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Joint Preservation

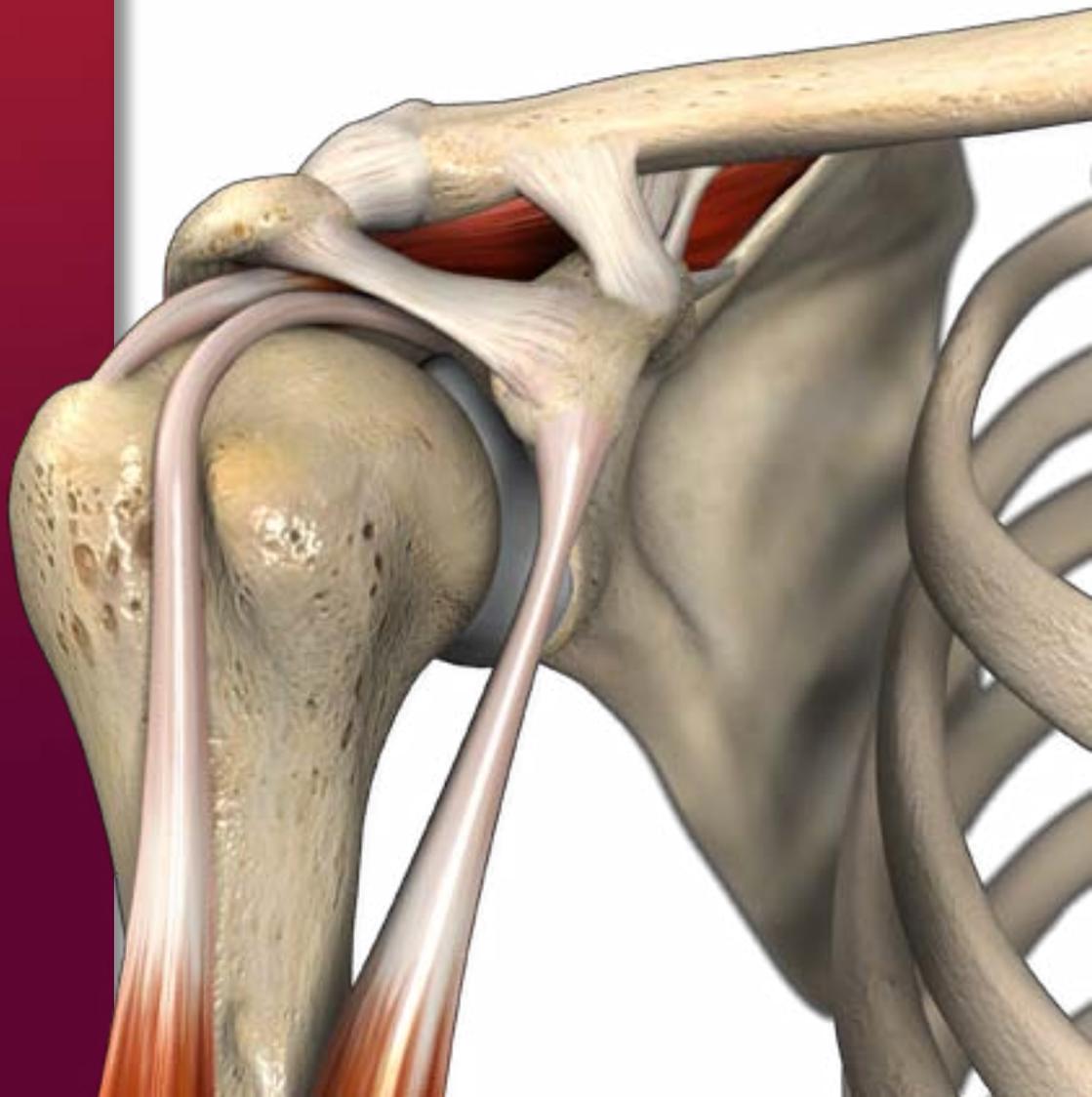
Technique Guide

Knotilus™ Anchor

Instability Repair (Single Portal)

Stuart E. Fromm, M.D.

