



Next Generation Bone Implant for the Elderly

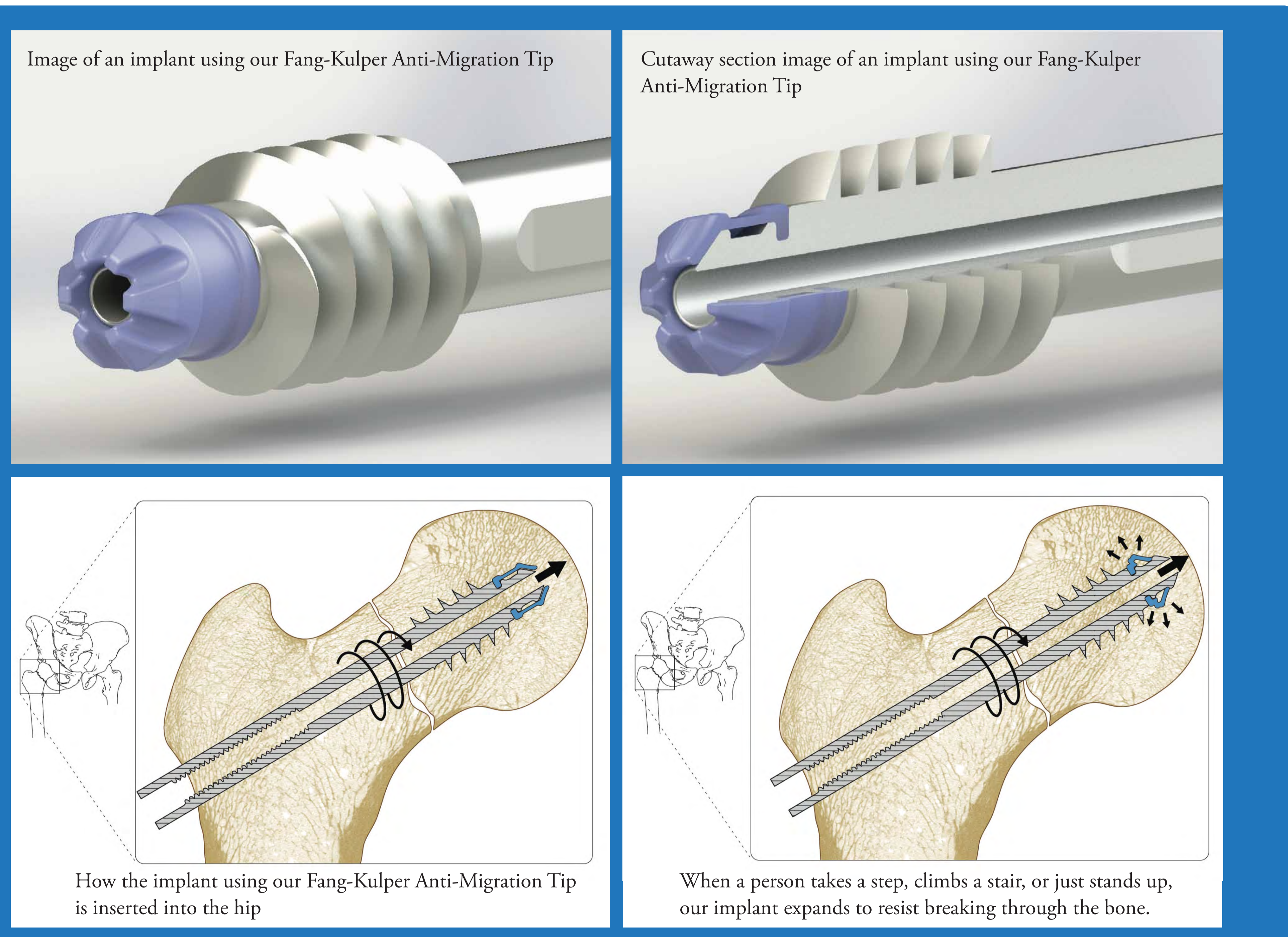


We have developed the Fang-Kulper Anti-Migration Tip, a bone implant technology designed to help elderly patients recover more quickly and safely from broken hips, shoulders, and spinal fractures.

