

Head to Head

STAR™ vs. Fusion

Both the STAR and fusions are known to treat ankle arthritis and have been shown to improve gait postoperatively⁴ and reduce pain³, but do you know the rest of the story...



STAR

vs.

Fusion



- ▶ Only 20% (N=11/55) progressive subtalar joint arthrosis at an average of 9.1 years¹
- ▶ Enables motion at the joint
- ▶ Designed to allow for moderate weight bearing healing time (2-6 weeks)
- ▶ STAR patients shown to have higher function than ankle fusion patients in walking up and down stairs and uphill⁴.

- ▶ 91% (N=21/23) progressive subtalar joint arthrosis at an average of 22 years²
- ▶ Locks ankle in fixed position
- ▶ May be associated with prolonged non-weight bearing healing time (up to 3 months)³
- ▶ Fusion patients shown to have lower function than STAR patients in walking up and down stairs and uphill⁴.

Let's talk about clinical studies

Jastifer et al studied the effect of ankle joint replacement and fusion on patients' ability to undertake certain activities of daily living.⁴ In this level II prospective comparative study, they analyzed clinical and functional differences from patient assessments in completing certain tasks, such as walking up stairs or walking on a 5 inch thick gymnastic foam material.

The 12 month follow up showed statistically significant improvements in the below activities:

- ▶ Walking uphill and downhill⁴
- ▶ Ascending and descending stairs⁴
- ▶ Walking on uneven surfaces⁴
- ▶ Walk on flat surfaces⁴

Arthroplasty patients had better outcome walking upstairs, downstairs and uphill compared to patients with fusion. The STAR patients experienced statistically significant improvements in ankle dorsiflexion and plantarflexion compared to arthrodesis patients at the 6 and 12 month post-operative timepoints⁴. The authors indicated their belief that the difference may be due to preserving ankle motion for the arthroplasty recipients.

**Walking uphill
and downhill⁴**



**Ascending and
descending stairs⁴**



**Walking on
uneven surfaces⁴**



Myth busting

Myth: Fusing an ankle is a straight forward procedure.

Fact: Reports show a successful ankle fusion of 80-100% of the time.¹¹⁻¹⁷ What happens when the fusion does not occur or results in a mal-union? Additional surgeries and possible bone grafting may be needed to realign the bones.³ If the fusion goes well the first time, patients may still experience long term decrease in mobility and an increase in adjacent joint arthrosis.³

Myth: Ankle arthrodesis is the only option for patients.

Fact: Ankle arthrodesis has been the “gold standard” for treating advanced ankle arthritis for many years⁷. Both total ankle arthroplasty and arthrodesis groups had high patient satisfaction, both had improvements in BP scores, VAS scores, AOFAS hindfoot scores and functional scores⁴; so why would you want to continually choose fusion when you have a proven alternative for some of your patients? In the Pivotal Study¹⁰, the arthroplasty group demonstrated significantly greater efficacy and overall success compared to the fusion group at 24-month follow-up.

So here are the facts:

STAR implant offers:

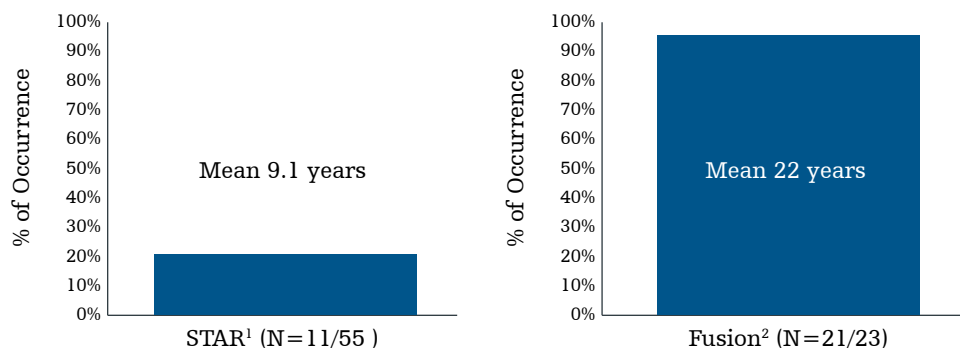
- ▶ Modular components
- ▶ 225 patient matched configurations⁸
- ▶ Greater efficacy over fusion¹⁰
- ▶ STAR has comparable safety to fusion¹⁰

Fusion offers:

- ▶ Predictable pain relief²
- ▶ Fixed ankle joint³
- ▶ Increased progressive subtalar joint arthritis²