*The opinions expressed are those of Dr. Fromm
and are not necessarily those of Stryker.*



Instability Repair Using the Knotilus Anchor

Dr. Stuart E. Fromm, MD joined Black Hills Orthopedic and Spine Center in 1997 after completing fellowship training in Arthroscopy and Sports Medicine at Lake Tahoe, CA. Prior to his return to the Black Hills, Dr. Fromm worked as a physician at the Kirkwood Ski Resort and Heavenly Ski Resort while serving as a member of the U.S. Pro Ski Tour. Dr. Fromm is regarded as an international leader in comprehensive knee and shoulder surgery. He has earned numerous patents in developing new techniques and implants for minimally invasive knee and shoulder arthroscopic surgeries which are currently in use around the world. In addition, pending techniques and patents currently under development by Dr. Fromm include technologies for all surgical specialties that are aimed at accomplishing shorter “downtime” for patients. As a result, Dr. Fromm is well published in the literature and has lectured and taught orthopedic surgeons and their supporting staff in these latest techniques around the world.



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Introduction

While the shoulder has more mobility than any other joint in the body, it is also the most unstable. Shoulder stability is mostly a function of the soft tissue structures in the shoulder, such as the labrum. The labrum serves to increase stability by expanding the coverage of the humeral head and as an anchoring point for the long head of the biceps. If the labrum is disrupted, this can lead to instability of the shoulder and pain. By surgically reattaching the labrum to its anatomic location on the glenoid, many studies have shown increased stability of the shoulder and decreased pain. This surgical technique guide describes a shoulder labral repair using a knotless anchor.



Step 1



Step 1.

Access labral pathology to carry out arthroscopic shoulder stabilization. Placement of the cannula should be just superior to the subscapularis tendon. *This procedure can also be done with two anterior portals.*

Step 2

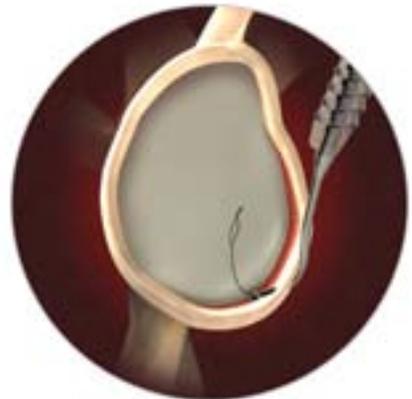
To promote fibroblastic healing to bone, a bleeding bone surface is prepared with the Stryker Champion rasp / liberator system. The 20° up or down liberator may help free significant tissue scarring off the scapular neck. A shaver may need to be introduced to remove any fibrous adhesions.



Step 2.

Step 3

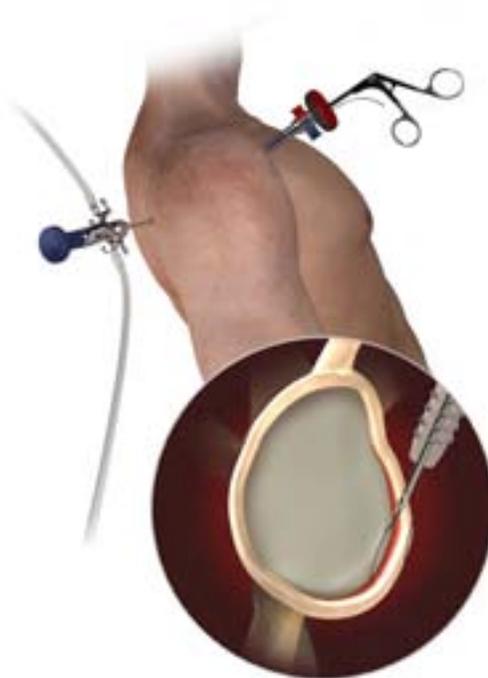
The Stryker Suture Slider 45° (left or right) is inserted into the cannula and passed through labral tissue inferior to anchor position. Once the tip of the Suture Slider penetrates the tissue, the Nitinol wire can be manually advanced into the joint.



