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UK researchers first to 3D-print human corneas

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Researchers at Newcastle University in the UK have been the first to 3D-print human corneas, using a technique that could ensure an unlimited supply of corneas in the future.

The proof-of-concept research for the new 3D-printing technique reports how human corneal stromal cells were taken from a healthy donor cornea and mixed together with alginate and collagen to create a ‘bio-ink’ solution that could be printed.

Using a low-cost 3D bio-printer, the bio-ink was successfully printed in concentric circles to form the shape of a human cornea in less than 10 minutes. The stem cells were then shown to culture.

The scientists also demonstrated that they could build a cornea to match unique patient specifications.

The dimensions of the printed tissue were originally taken by scanning a patient’s eye and using the data to rapidly print a cornea which matched the size and shape.