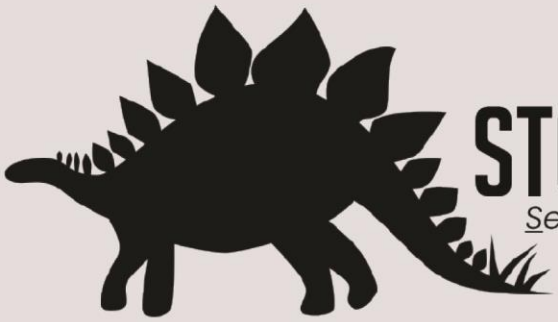
INITIAL SEARCH

3D Printed Nasopharyngeal Swabs



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3D Printed Nasopharyngeal Swabs

What are 3D Printed Nasopharyngeal Swabs?

Nasopharyngeal (NP) swabs are used to obtain biological samples for viral testing. The sample is obtained from a patient's nasopharynx, the upper part of the throat behind the nose. The swab has a smaller tip than that of a nasal swab and is the preferred tool for specimen collection as it has been shown to provide a more accurate sample. Traditionally an NP swab has been a long, slender stick that is covered at one end with an absorbent material, such as cotton, polyester or flocked nylon. 3D printed swabs are made of an FDA-approved Surgical Grade Resin on FormLabs Stereolithography (SLA) printers.

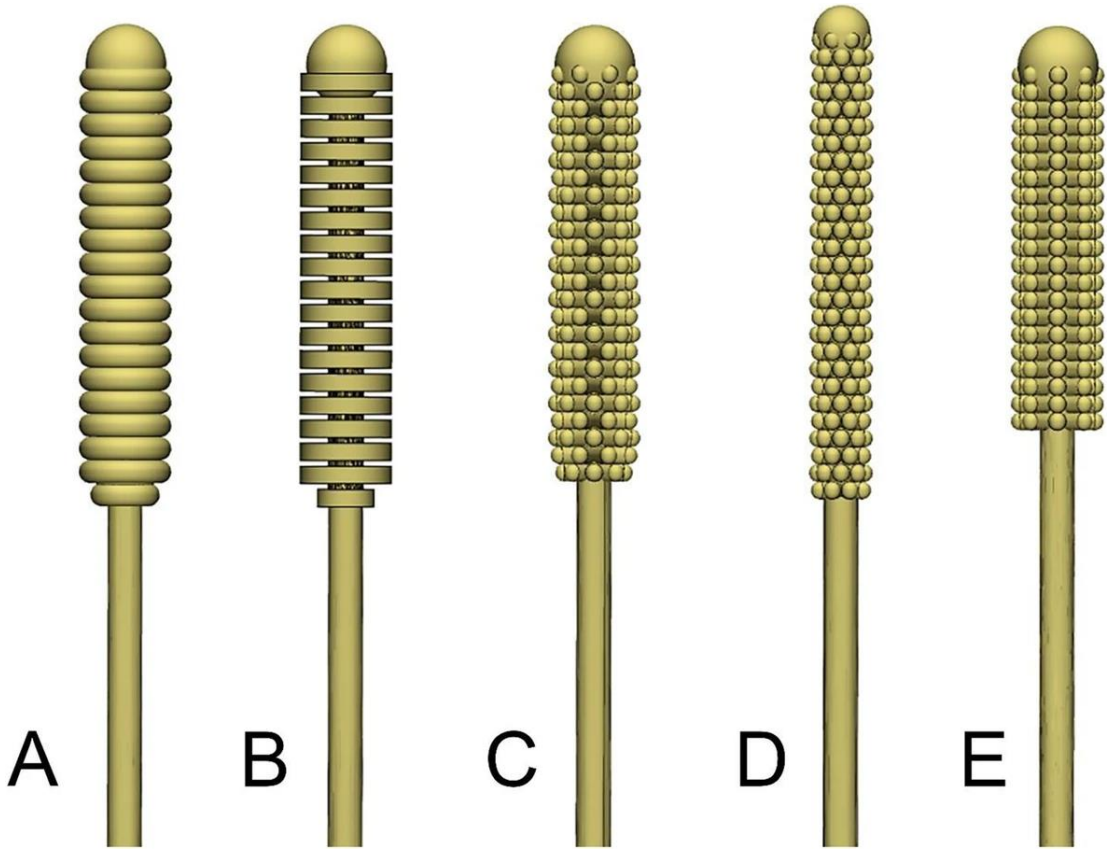

Figure 1: Early alternate 3DP swab designs. Letter C is the current version in use. Ford et al., 2020, https://doi.org/10.1186/s41205-020-00076-3, licensed under CC BY 4.0.

