



The Versatility of 3D Printed TPU

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Agenda



- Origins of NinjaTek
- NinjaTek Materials
- Industrial Applications
- Medical Applications
- Consumer Applications
- The Future of TPU Filament

The Origins of NinjaTek



- Brand of Fenner Precision Polymers
 - Industrial Product Manufacturer
 - Metal Products, BLOC, Trantorque
 - Precision Timing Belts, PowerTwist Link Belt, Eagle Belting
- Industrial Belting to Additive Manufacturing
 - Entrepreneurial Spirit
 - Organic Innovation



- Ninja Flex - 2013
 - 85 Shore A
- Cheetah – 2016
 - 95 Shore A
- Armadillo – 2016
 - 75 Shore D
- Eel – 2019
 - 90 Shore A Conductive Flexible
- Chinchilla -2021
 - 75 Shore A Skin Safe



Industrial Application



Industrial Application



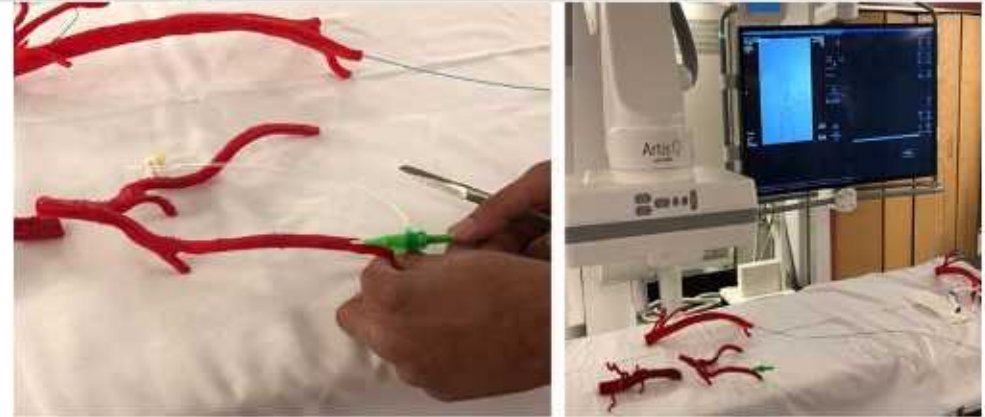
- Replacement Parts
- Prototyping
- Safety Guarding
- Finished Good



Medical Applications



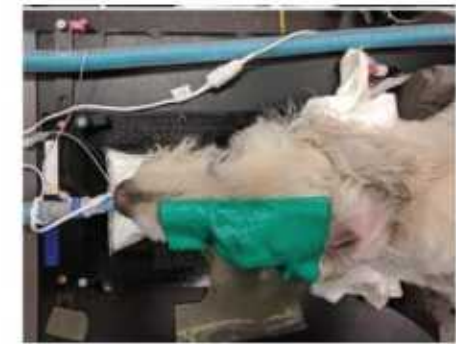
- Medical Education
- Surgery Prep
- Radiation Bolus
- Prosthetics



Goudie, Christine et al. "The Use of 3D Printed Vasculature for Simulation-based Medical Education Within Interventional Radiology." *Cureus* vol. 11,4 e4381. 3 Apr. 2019, doi:10.7759/cureus.4381



High Flow 3D Printed Socket Liner, NinjaTek Chinchilla



Martin, Tiffany Wormhoudt et al. "3D-printed bolus improves dose distribution for veterinary patients treated with photon beam radiation therapy." *The Canadian veterinary journal = La revue veterinaire canadienne* vol. 61,6 (2020): 638-644.

Consumer Applications



The Future



- “If you build it they will come”
- Let the 3D Printing Community be our guide.
- Focus on
 - Innovation
 - User Experience
 - Democratization of Engineering Grade Materials
 - Sustainable Products

Questions?

References



Medical

Chung, M., Radacsi, N., Robert, C. *et al.* On the optimization of low-cost FDM 3D printers for accurate replication of patient-specific abdominal aortic aneurysm geometry. *3D Print Med* 4, 2 (2018).

<https://doi.org/10.1186/s41205-017-0023-2>

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Philip the Duck

https://www.youtube.com/watch?v=yIRtdW_VJUk