributors address a range of topics including how the deeply gendered nature of infertility sets the blame on women's shoulders.

4 artificial reproductive technology: Assisted Reproductive Technology Success Rates, 2003

4 artificial reproductive technology: Diminished Ovarian Reserve and Assisted Reproductive Technologies Orhan Bukulmez, 2019-10-01 This book brings together the most current research and the latest clinical approaches to the management of diminished ovarian reserve (DOR), one of the largest segments of the IVF patient population, both in the advanced reproductive age group as well as poor responders. Opening with a review of the definition and scope of the problem, as well as the current understanding of the natural history of DOR, subsequent chapters in part I outline dietary, hormonal, traditional supplements and conventional methods used to stimulate ovaries and improve ART outcomes. The main segment of chapters, comprising part II, present minimal and mild stimulation protocols and alternatives, frozen embryo transfer preparation, trigger agents and post-trigger testing, embryo culture and endometrial considerations, and a review of clinical outcomes. Part III discusses the utilization of contemporary technologies in the treatment of DOR, including fresh vs. frozen embryo transfer, cryopreservation and comprehensive chromosomal analysis. Future prospects are presented in part IV, such as the artificial oocyte and ovary development, early-age oocyte freezing, ovarian cortical tissue freezing and activation of the ovarian cortex. Utilizing the latest evidence and authored by an international array of thought leaders, *Diminished Ovarian Reserve and Assisted Reproductive Technologies* is an excellent resource for reproductive medicine and REI specialists, IVF lab professionals, and students and residents in these areas.

4 artificial reproductive technology: Embryology Bin Wu, Huai L. Feng, 2019-08-28

Recently developed new embryology theory may greatly improve the success of assisted reproductive technology (ART) in the treatment of human infertility and animal well-being. This book updates and reviews newly developed theories and technologies in human in vitro fertilization and focuses mainly on discussing its clinical practice. Areas covered include ovarian stimulation medicine and final ART outcomes, involving oocyte in vitro maturation, oocyte fertilization and failure treatment, blastocyst formation and implantation, as well as regulation of neuroendocrine embryo implantation. Thus, this book will add new knowledge for readers to improve their appreciation of ART.

4 artificial reproductive technology: Regulating Assisted Reproductive Technologies Amel Alghrani, 2018-11-22 Examines emerging assisted reproductive technologies that will revolutionise the future of human reproduction and their regulation.

4 artificial reproductive technology: Textbook of Clinical Embryology Kevin Coward, Dagan Wells, 2013-10-31 The success of Assisted Reproductive Technology is critically dependent upon the use of well optimized protocols, based upon sound scientific reasoning, empirical observations and evidence of clinical efficacy. Recently, the treatment of infertility has experienced a revolution, with the routine adoption of increasingly specialized molecular biological techniques and advanced methods for the manipulation of gametes and embryos. This textbook – inspired by the postgraduate degree program at the University of Oxford – guides students through the multidisciplinary syllabus

essential to ART laboratory practice, from basic culture techniques and micromanipulation to laboratory management and quality assurance, and from endocrinology to molecular biology and research methods. Written for all levels of IVF practitioners, reproductive biologists and technologists involved in human reproductive science, it can be used as a reference manual for all IVF labs and as a textbook by undergraduates, advanced students, scientists and professionals involved in gamete, embryo or stem cell biology.

4 artificial reproductive technology: Childlessness in Europe: Contexts, Causes, and Consequences Michaela Kreyenfeld, Dirk Konietzka, 2017-01-11 This book is published open access under a CC BY 4.0 license. This open access book provides an overview of childlessness throughout Europe. It offers a collection of papers written by leading demographers and sociologists that examine contexts, causes, and consequences of childlessness in countries throughout the region. The book features data from all over Europe. It specifically highlights patterns of childlessness in Germany, France, the United Kingdom, Finland, Sweden, Austria and Switzerland. An additional chapter on childlessness in the United States puts the European experience in perspective. The book offers readers such insights as the determinants of lifelong childlessness, whether governments can and should counteract increasing childlessness, how the phenomenon differs across social strata and the role economic uncertainties play. In addition, the book also examines life course dynamics and biographical patterns, assisted reproduction as well as the consequences of childlessness. Childlessness has been increasing rapidly in most European countries in recent decades. This book offers readers expert analysis into this issue from leading experts in the field of family behavior. From causes to consequences, it explores the many facets of childlessness throughout Europe to present a comprehensive portrait of this important demographic and sociological trend.