THE NEED

Patients suffering from large joint fractures need to undergo surgery to have their broken bones realigned. Surgeons use bone screws to help realign broken bones and allow them to heal, usually over about 3 months.

Elderly patients, especially those suffering from osteoporosis, have very soft bone tissue, which means that sometimes these bone screws, made of rigid steel or titanium metal, **break through the bone** when elderly people take a step, fall, or even just stand upright. This is very painful and can lead to follow-up surgery.



OUR NEW TECHNOLOGY

A research team at the Department of Orthopaedics and Traumatology, comprising **Sloan Kulper, Dr Christian Fang, Dr Erica Ueda Boles, Professor Frankie Leung and Professor William Lu**, has developed a new bone implant technology to address this problem. The **Fang-Kulper Anti-Migration Tip** is a bone implant technology designed to help elderly patients **recover more quickly and safely** from broken hips, shoulders, and spinal fractures.

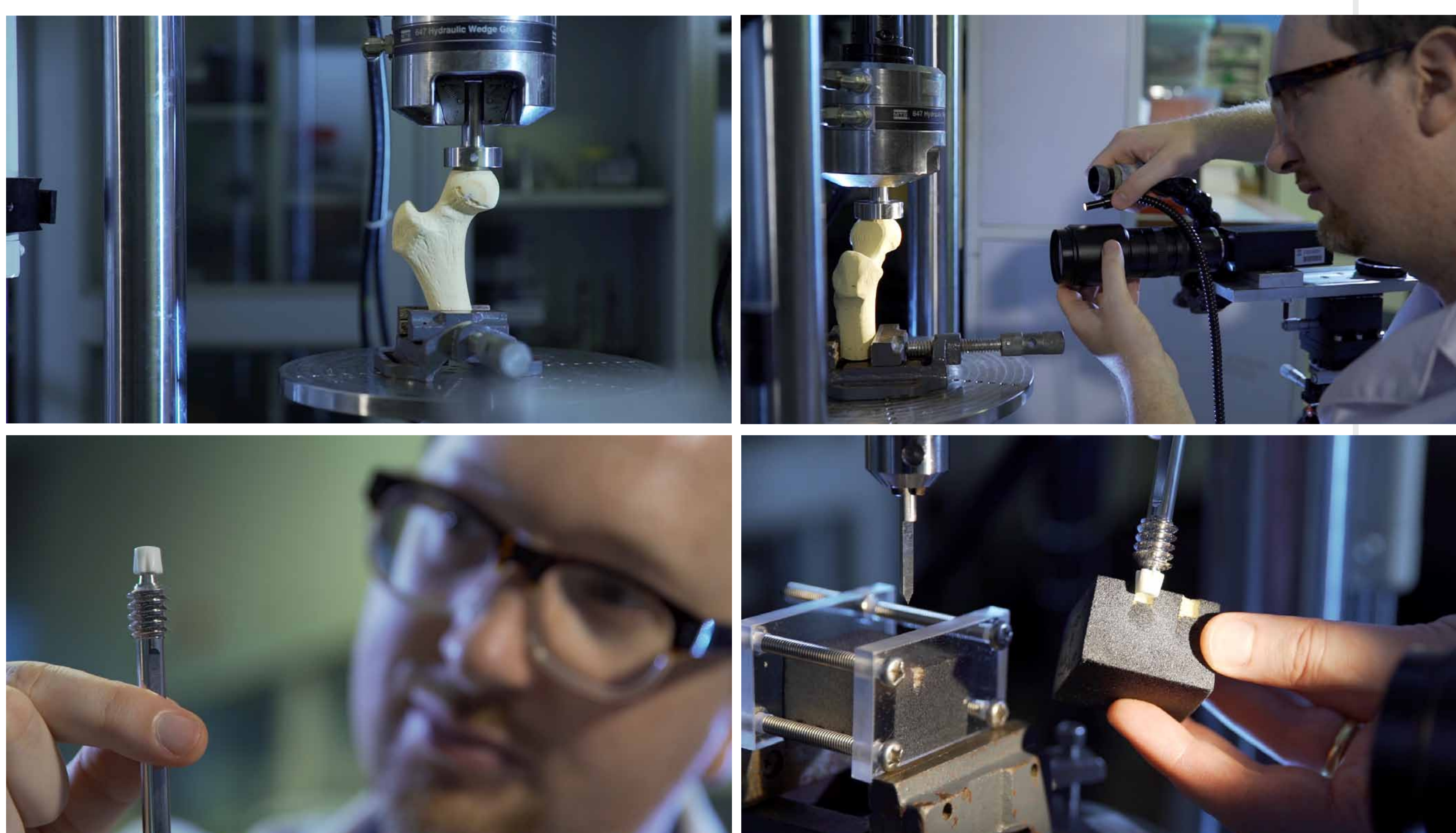
Our bone screw has a tip made of soft medical-grade rubber that acts like a "pillow" that spreads out the pressure between the screw and bone tissue. Once inserted, the rubber tip is designed to expand sideways, creating a snug fit between the screw and the bone.

