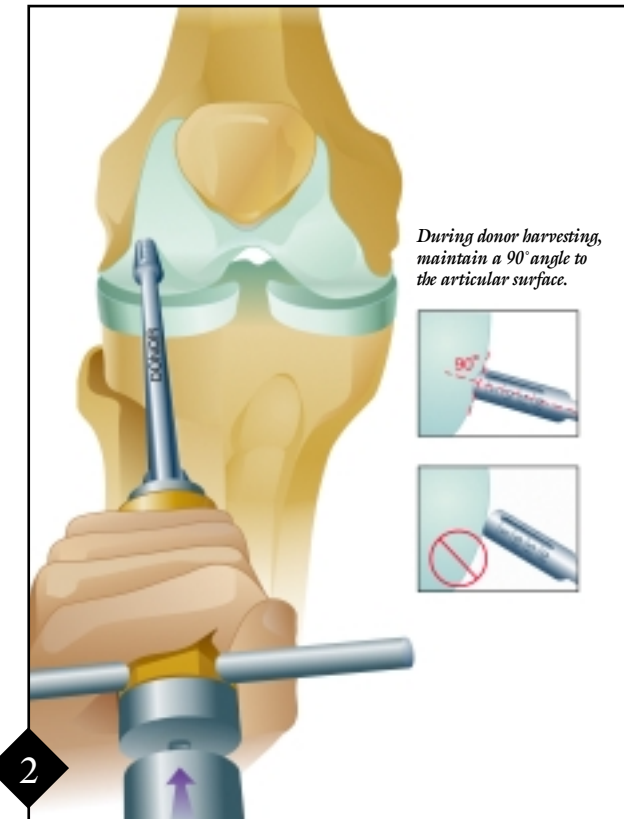


1

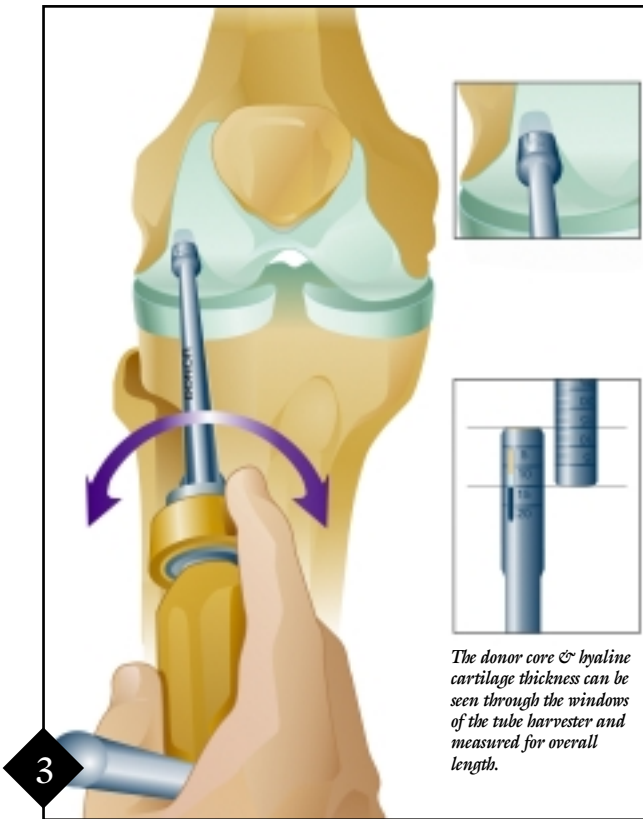
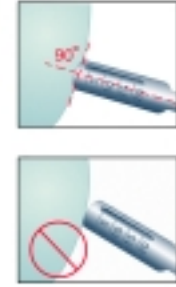
The osteochondral defect is inspected arthroscopically and the size of the lesion is measured. A set of OATS Sizer/Tamps with heads of 5 mm - 10 mm diameters are used to precisely determine the diameter of the defect. The color-coded tamps correspond in size with the diameter of the tube harvesters.



2

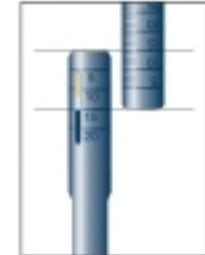
The Tube Harvester Driver/Extractor is assembled. The donor Tube Harvester w/Collared Pin is loaded into the base of the driver and the chuck tightened. A Cartilage Protector Cap is screwed onto the back of the driver. When seated the Collared Pin will protrude a few millimeters past the sharp cutting tip of the harvester to protect articular surfaces.

During donor harvesting, maintain a 90° angle to the articular surface.



3

Once an acceptable position is established, the donor harvester is driven with a mallet into subchondral bone to a depth of approximately 15 mm. Care is taken to avoid rotating the harvester during impaction. Remove the harvester and bone core by axially loading the harvester and rotating the driver 90° clockwise, then 90° counterclockwise.