Step 3.

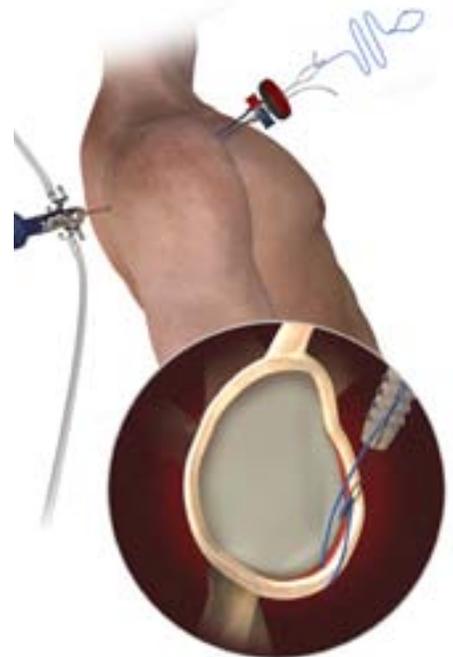
Step 4

a The Stryker Suture Manipulator is used to retrieve the Nitinol wire loop (Step 4a). Both ends of the Nitinol should be outside of the cannula (Step 4b).



Step 4a.

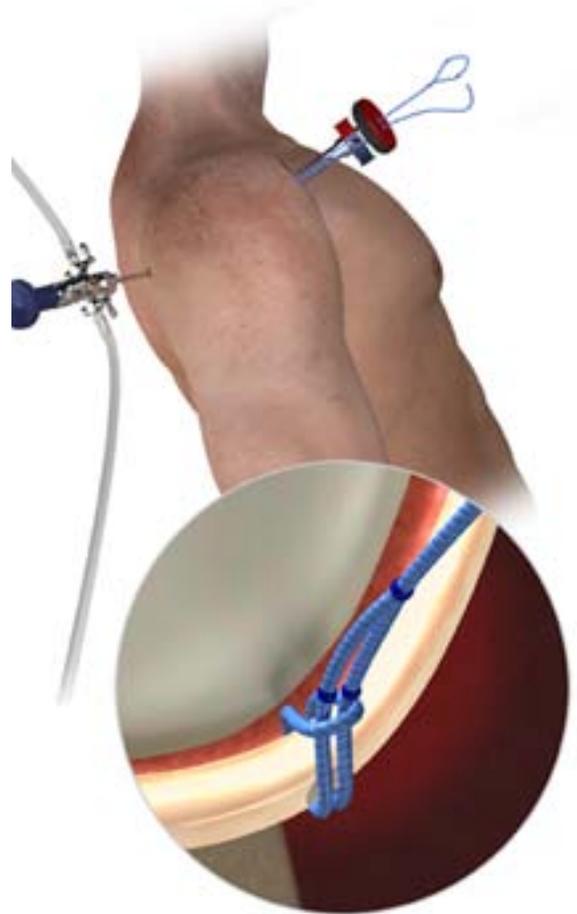
b Outside the portal, five centimeters of the Knotilus Implant Loop is passed through the Nitinol wire loop, and the wire cannula is pulled out the cannula which shuttles the suture through the labral tissue and out the cannula (Step 4b).



Step 4b.