4 artificial reproductive technology: Principles and Practice of Fertility Preservation Jacques Donnez, S. Samuel Kim, 2011-02-03 The specialty of fertility preservation offers patients with cancer, who are rendered infertile by chemo- and radiotherapy, the opportunity to realize their reproductive potential. This gold-standard publication defines the specialty. The full range of techniques and scientific concepts is covered in detail, and the author team includes many of the world's leading experts in the field. The book opens with introductions to fertility preservation in both cancer and non-cancer patients, followed by cancer biology, epidemiology and treatment, and reproductive biology and cryobiology. Subsequent sections cover fertility preservation strategies in males and females, including medical/surgical procedures, ART, cryopreservation and transplantation of both ovarian tissue and the whole ovary, and in-vitro follicle growth and maturation. Concluding chapters address future technologies, as well as ethical, legal and religious issues. Richly illustrated throughout, this is a key resource for all clinicians specializing in reproductive medicine, gynecology, oncology, hematology, endocrinology and infertility.

4 artificial reproductive technology: Nova IVI Textbook of Infertility & Assisted Reproductive Technology Manish Banker, 2019-06-30

4 artificial reproductive technology: Textbook of Assisted Reproduction Gautam Nand Allahbadia, Baris Ata, Steven R. Lindheim, Bryan J. Woodward, Bala Bhagavath, 2020-08-05 Groundbreaking, comprehensive, and developed by a panel of leading international experts in the field, Textbook of Assisted Reproduction provides a multidisciplinary overview of the diagnosis and management of infertility, which affects 15% of all couples around the world. The book aims to cover all aspects of assisted reproduction. Particular attention is given to topics such as the assessment of infertile couples; assisted reproductive techniques (ARTs) including ovulation induction, intra uterine insemination (IUI), in vitro fertilization (IVF) and intracytoplasmic sperm injection (clinical and laboratory aspects); reproductive genetics; and obstetric and perinatal outcomes.

4 artificial reproductive technology: Making Parents Charis Thompson, 2005 Reproductive technologies, says Thompson, are part of the increasing tendency to turn social problems into biomedical questions and can be used as a lens to see the resulting changes in the relations between science and society.--BOOK JACKET.

4 artificial reproductive technology: The Assisted Reproduction of Race Camisha A. Russell,

2018-12-06 The use of assisted reproductive technologies (ART)—in vitro fertilization, artificial insemination, and gestational surrogacy—challenges contemporary notions of what it means to be parents or families. Camisha A. Russell argues that these technologies also bring new insight to ideas and questions surrounding race. In her view, if we think of ART as medical technology, we might be surprised by the importance that people using them put on race, especially given the scientific evidence that race lacks a genetic basis. However if we think of ART as an intervention to make babies and parents, as technologies of kinship, the importance placed on race may not be so surprising after all. Thinking about race in terms of technology brings together the common academic insight that race is a social construction with the equally important insight that race is a political tool which has been and continues to be used in different contexts for a variety of ends, including social cohesion, economic exploitation, and political mastery. As Russell explores ideas about race through their role in ART, she brings together social and political views to shift debates from what race is to what race does, how it is used, and what effects it has had in the world.

4 artificial reproductive technology: The New Eugenics Judith Daar, 2017-02-21 A provocative examination of how unequal access to reproductive technology replays the sins of the eugenics movement Eugenics, the effort to improve the human species by inhibiting reproduction of “inferior” genetic strains, ultimately came to be regarded as the great shame of the Progressive movement. Judith Daar, a prominent expert on the intersection of law and medicine, argues that current attitudes toward the potential users of modern assisted reproductive technologies threaten to replicate eugenics’ same discriminatory practices. In this book, Daar asserts how barriers that block certain people’s access to reproductive technologies are often founded on biases rooted in notions of class, race, and marital status. As a result, poor, minority, unmarried, disabled, and LGBT individuals are denied technologies available to well-off nonminority heterosexual applicants. An original argument on a highly emotional and important issue, this work offers a surprising departure from more familiar arguments on the issue as it warns physicians, government agencies, and the general public against repeating the mistakes of the past.

4 artificial reproductive technology: Pregnancy After Assisted Reproductive Technology Eric Jauniaux, Botros Rizk, 2012-09-06 Practical, evidence-based guide to managing ART pregnancies, based on 30 years of clinical experience, including gynaecological, genetic and obstetric complications.