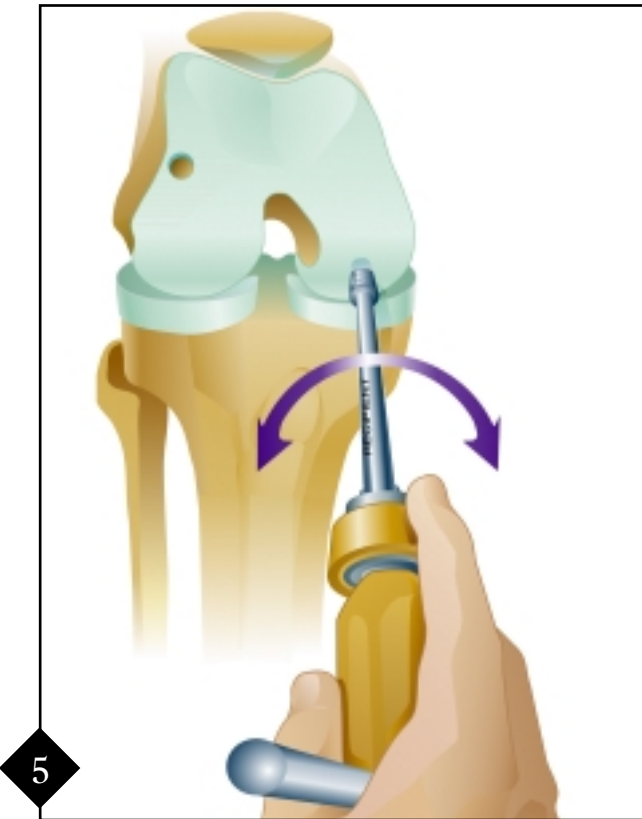
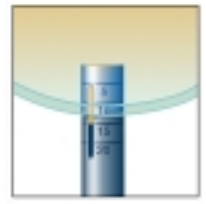


The donor core & hyaline cartilage thickness can be seen through the windows of the tube harvester and measured for overall length.



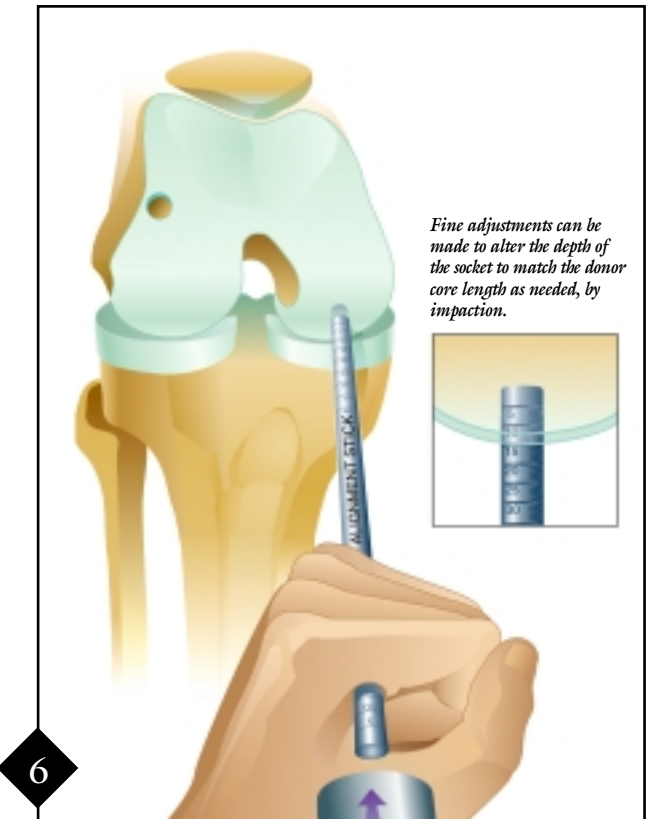
4

The recipient harvester is fully inserted into the driver and the Protector Cap is inserted in a similar fashion. During socket creation, maintain a 90° angle to the articular surface to end up with a flush transfer. The harvester should be rotated so the depth markings are visualized. Care is taken to maintain a constant knee flexion angle during harvesting.



