

## The Fact of Life:

Citations from Peer-Reviewed Medical Texts, Senate Testimony, and Court Testimony Regarding the Beginning of Human Life at Fertilization

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## I. Peer Reviewed Scientific Texts

The following 8 references, by 7 authors, are among many others from peer-reviewed well-known, multi-edition embryological textbooks indicating that human life begins at fertilization (conception).

Moore KL. 2003. *The Developing Human: Clinically Oriented Embryology*. 7<sup>th</sup> ed. Philadelphia (PA): Saunders.<sup>1</sup>

A zygote<sup>2</sup> [fertilized egg] is the beginning of a new human being. Human development begins at fertilization, the process during which a male gamete ... unites with a female gamete or oocyte<sup>3</sup> ... to form a single cell called a zygote. This highly specialized, totipotent cell marks the beginning of each of us as a unique individual.

Moore KL. 2008. *Before We Are Born: Essentials of Embryology*. 7<sup>th</sup> ed. Philadelphia (PA): Saunders. p. 2.

[The zygote], formed by the union of an oocyte and a sperm, is the beginning of a new human being.

O’Rahilly RR, Müller F. 1996. *Human Embryology & Teratology*. 1<sup>st</sup> ed. New York: Wiley-Liss. p. 5-55.

Fertilization is an important landmark because, under ordinary circumstances, a new, genetically distinct human organism is thereby formed[.]

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<sup>1</sup> The author of this scientific textbook, Keith L. Moore, is a world-renowned embryologist. He has written a number of definitive books on embryology, and his scientific knowledge and experience are vast and beyond reproach. Few medical students can complete their careers without studying from his textbooks.

<sup>2</sup> “Zygote” is a scientific term for the new life that is created when the sperm and the egg combine.

<sup>3</sup> “Oocyte” is another term for the egg cell, the cell released by woman’s ovary, which travels down the Fallopian tube and is fertilized by the male sperm.

O’Rahilly RR, Müller F. 2001. Human Embryology & Teratology. 3<sup>rd</sup> ed. New York: Wiley-Liss. p. 8.

Although life is a continuous process, fertilization ... is a critical landmark because, under ordinary circumstances, a new genetically distinct human organism is formed when the chromosomes of the male and female pronuclei blend in the oocyte.

Larsen WJ. 1998. Essentials of Human Embryology. 2<sup>nd</sup> ed. New York: Churchill Livingstone. p. 1, 14.

Human embryos begin development following the fusion of definitive male and female gametes during fertilization[.] ... This moment of zygote formation may be taken as the beginning or zero time point of embryonic development.

Sadler TW. 2006. Langman’s Medical Embryology. 10<sup>th</sup> ed. Philadelphia (PA): Lippincott Williams & Wilkins. p. 11.

Development begins with fertilization, the process by which the male gamete, the sperm, and the female gamete, the oocyte, unite to give rise to a zygote.

Considine D, editor. 1976. Van Nostrand’s Scientific Encyclopedia. 5<sup>th</sup> ed. New York: Van Nostrand Reinhold Company. p. 943.

Embryo: The developing individual between the union of the germ cells and the completion of the organs which characterize its body when it becomes a separate organism. ... At the moment the sperm cell of the human male meets the ovum of the female and the

union results in a fertilized ovum (zygote), a new life has begun[.]

Carlson BM. 1996. Patten's Foundations of Embryology, 6<sup>th</sup> ed. New York: McGraw-Hill. p. 3.

Almost all higher animals start their lives from a single cell, the fertilized ovum (zygote)[.] ... The time of fertilization represents the starting point in the life history, or ontogeny, of the individual.

Condic M. 2008. When Does Human Life Begin: A Scientific Perspective. [Internet]. [accessed 2018 November 30]. Thornwood (NY). Westchester Institute for Ethics and the Human Person. 1(1). p. 7. [https://bdfund.org/wp-content/uploads/2016/05/wi\\_whitepaper\\_life\\_print.pdf](https://bdfund.org/wp-content/uploads/2016/05/wi_whitepaper_life_print.pdf)

From the moment of sperm-egg fusion, a human zygote acts as a complete whole ... The zygote acts immediately and decisively to initiate a program of development that will, if uninterrupted by accident, disease or external intervention, proceed seamlessly through formation of the definitive body, birth, childhood, adolescence, maturity and aging, ending with death. This coordinated behavior is the very hallmark of a [distinct] organism.

