

## Study Stats



Does barbed suture lower cost and improve outcome in total knee arthroplasty (TKA)?

### A randomized controlled trial (RCT).

Chan V. WK, Chan P-K, Chiu K-Y, Yan C-H, Ng F-Y. *J.Arth.* 2016.12.015

**Human study** demonstrates significant time, cost, and outcome improvements in TKAs using barbed versus traditional suture.



### CONCLUSION

**STRATAFIX™ Spiral Knotless Tissue Control Device** was more efficient than traditional suture in TKA in terms of operation time and cost. Barbed suture was associated with less arthrotomy leakage and less wound complications.



### HYPOTHESIS

Barbed suture can improve the efficiency of TKA with no differences in wound complications and clinical outcomes versus traditional suture.

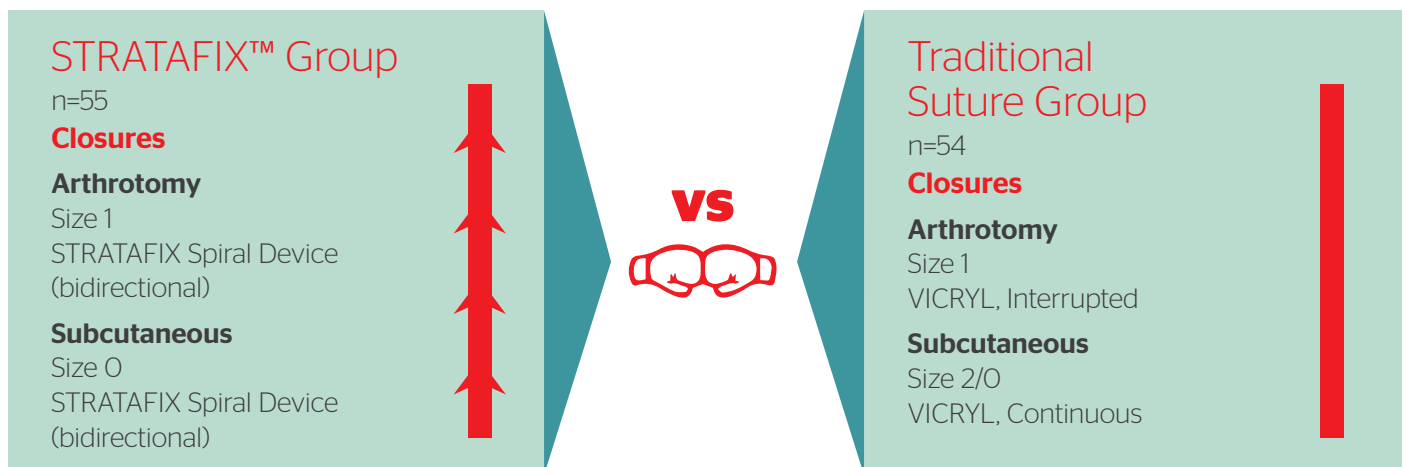
### METHODS

- Each knee randomized independently
- Two surgeons involved in arthrotomy closure; one surgeon for subcutaneous closure
- Wound closure time started with first suture placed; ended when last suture end cut
- Surgical staples for skin closure

**109  
TKAs**

**Primary Endpoints:** Wound closure time and cost

**Patient Follow-up:** 2 weeks, 6 weeks, and 3 months





# RESULTS

## Leak Test

More positive leak tests were reported in the traditional suture group.



An optimal tension watertight closure reduces the chances of dead space hematomas and infection.<sup>1</sup>

**Leak Test:** Performed after arthrotomy closure by intra-articular tranexamic acid injections.

## LEAK TEST RESULTS

Number of knees with leakage.

STRATAFIX™ Spiral Knotless Tissue Control Device	Traditional Sutures	P value
N=55	N=54	
<b>2</b>	<b>10</b>	<b>.02*</b>

\*Denotes P Value of <05

## Total Wound Complications

Total number of wound complications was significantly higher in the traditional group. Although not statistically significant, stitch abscess and dehiscence were the highest contributors to total wound complications. Complications in both groups were minor and resolved with conservative care.

STRATAFIX Spiral Device	Traditional Sutures	P value
<b>2</b>	<b>9</b>	<b>.03*</b>

\*Denotes P Value of <05

**Wound Complications:** Diagnosed by an attending surgeon based on CDC criteria.



Traditional suture requires multiple knots, which increases foreign body reaction and acts as nidus of infection, increasing the chance of stitch abscess formation and wound infection. Moreover, uneven wound tension with interrupted suture increases the risk of wound dehiscence.

No significant differences in range of motion and knee society scores were seen.

## Wound Closure Time

Arthrotomy and subcutaneous closure times were both significantly shorter in the barbed suture group.

**Total wound closure time was 241 seconds (4.02 minutes) faster with barbed suture.**



## Cost Savings per TKA Using Barbed Suture



Using barbed suture on average saved **\$49 per TKA**



Estimated net saving to the hospital: **\$203 per TKA**

Cost savings derived by calculating material costs of the sutures and time saved during the procedure. Cost of operation per unit time (excluding cost of implants and other consumables): \$0.3999 per second.

**For complete indications, contraindications, warnings, precautions, and adverse reactions, please reference full package insert.**