5

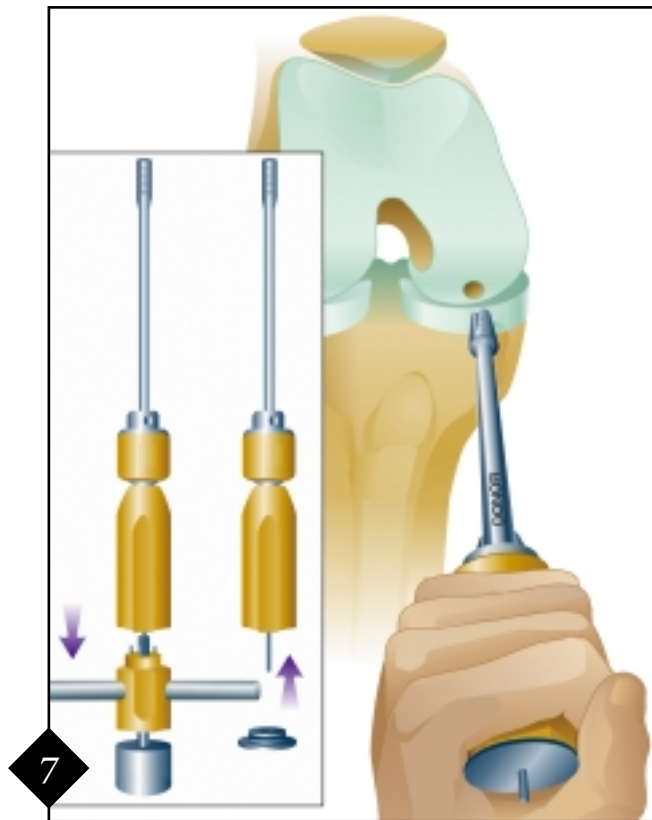
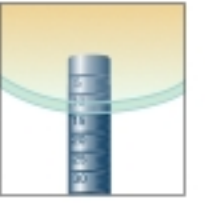
After using a mallet to drive the tube harvester into subchondral bone to a depth of approximately 13 mm (two mm less than the length of the donor core), the recipient bone core is extracted in the same manner as the donor bone core and the depth of the core is measured and recorded.



6

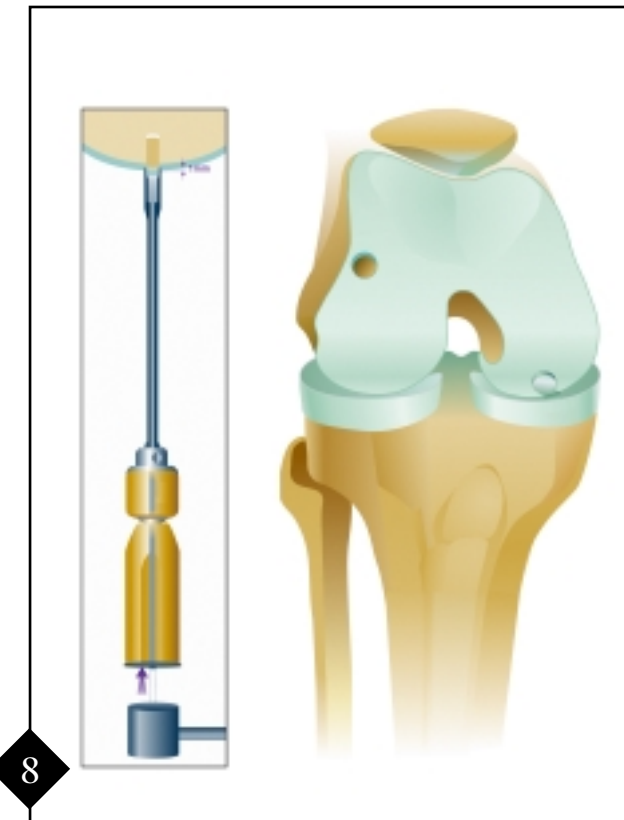
The calibrated OATS Alignment Stick of the appropriate diameter is used to measure the recipient socket depth and correctly align the angle of the recipient socket in relation to the position of the insertion portal when using an arthroscopic approach.

Fine adjustments can be made to alter the depth of the socket to match the donor core length as needed, by impaction.



7

The donor harvester, collared pin and autograft core to be transferred are reinserted into the driver. The cap is unscrewed and the T-handled mid-section removed. This exposes the end of the collared pin which is used to advance the bone into the recipient socket. The Pin Calibrator is inserted over the guide pin and pressed into the open back of the driver.



8

The donor tube harvester's beveled edge is inserted fully into the recipient socket. This stabilizes the harvester during autograft impaction. A mallet is used to lightly tap the end of the Collared Pin and drive the bone core into the recipient socket.

