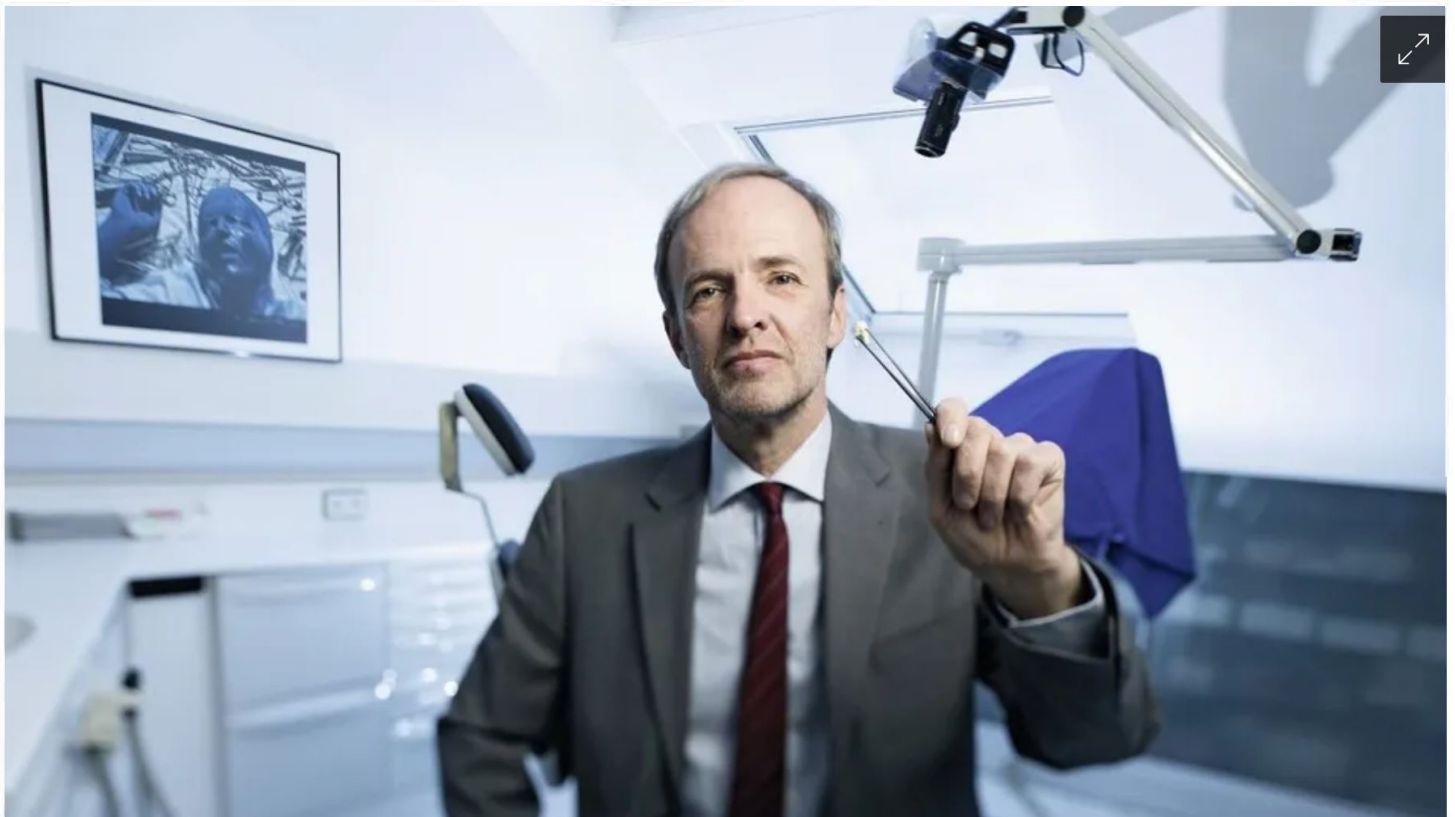


Into the old bone hole

A Viennese doctor wants to shake up the implant industry – with computer-designed implants. Many jaw operations would be unnecessary.