ADVANTAGES OVER EXISTING TECHNOLOGIES

Our bone screw offers a **more gentle approach to bone fracture repair**, which means that elderly patients can heal quickly, protecting their relatively delicate bones from future fractures. Advantages over existing anti-cutout methods include elimination of cement augmentation risks, shortened surgical time, and reduced severity of complications due to operator error.

This technology can be applied at minimal cost to commonly-used trauma and spine implants for patients with osteoporotic bone, improving biomechanical stability while reducing post-surgical complication rates. Preclinical tests showed 95% less migration in femoral neck fixation using humeral/femoral locking screws, dynamic hip screws, and hip nails.

This device is being commercialised by **Lifespans, Ltd.**, a startup founded by the HKU research team.



FIND OUT MORE

Lifespans, Ltd.: www.lifespans.net





新一代骨骼植入物



我們研發了新的骨骼植入技術:Fang-Kulper Anti-Migration Tip，防移行的頂端可幫助不幸有臀部、肩部或脊柱骨折的長者更快更安全地康復。

當前需要

大關節骨折的病人需要進行手術使骨折部分重新接合，外科醫生會使用骨螺釘來接合骨折部分，病人通常需要大約3個月時間康復。

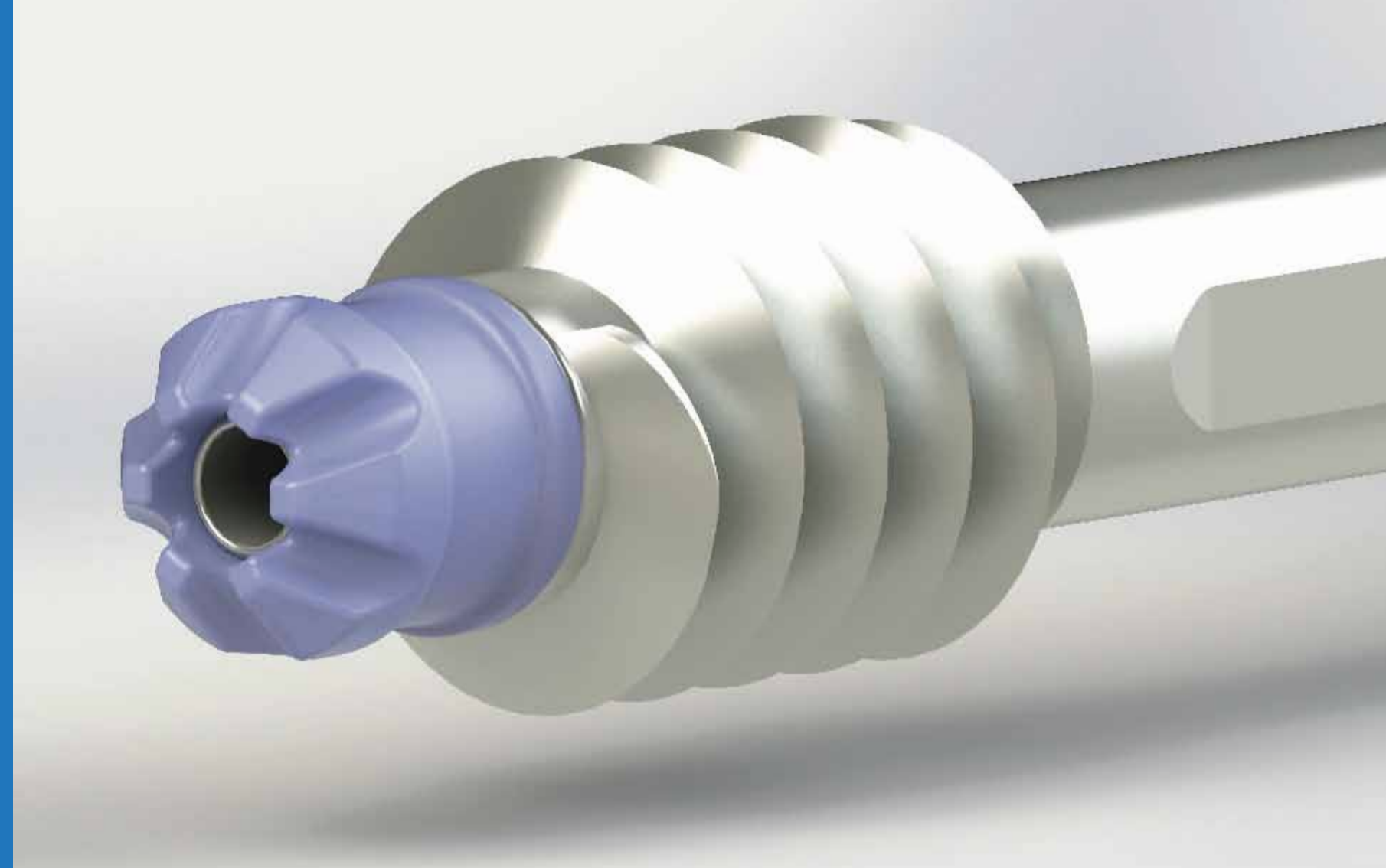
年長患者，特別是那些患有骨質疏鬆症的患者，骨組織非常軟，這意味著由剛性鋼或鈦金屬製成的骨螺釘，可能會隨著患者步行、跌倒、甚至只是單單站立，**刺穿骨骼**，令患者痛楚難當，並可能需要進行跟進手術。

