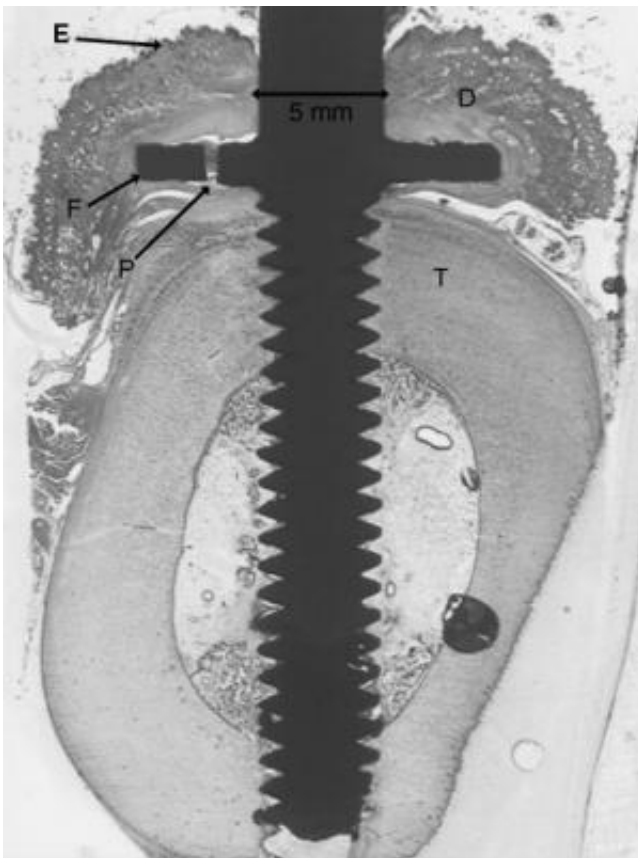


New prosthetic leg attaches directly to the bone

September 8 2014, by Bob Yirka



A transverse section through a flanged ITAP (diameter 5mm). Credit: *J Anat.* Jul 2006; 209(1): 59–67. doi:10.1111/j.1469-7580.2006.00595.x

(Medical Xpress)—Researchers at the Royal National Orthopaedic hospital and the Royal Orthopaedic hospital, both in the U.K. have just completed the first stage of medical trials for a new type of leg

prosthetic—instead of a cup design, the artificial leg attaches to a piece of metal that is connected directly to the leg bone. Developed and built by Stanmore Implants, the prosthetic called ITAP (Intraosseous Transcutaneous Amputation Prosthesis) takes a whole new approach to creating an artificial leg.

Despite the headlines, most biomedical researchers readily admit that for most people, [artificial legs](#) are little more than updates to a design that has been in use for hundreds of years. When a leg is removed, skin, muscle and other tissue is left at the end of the stump, where it is sewed closed. In fitting an artificial leg, a plastic mold is used to create a cup that matches as closely as possible to the contours of the stump. The cup is then fitted to various types of artificial legs. In this new effort, the researchers actually insert a piece of metal through the end of the stump and affix it to the bone leg inside. When finished, the piece of metal protrudes through the skin, as would bone were it to be exposed. An artificial leg clicks into place on the piece of metal, providing a much more comfortable and stable [prosthetic leg](#).

In the initial trial, 20 patients with above-the-knee amputations had ITAPs implanted and artificial legs fitted. The researchers report that many of those volunteers report a better quality of life, with some of the volunteers describing the new device as life changing. Stanmore reports on their web page that they got the idea of implantable prosthetics from studies conducted on deer antlers—their antlers grow through their skin yet the animals are not adversely impacted by infections. This is because, they note, deer antlers at the base are made of porous bone—soft tissue grows into the holes allowing the tissue to stabilize. The metal piece in the [prosthetic device](#) works the same way, thus, there is little to no danger of infections.

Also, a team of researchers from Tufts University and Poly-Orth International are working together on a similar design, what they call a

direct skeletal attachment (DSA) for use as a leg prosthetic device. They've uploaded a paper to the NIH public access website describing their work. For such a prosthetic device to be sold in the U.S. it must first pass approval by the FDA.

More information: www.stanmoreimplants.com/itap-implant.php

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