Step 5

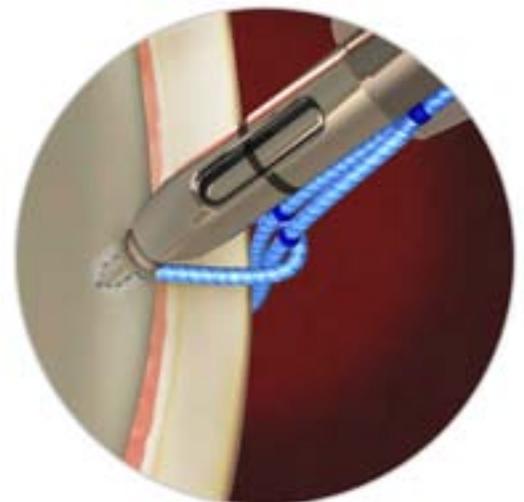
Verify that both ends of the Knotilus Implant Loop are outside of the cannula. Pass the tail of the Implant Loop through the loop portion and pull to proximate the Implant Loop around the labral tissue inside the joint. Ensure that the junction point of the Implant Loop passes through the loop, as shown in Step 5 below.



Step 5.

Step 6

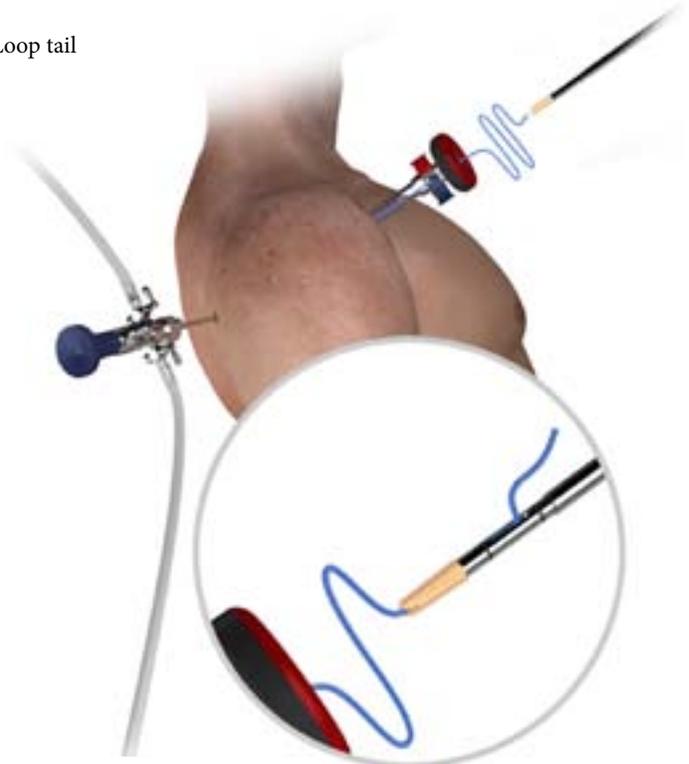
Pass the preferred drill guide through the cannula using the obturator at the lower position of the glenoid. Position the tip of the drill guide on the selected position of the bone such that the tip firmly engages the bone surface to prevent skiving. Insert the Knotilus Step Drill into the drill guide. Advance drill until contact is made with the hard stop and the laser mark on the drill aligns with the laser mark on the drill guide. After creating the pilot hole, remove drill and drill guide.



Step 6.

Step 7

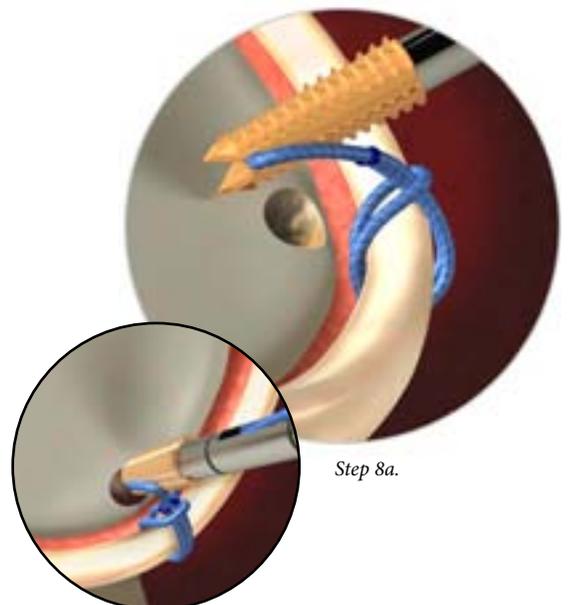
Thread the Implant Loop tail through the anchor tip. The Implant Loop tail should exit through the inserter groove.