港大研發的新技術

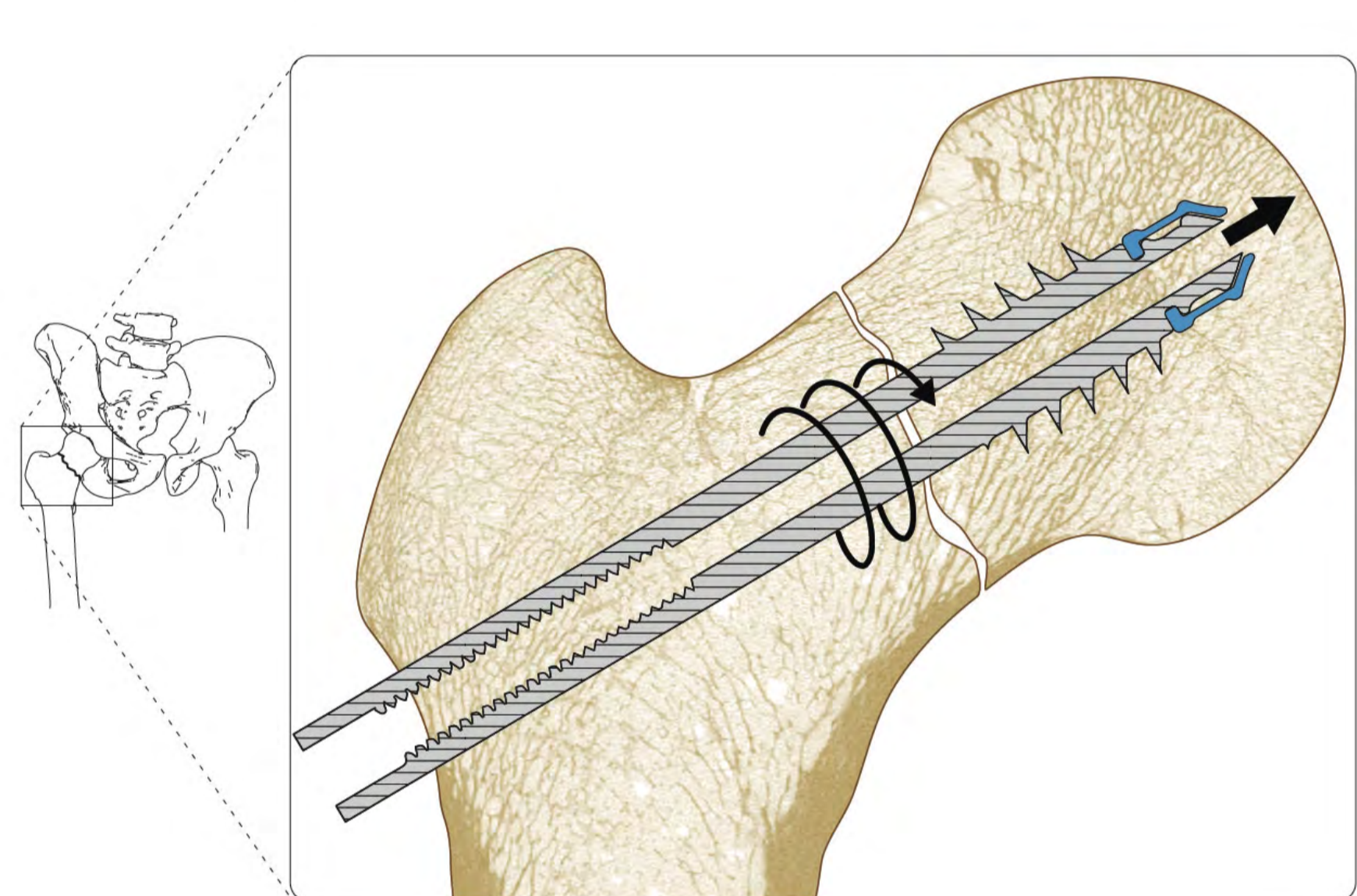
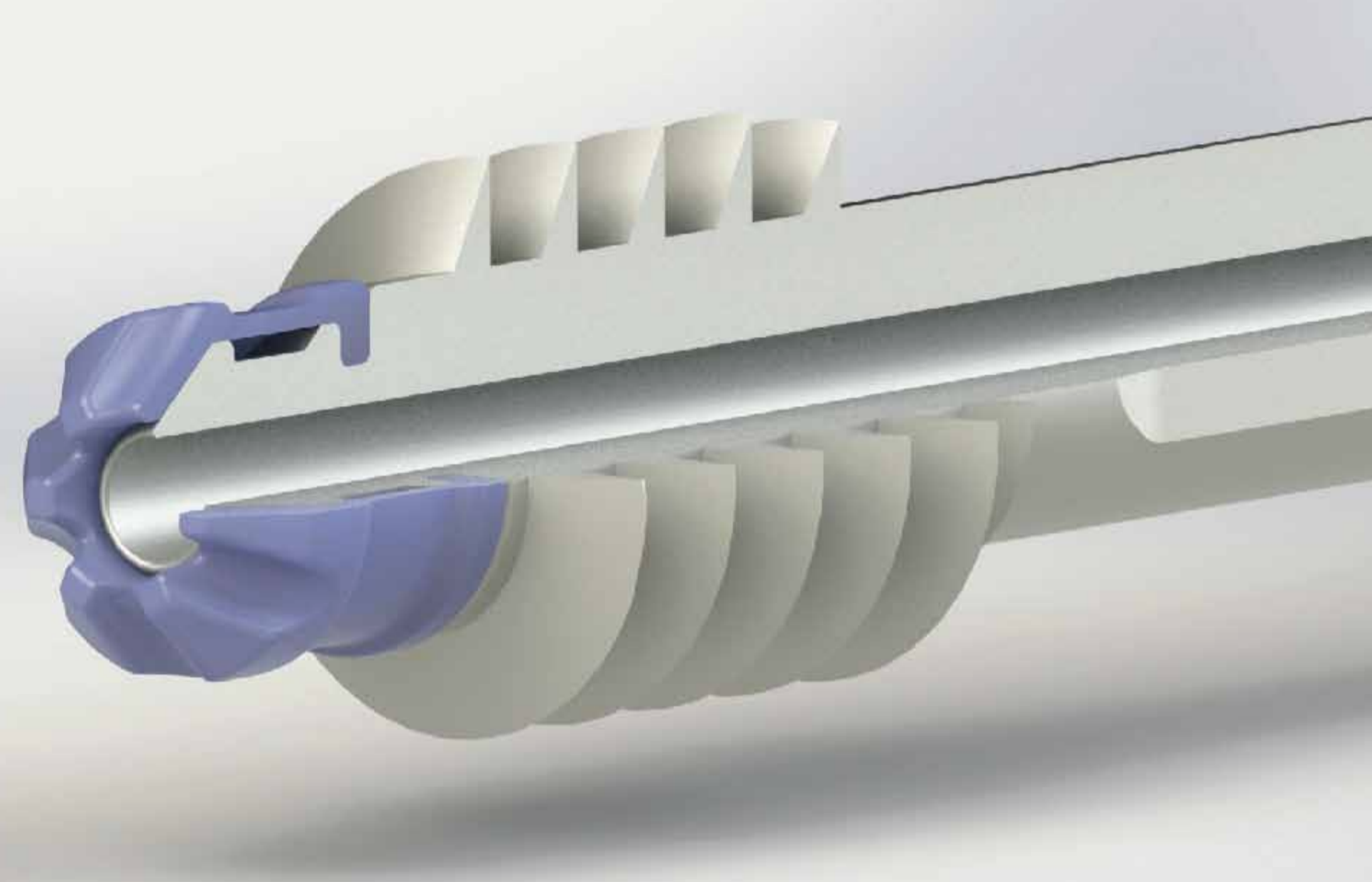
香港大學矯形及創傷學系的一個研究小組，包括古思融博士生 (Sloan Kulper)，方欣碩醫生，Dr Erica Ueda Boles, 梁加利教授及呂維加教授，研製出一種新的骨骼植入技術來解決這個問題。Fang-Kulper Anti-Migration Tip是一種骨骼植入技術，旨在幫助不幸有臀部、肩部或脊柱骨折的長者**更快更安全地康復**。