## **II. Testimony of Expert Embryologists to the U.S. Senate:**

In 1981 (April 23-24), a Senate Judiciary Subcommittee held hearings on the question of when human life begins. Speaking on behalf of the scientific community was a group of internationally known geneticists and biologists who testified that human life begins at conception (fertilization). See Subcommittee on Separation of Powers to Senate Judiciary Committee S-158, Report, 97th Congress, 1st Session, 1981. The following 8 noted embryologists and geneticists stated the following.

Dr. Micheline M. Mathews-Roth, Harvard Medical School, gave confirming testimony, supported by references from over 20 embryology and other medical textbooks that human life began at fertilization.

It is incorrect to say that biological data cannot be decisive...It is scientifically correct to say that an individual human life begins at conception.

Dr. Jerome Lejeune (who received the Kennedy Award for his discovery of the gene for Down's syndrome) told the U.S. Federal Court the following:

To accept the fact that after fertilization has taken place a new human has come into being is no longer a matter of taste or opinion ... it is plain experimental evidence. Each individual has a very neat beginning, at conception.

Dr. McCarthy de Mere, medical doctor and law professor, University of Tennessee, testified:

The exact moment of the beginning of personhood and of the human body is at the moment of conception.

Dr. Alfred Bongiovanni, professor of pediatrics and obstetrics, University of Pennsylvania School of Medicine testified:

I am no more prepared to say that these early stages represent an incomplete human being than I would be to say that the child prior to the dramatic effects of puberty ... is not a human being. ... I have learned from my earliest medical education that human life begins at the time of conception.

Dr. Richard V. Jaynes:

To say that the beginning of human life cannot be determined scientifically is utterly ridiculous.

Dr. Landrum Shettles, sometimes called the "Father of In Vitro Fertilization," noted that:

Conception confers life and makes that life one of a kind.

Gordon, Hymie, M.D., FRCP, chairman of medical genetics, Mayo Clinic, Rochester:

By all criteria of modern molecular biology, life is present from the moment of conception. ... Science

has a very simple conception of man; as soon as he has been conceived, a man is a man.

C. Christopher Hook, M.D. Oncologist, Mayo Clinic, Director of Ethics Education, Mayo Graduate School of Medicine:

When fertilization is complete, a unique genetic human entity exists.

The official Senate report reached this conclusion:

Physicians, biologists, and other scientists agree that conception marks the beginning of the life of a human being – a being that is alive and is a member of the human species. There is overwhelming agreement on this point in countless medical, biological, and scientific writings.

### III. U.S. Federal Court and Recent State Court Testimony

Dr. Maureen L. Condic testified in *Planned Parenthood of Ind. V. Comm'r*, (S.D. Ind. 2011) 784 F.Supp. 2d 892, 916-17 (aff'd., (7thCir. 2012), 699 F. 3d 962, cert. denied, (May 28, 2013), U.S., 2013 WL 655224:

While philosophy and religion assign a value to life, what is human life is a biological fact and not an opinion ... The conclusion that a human zygote is a human being (i.e., a human organism) is not a matter of religious belief, societal convention or emotional reaction. It is a matter of observable, objective fact.

*Jeter v. Mayo Clinic of Arizona* 211 Ariz. 386; at 388. (2005) stated after consultation with several embryological experts<sup>4</sup> concluded the following:

As the court in *Jeter v. Mayo Clinic of Arizona* observed, “[t]he word that is used to describe the egg may significantly affect one's perception of when life begins.” To describe a human embryo simply as a “preembryo,” a “prezygote,” a “fertilized egg,” “tissue,” or “combined genetic material” is not only false scientifically, it serves in practice to strip the misdescribed human organism of his or her human dignity. We do not label an adult human an “aggregation of tissue,” a “product of conception,” or a “mass of differentiated cells.” These labels are equally flawed as applied to human embryos, even at their earliest stages, since even then they constitute fully human organisms with a full potential to complete their human life cycle.

Dr. Jerome LeJeune has given very extensive testimony to the Supreme Court of Tennessee and to the Supreme Court of New Jersey regarding the full, unique human genome (based on DNA sequencing) marking the beginning of a distinct unique human organism that seamlessly begins human life *at fertilization (conception)*. Since the testimony is quite lengthy, it may be better

<sup>4</sup> Pearson Nature 418 (4 July 2002) p.14-15

to refer to the actual cases—See *Davis v. Davis*, 1992, Supreme Court of Tennessee – 842 S.W.2d 588, 597 *New Jersey v. Alexander Loce*, Supreme Court of New Jersey, 1992.