

The Scientific Consensus on When a Human's Life Begins

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ABSTRACT: Peer-reviewed journals in the biological and life sciences literature have published articles that represent the biological view that a human's life begins at fertilization ("the fertilization view"). As those statements are typically offered without explanation or citation, the fertilization view seems to be uncontested by the editors, reviewers, and authors who contribute to scientific journals. However, Americans are split on whether the fertilization view is a "philosophical or religious belief" (45%) or a "biological and scientific fact" (46%), and only 38% of Americans view fertilization as the starting point of a human's life. In the two studies that explored experts' views on the matter, the fertilization view was the most popular perspective held by public health and IVF professionals. Since a recent study suggested that 80% of Americans view biologists as the group most qualified to determine when a human's life begins, experts in biology were surveyed to provide a new perspective to the literature on experts' views on this matter. Biologists from 1,058 academic institutions around the world assessed survey items on when a human's life begins and, overall, 96% (5337 out of 5577) affirmed the fertilization view. The founding principles of the field Science Communication suggest that scientists have an ethical and professional obligation to inform Americans, as well as people around the world, about scientific developments so members of the public can be empowered to make life decisions that are consistent with the best information available. Given that perspective—and a recent study's finding that a majority of Americans believe they deserve to know when a human's life begins in order to make informed reproductive decisions—science communicators should work to increase the level of science awareness on the fertilization view, as it

Generally
not
happening
per:
mass
media,
educational
institutions,
religious
institutions

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stands alone as the leading biological perspective on when a human's life begins.

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1. Introduction

A recent national poll suggested that 38% of Americans believe a human's life begins at fertilization ("the fertilization view").¹ Another recent national poll reported that 46% of Americans recognize the fertilization view as a "biological and scientific fact", and 45% view it as a "philosophical or religious belief".² While Americans' views on when a human's life begins have been assessed in numerous polls in recent years, there is scant evidence of experts' opinions on this matter. This form of inquiry—assessing a factual dispute by surveying those with the relevant expertise—has been prominent in the debate about anthropogenic climate change,^{3,4} but it has yet to be used to assess a large sample of relevant experts' views on when a human's life begins.

Two small-scale studies have been conducted to assess experts' views on this matter: in 1967, researchers surveyed public health professionals,⁵ and in 2008, researchers surveyed professionals working in the *in vitro* fertilization field.⁶ In both studies, fertilization was the most common view held by the experts: 35% of public health professionals (27 out of 76) and 26% of IVF professionals (67 out of 255) affirmed the fertilization view. However, given the scientific literature's recognition of the fertilization view, it is surprising that it has been affirmed by a plurality of Americans and experts, rather than a majority.

A recent review of the abstracts of peer-reviewed journals in the biological and life sciences literature reported that dozens of journals have published articles containing statements that affirm the fertilization view.⁷ Since journals publish these statements without explanation or citation, it suggests that researchers, reviewers, and journal editors seem to accept the fertilization view as a well-known and well-accepted biological observation. As previewed in Table 1 below, efforts to compile citations to peer-reviewed articles that contain such statements have continued⁸—these articles can be categorized based on how explicitly they represent the fertilization view.

Table 1. Peer-reviewed journals that represent the fertilization view.

A. Fertilization marks the beginning of a human's life

1. *California Medicine*: "[T]he scientific fact, which everyone really knows, that human life begins at conception."⁹
2. *Australian and New Zealand Journal of Obstetrics and Gynaecology*: "The time of our conception is when we are most vulnerable to survival and growing as a healthy human being."¹⁰

Majority of
Medical
professionals
in the
science

MISQ
pub

65%
don't
74
don't