Step 7.

Step 8

While holding implant loop tail, slide the Knotilus Anchor down the Implant Loop until it hits the junction point. Orient the anchor as shown in Step 8a. Avoid using excessive force after reaching the junction point in order to prevent pulling the loop inside the anchor and compromising fixation. Take the anchor tip pass point from the tissue to capture and lock the Implant Loop inside the anchor notch as shown in Step 8b.

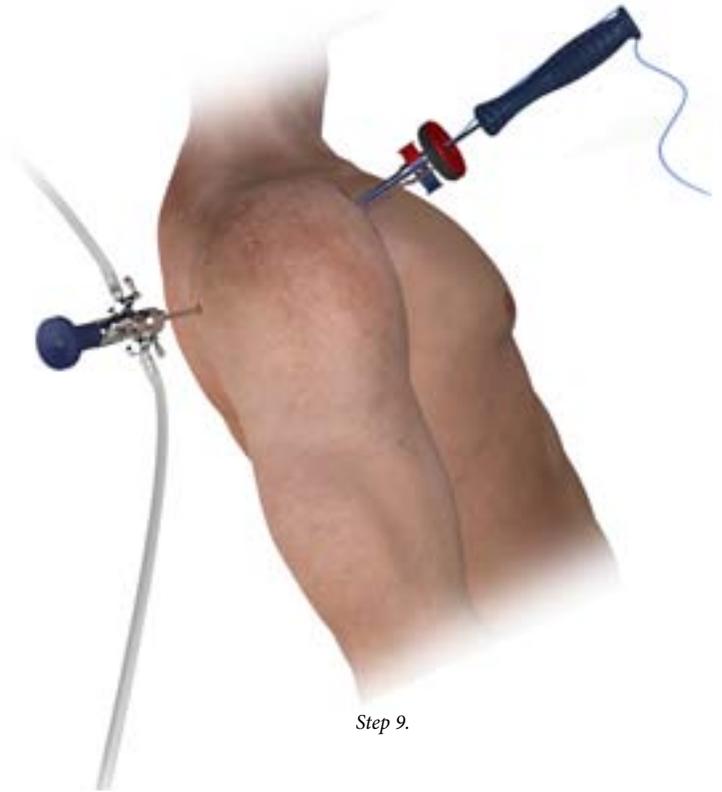


Step 8a.

Step 8b.

Step 9

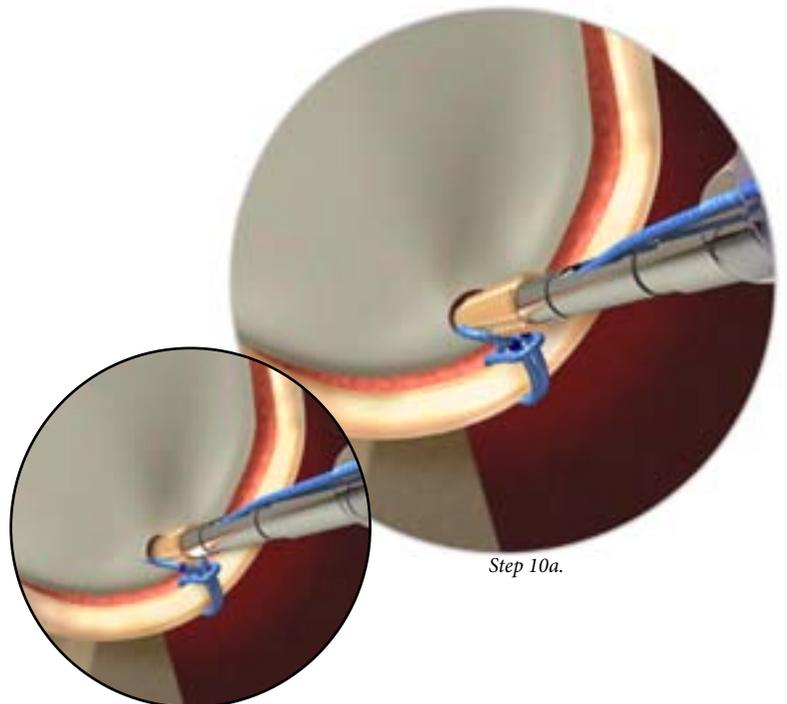
Tension the Implant Loop tail along the inserter and lock the Implant Loop tail in the cleat of the proximal handle. Failure to lock the Implant Loop tail may lead to loop disengagement from the anchor tip.



