

Hwang Woo-suk's Use of Human Eggs for Research 2002-2005

Hwang Woo-suk, a geneticist in South Korea, claimed in *Science* magazine in 2004 and 2005 that he and a team of researchers had for the first time cloned a human embryo and that they had derived eleven stem cell lines from it. Hwang was a professor at Seoul National University in Seoul, South Korea. In the *Science* articles, Hwang stated that all of the women who donated eggs to his laboratory were volunteers who donated their eggs (oocytes) without receiving any compensation in return. In 2006, Hwang admitted that many of the results were fabricated. Subsequent investigations found that Hwang's lab used more eggs than they had accounted for in their experiments, and that egg donors had been paid. Hwang's use of donated eggs in his experiments attracted international attention and sparked debates about the ethics of egg donation for research purposes.

Suspicious about Hwang's claims arose when one of his female researchers, Ja Min Koo, a coauthor of the 2004 publication, admitted in an interview that she had donated oocytes to Hwang's research. Hwang at first denied all allegations of ethical misconduct and said that the accusations resulted from a misunderstanding because of the female researcher's poor English skills. Not long after, Hwang lost support from one of his US coauthors, Gerald Schatten, who stated concerns over source of the oocytes used in experiments leading to the 2004 publication. Investigations by the Korean National Bioethics Committee and the Seoul National University, both in 2006, found that two research scientists in Hwang's lab had donated eggs, that many egg donors had been paid to donate eggs, and that some of the egg donors were not informed about the risks and egg donation or the purpose of the research.

Hwang required many human oocytes in his research on stem cells and cloning. During his research, Hwang acquired large collection of oocytes. He claimed to have used 242 oocytes from sixteen volunteers in his 2004 publication, and 185 eggs from eighteen women in the 2005 article. Investigations revealed that Hwang had in fact collected over two thousand oocytes from at least 119 different women, two of whom were researchers from his own laboratory. Eighty-five of the women who donated eggs were paid or offered extra benefits for their donations. These were violations of the 2001 Korean Guidelines of Medical Ethics and the 2005 Bioethics and Biosafety Act. Some bioethicists consider it unethical to pay oocyte donors for their eggs because the use of money can be a form of pressure to poor women. Hwang resigned from his position as a professor in 2005.

The South Korean National Bioethics Committee wrote a report in 2006 titled, *The National Bioethics Committee's Report on Bioethical Problems in Hwang Woo-Suk's Research*. The report distinguished four different types of donations performed during the course of Hwang's research. The first category was legal voluntary donors, who received little or no compensation for the extraction of their eggs. The second category consisted of paid donors, who were each paid over 1.5 million won, approximately 1,400 US dollars, in exchange for their oocyte donations. The third group of women performed benefit-in-kind donations, in other words, donations in exchange for up to a 2.3 million won, approximately 2,134 US dollars, discount on in vitro fertilization treatments. The fourth category consisted of two researchers, working for Hwang, whom Hwang coerced into donating oocytes for research. The report concluded that women in all four categories, including voluntary donors, were either under societal, personal, or work-related pressure to donate their eggs for research and were not fully informed of the actual details involved in the egg retrieval procedure.

The National Bioethics Committee's report outlined the ethical violations caused by Hwang's re-

search. The process of extracting oocytes from a woman involves physical and psychological risks to the woman donating. Because of those risks, ethical review boards require that researchers inform research participants about the risks of the procedure. When hospitals collected eggs from women for Hwang's study, they often used informal consent forms, or did not use any type of informed consent if the woman was donating eggs for the second time. In addition, some women's ovaries were completely removed without their consent. Numerous women suffered from severe ovarian hyperstimulation syndrome and had to be hospitalized after the oocyte extractions.

Hwang also illegally used egg-brokers to pay women for their oocytes. Article 55 of the 2001 Korean Guidelines of Medical Ethics states that a physician should not pay research subjects for anything other than compensation for treating diseases or injuries that may have been caused by the study. Hwang not only provided money, but women undergoing fertility treatments received discounts for reproductive treatments in exchange for their eggs. Paid women were generally aged in their mid-twenties and significantly younger than volunteer donors, who were aged in their mid-thirties. In cases where women donated their eggs for both research and their own fertility treatments, researchers donated the better and more mature oocytes to Hwang's research.

Scholars hypothesized various reasons why Hwang was able to collect so many eggs under unethical premises. First, infertile couples in Korea often choose in vitro fertilization over adoption to have their own biological children, and they often purchase eggs for transplantation on the internet. Such transactions are often done through egg-brokers. Hwang purchased eggs for his research through one of these egg-brokers. Second, some of the women who donated to Hwang's research said that they had hoped the researchers would use the eggs to develop cures for themselves or their family members. They were misled that their eggs would be used for therapeutic purposes that would directly benefit them or their family, a deception that scholars call therapeutic misconception.

Third, Hwang's researchers may have felt pressure, as his subordinates, to donate their oocytes. Hwang coerced two of his researchers into donating eggs and also persuaded eight more of his female researchers to sign consent forms stating that they would donate oocytes if necessary. Finally, many of the women who donated eggs said that they did so out of national pride and for wanting to help people with disabilities or diseases.

In 2009 The Seoul Central District Court convicted Hwang for embezzling money and bioethics violations related to his research. Hwang was denied a license to continue research in human cloning, but later researched the cloning of animals. He started a research organization called the Sooam Biotech Research Foundation, located in Seoul. Hwang's research group had created the first cloned dog in 2005.

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