4 artificial reproductive technology: Mitochondrial Replacement Techniques National Academies of Sciences, Engineering, and Medicine, Institute of Medicine, Board on Health Sciences Policy, Committee on the Ethical and Social Policy Considerations of Novel Techniques for Prevention of Maternal Transmission of Mitochondrial DNA Diseases, 2016-04-17 Mitochondrial replacement techniques (MRTs) are designed to prevent the transmission of mitochondrial DNA (mtDNA) diseases from mother to child. While MRTs, if effective, could satisfy a desire of women seeking to have a genetically related child without the risk of passing on mtDNA disease, the technique raises significant ethical and social issues. It would create offspring who have genetic material from two women, something never sanctioned in humans, and would create mitochondrial changes that could be heritable (in female offspring), and therefore passed on in perpetuity. The manipulation would be performed on eggs or embryos, would affect every cell of the resulting individual, and once carried out this genetic manipulation is not reversible. Mitochondrial Replacement Techniques considers the implications of manipulating mitochondrial content both in children born to women as a result of participating in these studies and in descendants of any female offspring. This study examines the ethical and social issues related to MRTs, outlines principles that would provide a framework and foundation for oversight of MRTs, and develops recommendations to inform the Food and Drug Administration's consideration of investigational new drug applications.

4 artificial reproductive technology: Obesity and Gynecology Tahir A. Mahmood, Sabaratnam Arulkumaran, Frank A. Chervenak, 2020-06-11 Obesity and Gynecology, Second Edition, presents updated chapters on a variety of topics, ranging from adolescent obesity, contraception, assisted reproduction and sexual dysfunction, to bariatric surgery and improving semen parameters. The

prevalence of obesity in men and women continues to dramatically increase around the world. Obesity presents specific challenges in relation to male and female infertility and general gynecology. Patients who are obese require specific considerations and knowledge. - Presents an essential reference on the significant risks of obesity related to contraception, male and female infertility, and general gynecology - Builds foundational knowledge, showing how obesity relates to general gynecology, including menstrual disorders, breasts cancer, menopause and sexual dysfunction - Assembles critically evaluated chapters that focus on obesity and gynecology to meet the practical needs of gynecologists, endocrinologists and general practitioners

4 artificial reproductive technology: *Reproducing Jews* Susan Martha Kahn, 2000 Explores the debates about new reproductive technologies in Israel and how they fit with Orthodox Jewish laws concerning parentage and Jewish identity.

4 artificial reproductive technology: *The New Reproductive Technologies* Maureen McNeil, Ian Varcoe, 1990 This collection of essays provides a comprehensive, original and well-researched overview of the social developments associated with the new reproductive technologies. The introduction establishes the context for the essays, particularly by providing one of the first major assessments of the significance of work on new reproductive technologies for the field of the sociology of technology as a whole.

4 artificial reproductive technology: *Patient-Centered Assisted Reproduction* Alice D. Domar, Denny Sakkas, Thomas L. Toth, 2020-03-19 An essential resource for reproduction professionals wishing to understand patient-centered advanced technologies now and in the future.

4 artificial reproductive technology: Manual of Intracytoplasmic Sperm Injection in Human Assisted Reproduction Gianpiero D. Palermo, Zsolt Peter Nagy, 2021-11-25 Not everything in medical science has a clear beginning. The first realization of infertility and putative remedies remain shrouded in contextual history, but likely goes back to the dawn of our species, well before there was a written record. Childlessness was, and is still, considered a burden in some communities--

4 artificial reproductive technology: *Human Fertility* Zev Rosenwaks, Paul M. Wassarman, 2014-04-30 Human Fertility: Methods and Protocols is intended for all practitioners of reproductive medicine and ART, as well as for embryologists and reproductive, developmental, cell and molecular biologists and others in the biomedical sciences. The volume presents straight-forward manner best practice approaches for overcoming a host of fertility challenges. Written in the highly successful Methods in Molecular Biology series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols and tips on troubleshooting and avoiding known pitfalls. Authoritative and cutting-edge, Human Fertility: Methods and Protocols aids scientists in continuing to study assisted reproductive technologies.

4 artificial reproductive technology: *Infertility, Assisted Reproductive Technologies and Hormone Assays* Dhastagir Sultan Sheriff, 2019-07-17 Infertility is a major public health concern and medical condition that afflicts millions globally. As such, many people seek reproductive care with the goal of receiving a proper diagnosis and a successful outcome using assisted reproductive technology (ART). Infertility: Assisted Methods of Reproduction and Hormonal Assays provides an overview of ART methods and discusses recent trends in the field. Chapters cover an array of topics including diagnosis of infertility using hormonal assays, adverse outcomes of ART, oocyte donation, cryopreservation of oocytes and embryos and psychosocial care.