Step 9.

Step 10

Align the anchor with the pilot hole (Step 10a) such that the anchor is seated in the hole (Step 10b).

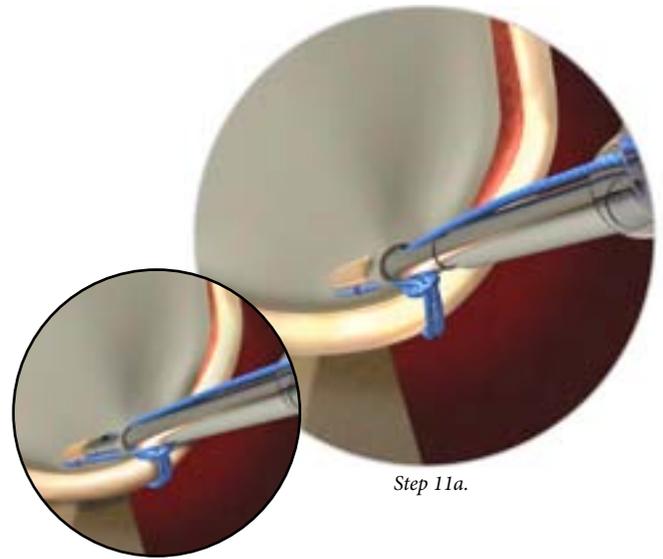


Step 10a.

Step 10b.

Step 11

Use a mallet to advance the anchor into the hole until a desired tissue fixation is obtained and the bone surface is located between the two laser marks on the distal end of the inserter shaft as shown in Steps 11a and 11b. Inserting the anchor beyond the proximal of the two laser marks can lead to tissue tear or component breakage. Inserting the anchor under the distal of the two laser lines can compromise anchor fixation.



Step 11a.

Step 11b.

Step 12

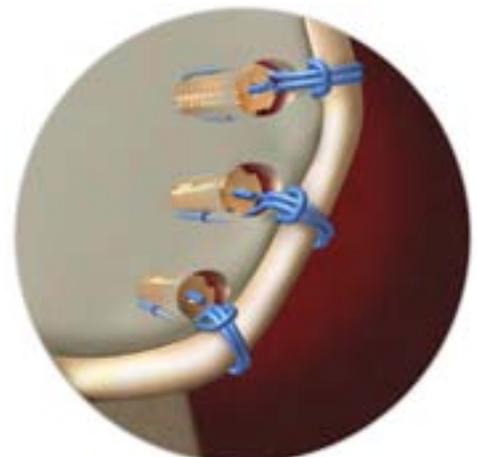
Release the Implant Loop tail from the handle cleat, pull straight back on the inserter handle to release from anchor and remove. Avoid twisting the inserter during removal. Use the Stryker Suture Cutter to cut the Knotilus Implant Loop.



Step 12.

Step 13

Insert additional Knotilus Anchors depending on the size of the soft-tissue defect.



Step 13.

Joint Replacements

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PART NUMBER	DESCRIPTION
3910-500-100	Knotilus Anchor, 3.5mm
3910-500-101	Drill Guide, Sawtooth, 3.5mm
3910-500-102	Drill Guide, Fishmouth, 3.5mm
3910-500-103	Obturator Bullet Tip, 3.5mm
3910-500-104	Step Drill, 3.5mm
3910-500-107	Knotilus Implant Loop, 25mm

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