Sphere-templated tissue scaffold is a viable subcutaneous implant

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Compared with high-density porous polyethylene implant materials, sphere-templated poly (2-hydroxyethyl methacrylate) tissue scaffold stimulates a minimal inflammatory response; supports cellular ingrowth, collagen formation, and neovascularization; and may induce less scar formation, according to an experimental study published online Oct. 8 in the *Archives of Facial Plastic Surgery*.

(HealthDay)—Compared with high-density porous polyethylene (HDPPE) implant materials, sphere-templated poly (2-hydroxyethyl methacrylate) (poly[HEMA]) tissue scaffold stimulates a minimal inflammatory response; supports cellular ingrowth, collagen formation, and neovascularization; and may induce less scar formation, according to an experimental study published online Oct. 8 in the *Archives of Facial Plastic Surgery*.

Amit D. Bhrany, M.D., of the University of Washington in Seattle, and colleagues conducted a study involving the subcutaneous implantation of poly(HEMA) and HDPPE disks into the dorsal subcutis of C57BL/6

mice to evaluate their use as implant materials.

The researchers found that poly(HEMA) and HDPPE implants resisted extrusion, elicited a minimal inflammatory response, and supported neovascularization. While cellular and collagen ingrowth occurred in both implants, collagen ingrowth was thicker in the HDPPE implant due to the larger porous structure, while poly(HEMA) had much thinner collagen fibers within smaller pores. Within the fibrous ingrowth of the HDPPE and individuals pores of poly(HEMA), blood vessels were observed.

"In conclusion, this study serves as a foundation demonstrating that, as a subcutaneous implant, the sphere-template poly(HEMA) tissue scaffold exhibits good biocompatibility and supports cellular infiltration, collagen formation, and neovascularization," the authors write. "Because of its tightly controlled porous structure, the sphere-templated poly(HEMA) implant also may induce less scar-type healing response than the HDPPE implant."

One author disclosed financial ties to Healionics, which has licensed the sphere-templated scaffold technology from the University of Washington.

More information: Abstract
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