

Arguments for vitro human embryo research



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The 14-Day Rule

Scientific advancement is accelerating, but current laws and regulations fail to keep up with its progress. This problem leads to several ethical and legal dilemmas in various fields of biology. This problem is especially prominent in embryology. Laboratories focusing on in vitro fertilization have been growing embryos and then implanting them on the seventh day (Hyun et. al 169).

Due to recent advances, research labs are currently able to grow embryos in vitro up to 14 days (Hyun et. al 169). Current policies and laws around the world are preventing scientist from continuing their work past 14 days. The Ethics Advisory Board of the United States Department of Health, Education and Welfare first proposed this rule in 1979. The 14-day rule is a regulatory line that limits in vitro human embryo research (Hyun et. al 170). This regulation prevents labs from allowing the embryo to survive and keep growing after 14 days. The line is drawn at 14 days because it stops growth before the primitive streak appears. In other words, it marks the beginning of gastrulation in humans (Reardon 19). The 14-day rule is a strictly enforced law in Canada, Spain, United Kingdom, Sweden, Denmark, Slovenia, Iceland, South Korea, Australia and New Zealand. In other countries, such as the United States, China, Japan, and India it is not a law but is enforced specifically in all scientific guidelines. Switzerland maintains a strict law that only allows human-embryos to be cultured for 7 days (Hyun et. al 171). The 14-day rule has been used internationally, but due to recent advancements there is now a debate over changing this rule. To solve this current problem, it is important to consider the pros and cons of changing the regulation.

There are several benefits of not only continuing in vitro human embryo research but extending the time frame past 14 days. Embryology research has led to new information and advancement in various areas of science. These recent advancements have allowed scientist to understand new aspects of early human development some of which have never been seen before (Reardon 15). This new information is important because it could allow doctors to understand why some pregnancies fail during the early stages of pregnancy (Reardon 15). For example, a recent study has discovered and identified special cells that show up in the embryo around day 10 but disappears by day 12 these cells could lead to new advancements (Reardon 16). This developmental step in embryos was previously unknown. The importance of the research conducted using the 14-day rule can be observed in the new research which is consistently being published. Therefore, even more information could be gathered by extending the time frame past 14 days. Gaining more knowledge regarding the development of humans could greatly benefit couples who have difficulty conceiving. Another benefit from understanding human embryo development is that it would allow more research in developing human embryonic stem cell-based therapies (Niakan et. al 28). These cells have been used to study hematopoietic tissue for the treatment of various blood disorders and cardiogenic precursors for the treatment of heart and vascular disease (Niakan et. al 28). By continuing in vitro research more advancements could be made toward the treatment or cure of several diseases.

The fertility industry could greatly benefit from extending the number of days allowed to grow an embryo in vitro past 14 days. A recent study in a IVF

clinic in New York City showed that half of the embryos that are implanted in a mother's uterus doesn't survive (Reardon 16). By continuing to grow embryos in vitro scientist could learn the reason behind this problem and prevent future losses of implanted embryos. Future assisted reproductive technologies could be greatly advanced through the understanding of early human embryo development (Niakan et. al 1). A current argument suggests that studying the development of in vitro human embryos is unnecessary. These groups propose using mouse embryos for in vitro studies instead of human embryos (Reardon 16). Unfortunately, there are several species-specific differences such as the timing of a major wave of genome activation, the patterns of gene expression, the frequency of chromosome missegregation and the patterns of epigenetic modifications which make the data collect from mouse embryos less applicable to human studies (Niakan et. al 1). To create and improve new fertility treatments the 14-day rule needs the be evaluated to make room for progress.

As stated above, there are several benefits for the allowing in vitro human embryo research to continue. It is critical to understand there are several disadvantages to allowing the current regulation to change. The first issue with extending the time frame of in vitro embryo research is deciding what the next time frame limit should be. There is a moral issue in deciding a new time frame. An important argument to consider is growing an embryo for an extended period could cause the embryo undue distress. Other groups are against embryo research because they believe life starts at the moment of conception, therefore vitro embryo research should be stopped completely. No matter what is decided in the future the most important factor to ensure

the success of the future law is to guarantee that the new policy has a clear and legally enforced stopping point for research (Hyun et. al 170).

Due to advancements in the embryology field it is now possible to grow an embryo in a laboratory for more than 14 days. The ethical and legal issue of whether to allow scientist to grow an embryo after 14 days needs to be carefully considered. As progress is made laws and regulations need to match. There are several different beliefs regarding this issue and each need to be heard and considered. There are two extreme groups believe that embryo research should be stopped completely or that the research shouldn't have a limit. A larger portion of the science community maintain the idea that committees from around the world should meet and discuss the rule and create a new limits and regulations. The extremely successful 14-day rule was created in a similar manner and the new law should be created using the same method. It is crucial that during these international meeting that all the member reflect on the restriction and the pros and cons of any new regulations (Hyun et. al, 170). The most efficient method to solve this current dilemma is to create open discussion with scientific communities from around the world instead of leaving the decision to an individual government or committee.

Work Cited

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