What are the possibilities?

3D printed nasopharyngeal swaps are currently being used for Covid 19 testing. They fill an important need because high demand for testing and supply chain issues cause difficulties for testing facilities trying to obtain conventionally manufactured swabs. Testing locations can print swabs as they need them rather than waiting for a shipment to arrive. The swabs can be used for other types of viral testing, such as flu testing.

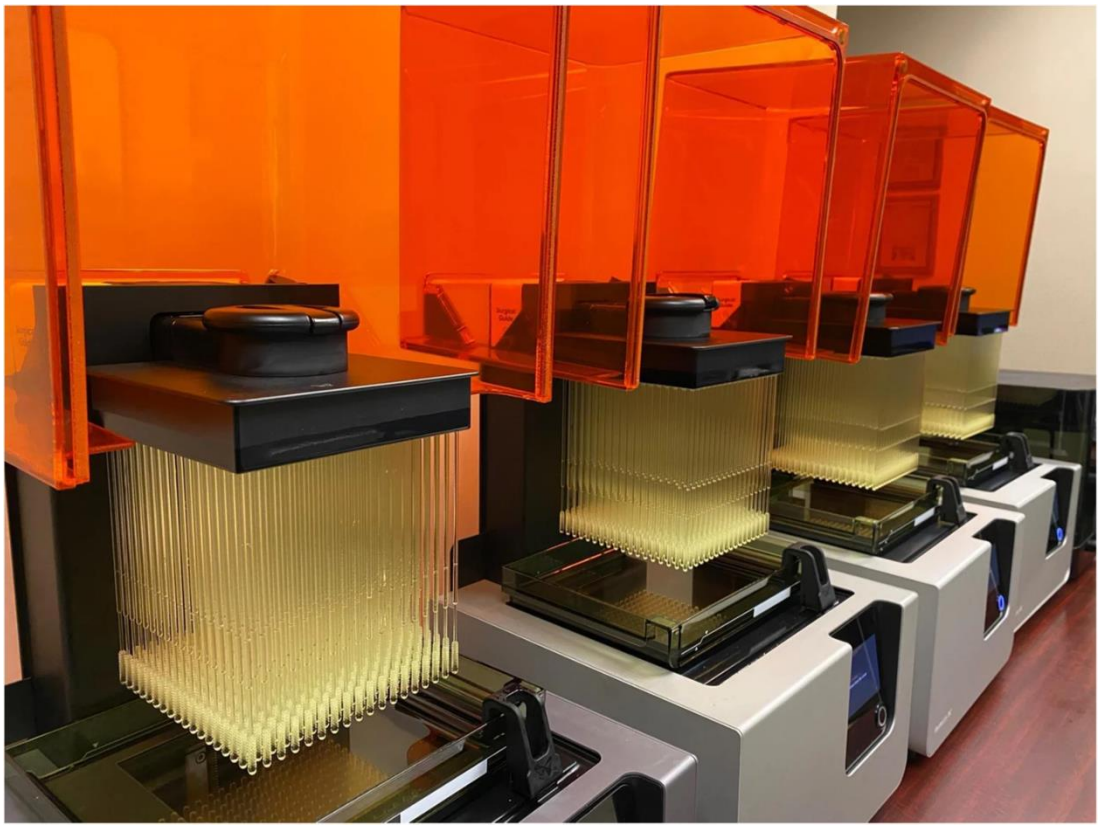

Figure 2: Four batches of 324 3DP NP swans ready for post-processing, Ford et al., 2020, https://doi.org/10.1186/s41205-020-00076-3, licensed under CC BY 4.0.

Applications in Additive Manufacturing/3D Printing

This topic is applicable in the Medical Industry.

Current Challenges & Weaknesses

One of the challenges is that only FDA-approved medical grade materials can be used in the printing of the swabs. In addition, post-processing is needed to smooth the swabs to minimize discomfort to the patients. Also, the swabs are fragile, and there is a risk of breakage during shipping.

Market Overview & Technology Game Changers

As Covid-19 became a global pandemic, medical facilities experienced shortages of supplies, including that of swabs for viral testing. The ability to print swabs locally helps to avoid long shipping times and ensure a reliable supply when needed.

Time to Technical Confirmation & Time to Market Introduction

This product is being manufactured now and is in great demand due to the Covid 19 pandemic. It is also being used for flu testing. It has been FDA approved, and the University of South Florida has applied for and been awarded a provisional utility patent for it.

References

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