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СУМСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ
КАФЕДРА ІНОЗЕМНИХ МОВ
ЛІНГВІСТИЧНИЙ НАВЧАЛЬНО-МЕТОДИЧНИЙ ЦЕНТР

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«TO MAKE THE WORLD SMARTER AND SAFER»

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MEDICAL APPLICATIONS FOR 3D PRINTING

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3D printing is the production of an object based on various three-dimensional models located on a digital medium. The printing process is based on the principle of laying a large number of thin layers one after the other.

3D printing can be of different types, both laser or inkjet, and extrusion. Most common are inkjet printers. This method is non-contact and can use thermal, piezoelectric or electromagnetic technology to apply very small drops of living cells and various biomaterials to a special surface, conforming to all digital instructions for the production of soft tissues or individual human organs. 3d devices from the company “TIJ” are more common and convenient for high-quality medical printing. Due to their high digital accuracy, convenient control, versatility and positive impact on mammalian cells, these devices are already used for printing ordinary 2D / 3D tissues and various organs (this type of printing is called bioprinting).

With TIJ devices, you can perform other complex tasks, such as introducing medications and gene transfection during tissue printing. Tissue or organ failure, which is caused by a person getting old, suffering from a disease, having birth defects, or having an accident, is a very common problem. Today, to cure organ failure, doctors resort to organ transplants from other people (donors). The process of organ transplantation and further patient monitoring is very expensive. Therefore, 3D printing is a cheaper, but no less effective substitute for conventional transplantation.

Today, 3D printing is used more and more often , becoming a very useful tool in medicine and it can make a *scientific breakthrough* in near future.

The medical advances that have been made using 3D printing are already significant and exciting, but some of the more revolutionary applications, such as organ printing, will need time to evolve.