From **Martin U. Müller**

06.05.2016, 13.00 • by **DER SPIEGEL 19/2016** (Original in German translated into English by Amir Holjevac-Ansari 2024)



Inventor Pirker: »Tap on it and you're done« Foto: LUKAS BECK / PAGE SEVEN / DER SPIEGEL

Actually Wolfgang Pirker could lead a relaxed life. He lives with a view of the roofs of St. Stephen's Cathedral in Vienna, and only treats patients on a few days a month. If it weren't for his life's work: dental implants. He often sits at his computer until late at night, evaluating cases, writing scientific texts and arguing with his opponents on Facebook.

Pirker, 53, is a maxillofacial surgeon and believes he has made an invention that could revolutionise the billion-dollar implantology industry. The titanium screw implant, which is now widely used, was developed around 40 years ago. Not much has happened since then. New types of screws are constantly being launched onto the market, the surfaces are changing, and there are studies on which drilling templates make the procedure simpler. But the principle has not changed: Instead of the root of the tooth, a screw is driven into the jawbone; once it has healed, an artificial crown can be placed on it.

»It's a completely primitive system, comparable to a screw from Ikea«, says Pirker. 150,000 people in Germany have a dental implant placed in this way every year. The screws are mass-produced, but they can cost several hundred euros each to buy.



Pirker claims that it is easier, gentler and better to replace a tooth.

His method is simple. He carefully removes the bad tooth, scans an impression of it and then mills a new root out of ceramic using computer-assisted technology. It has the same shape as the real tooth. The subsequent procedure, which takes just a few seconds, can hardly be described as an operation. »I take the implant in two fingers and insert it into the tooth socket. Then I tap it and that's it.« The ceramic tooth grows together with the bone after a few weeks – provided there has been no major inflammation beforehand.

He has already treated 150 patients in this way; the success rate is over 90 per cent. The oldest implants have not caused any problems for ten years. »I am a doctor and I want to expose patients to as little risk as possible. Why drill a hole in the jaw when there is already one there?« says Pirker. He meticulously documents every case, has published several specialist articles and has 76,000 patient photos stored on his hard drive. The major implant manufacturers wanted to meet with the Viennese inventor and were always interested in the concept, he says. But Pirker sees the idea as a revolution that he is not willing to give up so easily.

One afternoon in April, he is sitting on the 20th floor of the Vienna University Hospital, clicking through the CT scan of the jaw of one of his implant patients; Alfred Kocher, the head of heart valve surgery, is providing scientific support. »As a surgeon, the principle makes perfect sense to me«, says Kocher. Oral and maxillofacial surgeons, on the other hand, shy away from the idea of dealing with the invention that Pirker wants to commercialise under the name Bioimplant.

»If my procedure were to catch on, the lucrative field of immediate implantology would suddenly come to an end,« says Pirker. »Anyone can stick an anatomical implant into an existing socket.«



Video (2:41) Plug in instead of screw in

SPIEGEL journalist Martin U. Müller explains the method of replacing teeth with inserted ceramic instead of screw-retained implants.



He wants to see a scientific debate on the idea – it is simply being hushed up, he says. »You can't get it into the good medical journals because the established professors control access. Large-scale studies are expensive, and for that you also need the industry, which has no interest in abolishing it.«

If you ask leading German-speaking scientists, many of them find the system "interesting", but also risky, and criticise the lack of studies. They often argue citing a similar product from the nineties, which was a big failure. Pirker says: »That is complete nonsense and not at all comparable. No one from the scientific community has been here to look at the difference. They don't even know what it is exactly.«

Georg Bach from the German Society for Dental Implantology does not want to dismiss the method out of hand. »In the hands of an experienced practitioner and if all the necessary conditions are met, it can work, no question about it.« However, he points out that there is good long-term experience with classic screw implants.

For Pirker, this is not an argument. »You can still screw a screw into the jaw, with all the risks that entails, if simpler measures fail, with no surgical risk.« He receives inquiries from all over the world, but at the moment all interested parties have to come to Vienna. The costs are similar to those of a screw implant; Pirker says he is losing money because at the moment every ceramic root is handmade.

In the meantime, there is competition: a system from Berlin called Replicate, whose founder Rüdger Rubbert has raised millions in venture capital. Rubbert says he was also inspired by the bioimplant concept. His company wants to quickly become suitable for mass production and thus cheaper.

Pirker also dreams of the mass market and believes in pressure from below. »The patient will quickly explain to the expert that he will not undergo surgery if there is a non-surgical alternative.«