這種新的骨螺釘有由柔軟的醫療級橡膠製成的尖端，作用就像一個“枕頭”，用作分散螺釘和骨組織之間的壓力。將螺釘插入骨頭後，橡膠尖端就會橫向擴張，把螺釘和骨恰到好處的扣起來。

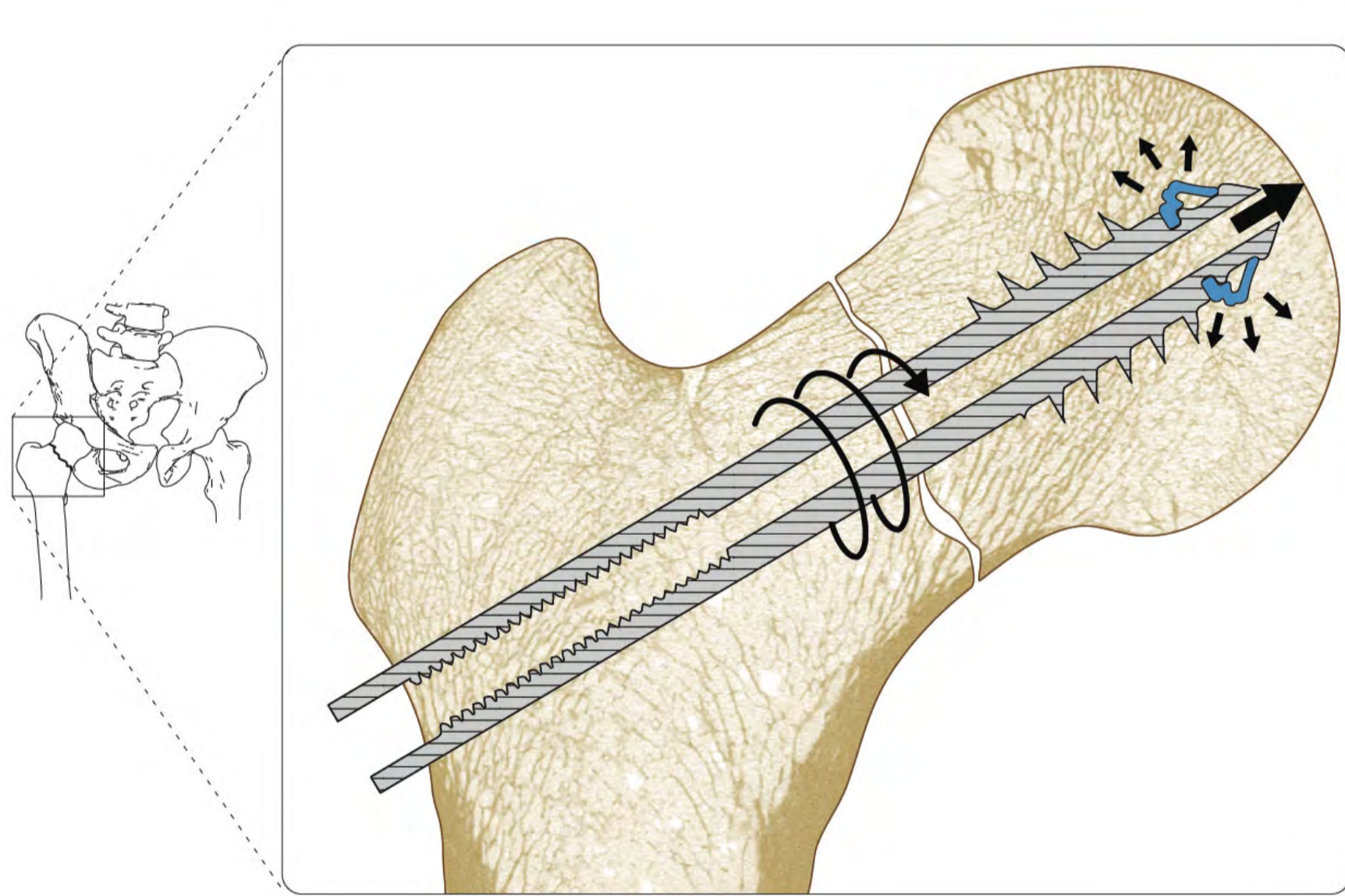
使用Fang-Kulper Anti-Migration Tip的植入物圖像



使用Fang-Kulper Anti-Migration Tip的植入物剖面圖像



如何將“Fang-Kulper Anti-Migration Tip”的植入物插入臀部



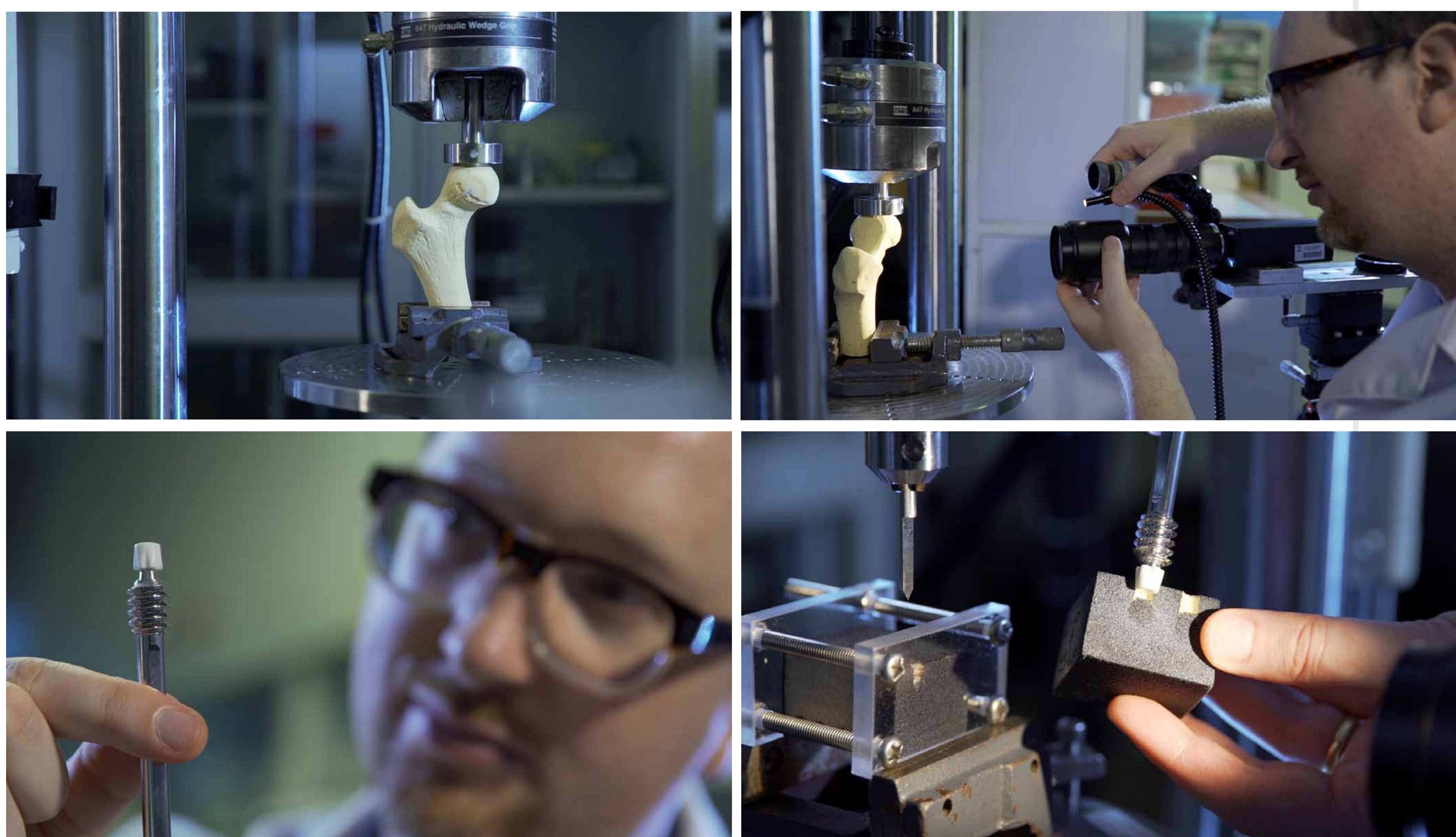
當病人步行，爬樓梯，或者站立時，我們的植入物會擴張以防止螺釘因病人活動而刺穿骨頭。

相對優勢

我們的骨螺釘提供了一種**較溫和的骨折修復方法**，可幫助年長患者迅速癒合，並保護他們相對脆弱的骨骼，避免再度骨折。相比現時的防切口方法，我們的新技術不需以骨水泥來加固螺釘，可以消除這方面的風險，縮短手術時間，並減低因操作偏差引起併發症的嚴重程度。

這種技術可以以低成本應用於骨質疏鬆患者的常規創傷和脊柱植入物，提高生物力學的穩定性，同時減低手術後併發症的機會。臨床前測試顯示，使用這種技術的肱骨/股骨鎖定螺釘，動態髖關節螺釘和髖關節釘，在股骨髁的移位減少了95%。

香港大學研究團隊創立的**Lifespans**有限公司現正致力將這項技術商品化，以應用於相關治療。



了解更多

Lifespans, Ltd.: www.lifespans.net

