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**Rapid Prototyping with Tissue Engineering**

Tissue engineering is the act of designing and growing tissue in a controlled environment to later be transplanted on or in someone. This is incredibly useful, with one obvious application being burn victims. People that have severe burns on their bodies will require major skin transplants in order for them to heal safely and successfully, and tissue engineering can help that in a way. While there isn't much engineering being done in terms of designing just normal skin cells, being able to grow a large chunk of skin that the patients' body will easily accept is a great thing. This makes it a lot easier and safer to surgically transplant large portions of skin over a patient's burns, thereby allowing them to heal much faster.

Tissue engineering can also apply to genetic diseases of the eye. According to innovations-report.com, scientists have begun testing a new method for treating deep burns of a cornea (<http://www.innovations-report.com/html/reports/medicine_health/report-42576.html>). While this does not have to do directly with specifically genetic diseases of the eye, it is a step in the right direction to finding new ways that tissue engineering can help heal the eye.

Rapid prototyping can also be used in tissue engineering. Instead of building three dimensional models of items, it is possible to create a scaffold to allow researchers to grow artificial tissues however they please (<http://www.sciencedaily.com/releases/2009/06/090618085752.htm>). During normal tissue engineering, scaffolds are made for the tissue cells to latch onto and grow off of. However, by using rapid prototyping, these scaffolds are much easier to make, and most times more accurate because of the computer controlling the rapid prototyping machine. There are also multiple ways to create the scaffolds using rapid prototyping, such as the Melt-dissolution deposition technique. "In a typical melt–dissolution deposition system, each layer is created by extrusion of a strand of material through an orifice while it moves across the plane of the layer cross-section. The material cools, solidifying itself and fixing to the previous layer. Successive layer formation, one atop another, forms a complex 3D solid object." (<http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6TCW-4DPC6P0-2&_user=521828&_coverDate=12/31/2004&_rdoc=1&_fmt=high&_orig=search&_origin=search&_sort=d&_docanchor=&view=c&_acct=C000059579&_version=1&_urlVersion=0&_userid=521828&md5=cdbd7bc2d9b5232ff4de29b2424fc654&searchtype=a>). This method is used to fabricate the scaffold that the tissue will be grown on. Rapid prototyping greatly increases the speed and accuracy to which tissue engineering can be done, because of all of the various techniques which can be used.