4 artificial reproductive technology: Access to Assisted Reproductive Technologies Jennifer Merchant, 2019-11-04 Despite France and Belgium sharing and interacting constantly with similar culinary tastes, music and pop culture, access to Assisted Reproductive Technologies are strikingly different. Discrimination written into French law acutely contrasts with non-discriminatory access to ART in Belgium. The contributors of this volume are social scientists from France, Belgium, England and the United States, representing different disciplines: law, political science, philosophy, sociology and anthropology. Each author has attempted, through the prism of their

specialties, to demonstrate and analyse how and why this striking difference in access to ART exists.

4 artificial reproductive technology: Current and Future Reproductive Technologies and World Food Production G. Cliff Lamb, Nicolas DiLorenzo, 2013-10-29 This book addresses the impacts of current and future reproductive technologies on our world food production and provides a significant contribution to the importance of research in the area of reproductive physiology that has never been compiled before. It would provide a unique opportunity to separate the impacts of how reproductive technologies have affected different species and their contributions to food production. Lastly, no publication has been compiled that demonstrates the relationship between developments in reproductive management tools and food production that may be used as a reference for scientists in addressing future research areas. During the past 50 years assisted reproductive technologies have been developed and refined to increase the number and quality of offspring from genetically superior farm animal livestock species. Artificial insemination (AI), estrous synchronization and fixed-time AI, semen and embryo cryopreservation, multiple ovulation and embryo transfer (MOET), in vitro fertilization, sex determination of sperm or embryos, and nuclear transfer are technologies that are used to enhance the production efficiency of livestock species.

4 artificial reproductive technology: *Assisted Reproductive Technologies in the Global South and North* Virginie Rozée Gomez, Sayeed Unisa, 2022-04 Assisted Reproductive Technologies in the Global South and North critically analyses the political and social frameworks of ART, and its impacts in different countries. In the context of a worldwide social pressure to conceive - particularly for women - this collection explores the effect of the development of ARTs, growing globalisation and reproductive medicalization on global societies. From a multidisciplinary perspective and drawing on multisite studies, it highlights some new issues relating to ART and discusses some older issues regarding infertility and its medical treatment.

4 artificial reproductive technology: *Textbook of Assisted Reproductive Techniques, Fourth Edition (Two Volume Set)* David K. Gardner, Ariel Weissman, Colin M. Howles, Zeev Shoham, 2012-06-27 Textbook of Assisted Reproductive Techniques has become a classic comprehensive reference for the whole team at the IVF clinic. The fourth edition comes more conveniently as a set of two separate volumes, one for laboratory aspects and the other for clinical applications. The text has been extensively revised, with the addition of several important new contributions on laboratory aspects including developing techniques such as PICSI, IMSI, and time-lapse imaging. The second volume focuses on clinical applications and includes new chapters on lifestyle factors, tailored ovarian stimulation, frozen-thawed embryo transfer, viral disease, and religious perspectives. As before, methods, protocols, and techniques of choice are presented by eminent international experts. The two volume set includes: ■ Volume One - Laboratory Perspectives ■ Volume Two - Clinical Perspectives

4 artificial reproductive technology: *Complications and Outcomes of Assisted Reproduction* Botros Rizk, Jan Gerris, 2017-03-16 This book examines the clinical and laboratory complications and impacts of assisted reproductive technology from patient preparation to birth.

4 artificial reproductive technology: *A Textbook of Clinical Embryology* Eliezer Girsh, 2021-05-06 Personnel working in assisted reproductive technology often lack the opportunities for dedicated training in the specialized techniques and technologies required for the procedures. As such, success in the form of live birth rates can range from over 50% to less than 10% per treatment cycle. This comprehensive introductory textbook is an essential resource for trainee embryologists, medical students and nurses. The recent revolutions in biotechnology and molecular biology involved in delivering assisted reproductive services are thoroughly discussed. Basic knowledge such as the development and physiology of both male and female reproductive systems is covered, with practical aspects of IVF including gamete and embryo manipulation, cryopreservation and genetic testing explained in detail. A full description of the optimal structure and management of the IVF laboratory is given, helping ensure procedures are safe and effective. Extensive and highly detailed colour illustrations bring the content to life and aids readers in their understanding.

4 artificial reproductive technology: *From IVF to Immortality* Ruth Deech, Anna Smajdor,

2007 This text provides a clear, simple account of techniques involved in assisted reproduction and embryo research. It explores controversies raised by developments in reproductive technology since the first IVF baby in 1978, such as 'saviour siblings', designer babies, reproductive cloning and embryo research.

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