

Diagnostic Imaging, 3D Printing and Surgical Planning

3D printing has massively developed over the last decade, and its spread into medical applications has barely touched the surface of possibilities that may be achieved.



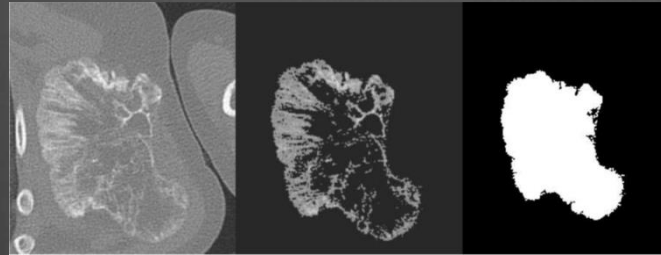
(Leapfrog 3D Printers, 2018)

Surgical Planning

Through the utilization of diagnostic imaging, anatomically correct models can be produced to help aid surgeons in the planning of difficult procedures.

Studies have shown that compared to 2D computer images, 3D reconstruction leads to a significant increase of precision in tumor localization by **37%**.

(Wolfram Lamadé, Gerald Glombitza, & Lars Fischer, 2018)



Surgical Planning Based on 3D Printed Models Follow a Similar Sequence:

- CT, MRI, and US scans are preformed
- Scales and measurements are taken and inputted into a computer
- 3D Computed Simulations are created and manipulated
- A 3D printer prints an anatomically correct model.

(Matthew D Tam, 2012) (Son, 2015)

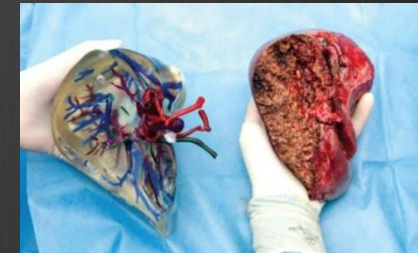


Positive Outcomes

3D printing has already been utilized and proven to aid in positive surgical outcomes of the correction of the following:

- Frontonasal Dysplasia
- Scoliosis
- Kidney and Lung Tumors
- Double Aortic Arches

(Matthew D Tam, 2012) (Son, 2015)



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