The press service of the Tomsk Polytechnic University (TPU) reported that university scientists have developed a method for using neural networks to optimize the production of polymer skaffolds-frames used in regenerative medicine. The technology allows you to accurately predict the key parameters of materials, reducing the time and resources for experiments.

Scaffolds from polycaprolactone create an environment for the growth of new fabrics and accelerate healing. Traditional methods for selecting technological parameters require numerous tests. The neural networks analyze the experimental data and predict the diameter of the fibers and the strength of the gap with high accuracy.

The study showed that the classic machine learning algorithms cope with the prediction of the diameter, but cannot accurately determine the strength. Two -layer Perseptron neural networks successfully solve both problems even on small data sets with complex dependencies.

The developed approach is universal – it is applicable to different types of polymers and morphologies of the Scaffolds. This opens up opportunities to optimize the creation of other medical devices where accurate physical parameters are important.