Flexible

Progressive subtalar joint arthritis



You don't need a crystal ball to see into the future

Did you know that ankle fusion is associated with premature deterioration of other joints in the long term²? Coester², et al showed that over 91% (N=21/23) of ankle fusion patients developed significant subtalar joint arthritis (grade 4 or worse), and over 56% developed talonavicular arthritis (grade 4 or worse). In addition, the calcaneocuboid, tarsometatarsal, naviculocuneiform, and first metatarsophalangeal joints on the ipsilateral side all revealed a significantly increased level of osteoarthritis compared with those joints on the contralateral side.² Grades of osteoarthritis were consistently higher for the ipsilateral foot than the contralateral foot.² In another paper it was published that 88 % (N=73/84) of adjacent joints evaluated had no progression of arthritis at an average of 10 years following the STAR ankle implant.¹ Despite mild progression of arthritic changes in 21 (of 84) joints, no patient was symptomatic, or required an arthrodesis of any adjacent foot joint.¹

Supported



Guidance

Ask STAR faculty for advice about a case



Technical specialists

Stryker's specialist attends early and complex cases

- ▶ Combined case experience 6,000+ TARs



Observations

Visit STAR faculty to observe a case



Local training

- ▶ STAR Certification Courses



Proctorships

STAR faculty comes to your case



Stryker dedication

- ▶ Regional specialists
- ▶ 500+ foot & ankle sales representatives
- ▶ Market leader in orthopaedics

References

1. Mann, JA, et al; STAR™ Ankle: Long-term Results; FAI 2011 May; 32(5);S473-84
2. Coester LM, Saltzman CI, Leupold J, Pontarelli W. Long-Term Results Following Ankle Arthrodesis for Post-Traumatic Arthritis. J Bone Joint Surg Am 2001;83A(2):219-228.
3. Coughlin, M. (1999). Surgery of the Foot and Ankle (7th ed.). St. Louis: Mosby.
4. Jastifer J, Coughlin MJ, Hirose, C. Performance of Total Ankle Arthroplasty and Ankle Arthrodesis on Uneven Surfaces, Stairs, and Inclines: A Prospective Study. FAI Jan;36(1):11-7.
5. Mann, R. A., Mann, J. A., Reddy, S. C., & Mangold, D. R. (2011). Correction of Moderate to Severe Coronal Plane Deformity with the STAR™ Ankle Prosthesis. Foot Ankle Int Foot & Ankle International, 32(07), 659-664. doi:10.3113/fai.2011.0659
6. Nunley J et al: "Intermediate to Long-Term Outcomes of the STAR Total Ankle Replacement: The Patient Perspective", The Journal of Bone and Joint Surgery, Vol. 94, No. 1, Jan 2012
7. Flavin R, Coleman SC, Tenenbaum S, Brodsky JW, Comparison of Gait After Total Ankle Arthroplasty and Ankle Arthrodesis, FAI, 34(10):1340-1348.
8. Stryker STAR Op Tech, STAR-ST-2.Rev 1
9. STAR IFU V15165
10. Saltzman, C. L., Mann, R. A., Ahrens, J. E., Amendola, A., Anderson, R. B., Berlet, G. C.,...Coughlin, M. J. (2009). Prospective Controlled Trial of STAR Total Ankle Replacement versus Ankle Fusion: Initial Results. Foot Ankle Int Foot & Ankle International, 30(7), 579-596.
11. Åke Ahlberg & Anders S. Henrikson (1981) Late Results of Ankle Fusion, Acta Orthopaedica Scandinavica, 52:1, 103-105, DOI: 10.3109/17453678108991768
12. Bishop AT, Wood MB, Sheetz KK. Arthrodesis of the ankle with a free vascularized autogenous bone graft. Reconstruction of segmental loss of bone secondary to osteomyelitis, tumor, or trauma. J Bone Joint Surg Am. 1995;77:1867-75.
13. Boobbyer GN. The long-term results of ankle arthrodesis. Acta Orthop Scand. 1981;52:107-10.
14. Lynch AE, Bourne RB, Rorabeck CH. The long-term results of ankle arthrodesis. J Bone Joint Surg Br. 1988;70:113-6.
15. Mazur JM, Schwartz E, Simon SR. Ankle arthrodesis. Long-term follow-up with gait analysis. J Bone Joint Surg Am. 1979;61:964-75.
16. Morgan CD, Henke JA, Bailey RW, Kaufer H. Long-term results of tibiotalar arthrodesis. J Bone Joint Surg Am. 1985;67:546-9.
17. Said E, Hunka L, Siller TN. Where ankle fusion stands today. J Bone Joint Surg Br. 1978;60:211-4.
18. Gougoulas, N. E., Khanna, A., & Maffulli, N. (2008). History and evolution in total ankle arthroplasty. British Medical Bulletin, 89(1), 111-151.
19. Stryker internal document .Includes world-wide implantations of all generations; newest generation has over 30,000 world-wide since 1998-2015.

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