

LETTER TO THE EDITOR

3D bioprinting: printing life opportunities

Bioimpresión 3D: imprimiendo oportunidades de vida

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Dear Editor

3D printing refers to the process of creating objects by adding layers of a material. The most commonly used materials in this process are plastics and metal alloys, but virtually any material can be used, ranging from concrete to living tissue.¹ The latter has caused a revolution in the field of medicine, as it would allow obtaining a new tissue or organ without the need of a donor, something that could save many lives since a large number of patients die waiting for a transplant.²

But what is bioprinting? It is a method that makes it possible to create cellular structures from bioink loaded with stem cells in which, layer by layer, the biological material is deposited to create tissues and organs.³ The bioink used in this technology must have cells from the person who will receive the transplant to reduce the risk of rejection of the implanted organ or tissue.⁴

Bioprinting projects are increasingly growing in number and are promising, which is why many laboratories have started working on the production of human organs such as livers, kidneys, and even hearts.^{5,6}

In the long term, this technology is likely to become more popular and widely available in hospital and emergency room settings, as it enables the rapid fabrication of clinically relevant items in these contexts. Examples include bioactive biodegradable ‘scaffolds’ and the printing of tissues and organs with complete life functions using these biomaterials,⁷ such as protease- and UV-degradable hydrogels for skin formation⁸ and the bioprinting of cardiac tissue.⁹

However, despite the enormous potential of bioprinting, before this technology becomes the main source of organs and tissues needed in the care of patients, particularly those in need of transplantation, several ethical and legal issues related to the use of this technology still need to be addressed.

In conclusion, although the use of 3D printing in medicine would represent a breakthrough in the treatment of many conditions and would solve problems such as organ shortage, it is still a developing technology and its potential benefits for human health must be tested and verified through experimental studies using organs and tissues made from bioprinting. Nevertheless, the very idea of being able to create tissues and organs through 3D printing is already very popular in the scientific-medical community due to the huge advantages it would represent in terms of improving the quality of life and life expectancy of patients.

Conflicts of interest

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