

Importance of Research Ethics

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There are multiple reasons why it is necessary to adhere to the basic norms of scientific conduct during academic research. The credibility of the scientific community and the perception of the public to judge and accept new results strongly depends on the authenticity of the results that have been published. It is particularly important to have a clear distinction between acceptable and unacceptable conduct especially when human beings or animals are involved in a study. Given the competitive nature of research, it has become increasingly challenging for scientists to report unique and pioneering research. Nevertheless, the practice of misreporting data and scientific results continues to be followed by some members of the research community.

Reality of Research Ethics

The most striking example of how research misconduct can destroy the lives of people is the case of Paolo Macchiarini, a surgeon who became famous for a supposed medical breakthrough that promised to revolutionize organ transplantation. The Italian scientist used synthetic scaffolds seeded with the patients' stem cells to create trachea transplants. However, it turned out that his experiments on humans had no sound preclinical research foundation. At least [seven of the nine patients](#) that received the treatment died.

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Several investigations showed that Macchiarini manipulated some of the data in his scientific publications and reports, omitting or even fabricating results to make his treatments appear more successful. There has also been severe criticism in regards to the decision-making around all the operations. In the meantime, the scandal has led to Macchiarini's dismissal and the resignation of several authorities from the Karolinska Institute in Stockholm, Sweden (Macchiarini's former employer). Various papers co-authored by the Italian surgeon have also earned [expressions of concern](#), including two highly cited articles published in *Nature Communications* and *The Lancet*.

Dos and Don'ts of Research Ethics

| Do's | Don'ts |
|--|---|
| Maintaining a good record of all your research activities and report your data as carefully and objectively as possible. | Fabrication, manipulation or misrepresentation. |
| Disclose financial or personal interests that may directly/indirectly affect your work. | Deceiving research sponsors, colleagues, committees by having bias in data interpretation or personnel decisions. |
| Treat animals with care and respect when studying them in your research and adhere to ethical guidelines. | Use any external research data (published or unpublished) without permission. |
| Respect intellectual property, privacy, and confidentiality and give proper credit for any contributions from other researchers. | Support irresponsible publication practices. Your research should be to advance science and share your findings within the community. |

Ethical Requirements

In general, analyzing non-adherence to ethical norms is extremely difficult, and in some cases, drawing a clear line between misconduct and misunderstanding is very difficult. Although researchers do recognize ethical norms, they are interpreted and applied in different ways at different institutes. Researchers usually are required to ensure conformance to ethical requirements during scientific research, including the proper design and implementation of studies that involve human or animal experiments, [avoiding scientific misconduct](#) (such as data fabrication or [plagiarism](#)), following environmental and safety regulations, adhering to norms related to authorship and intellectual property, and keeping confidentiality agreements.

Policies of Research Ethics

Ethics committees play an important role in defining the standards that need to be met for research ethics and ensuring that they are met. Some influential policies relating to research ethics include those introduced by the National Institutes of Health (NIH), the National Science Foundation (NSF), the American Chemical Society, or the European Network of Research Ethics Committees. Other guidelines such as the World Medical Association's Declaration of Helsinki have been fundamental in defining human research ethics.

Despite recent scandals, including the cases of Paolo Macchiarini, [Scott Reuben](#) or [Olivier Voinnet](#), the awareness about research ethics seems to be increasing in the scientific community. Several resources covering the most important aspects in this area are available and many academic institutions are now introducing educational curriculums to help researchers resolve ethical dilemmas.

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