

Ceramic hybrid needles take the sting out of shots

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New polymerization technology may one day take the pain out of injections and blood draws. A team of researchers at the University of North Carolina and Laser Zentrum Hannover have recently used two-photon polymerization to create hollow needles so fine patients wouldn't feel them piercing their skin. Clustered together on a patch, these microneedles can deliver drugs or draw blood efficiently as standard hypodermic needles. These findings are reported in the *International Journal of Applied Ceramic Technology*.

Developing a way to deliver drugs intravenously with minimal pain and trauma, by someone without medical expertise, has long been a mission of biomedical engineers. Until recently, their most promising product had been stainless steel and titanium microneedles. These metal microneedles, though, are prone to break on impact with skin.

Researchers led by Roger Narayan, MD, PhD, of the University of North Carolina, used two-photon polymerization of organically modified ceramic (Ormocer®) hybrid materials to create microneedles resistant to breakage. Another benefit of the hybrid needles is that they can be made in a wider range of sizes than those made with conventional microfabrication techniques.

The first patients Narayan imagines will benefit from his technique are those who require frequent injections or blood monitoring.

Source: Blackwell Publishing Ltd.

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