(continued)

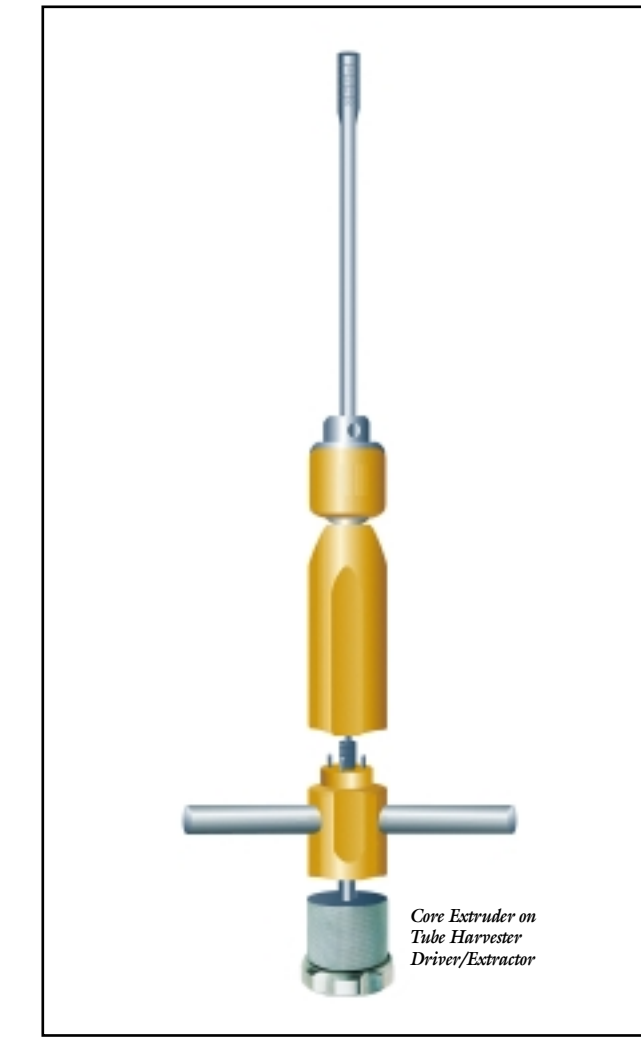
continued from step eight

It is important to maintain a stable knee flexion angle and position of the harvester during this step.

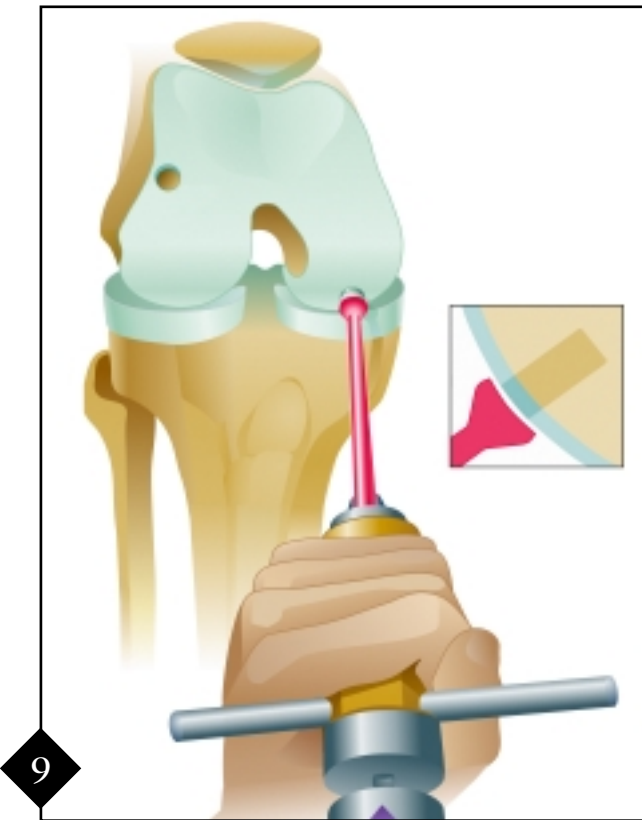
The Collared Pin should be carefully advanced until the end of the pin is flush with the Pin Calibrator on the back of the driver/extractor. This provides exact mechanical control to assure proper bone core insertion depth. The pre-determined length of the collared pin is designed to advance the bone core so that 1 mm of the graft will be exposed from the recipient socket when the pin is driven flush with the end of the Pin Calibrator. Also, one can visualize the core insertion as it is occurring by viewing the core and Collared Pin advancement through the slots in the side of the harvester.

Alternatively, the Core Extruder is an option to using the mallet to insert the bone core into the recipient socket. The donor harvester is placed into the chuck of the fully assembled Tube Harvester Driver/Extractor. As described above, the beveled edge of the donor tube harvester is inserted fully into the recipient socket. While keeping the donor tube harvester firmly in position, the Core Extruder is slowly screwed into the rear of the fully assembled driver/extractor. As the Core Extruder is advanced by turning it in a clockwise motion, the bone core will be forced from the donor tube harvester into the recipient socket. When the Core Extruder is fully seated, the bone core should remain slightly proud.

Note:
Do not attempt to remove the OATS Tube Harvesters prior to completion of Collared Pin advancement. Do not allow the tube harvester to deviate from the insertion angle. Donor core fractures may occur in either of these situations.

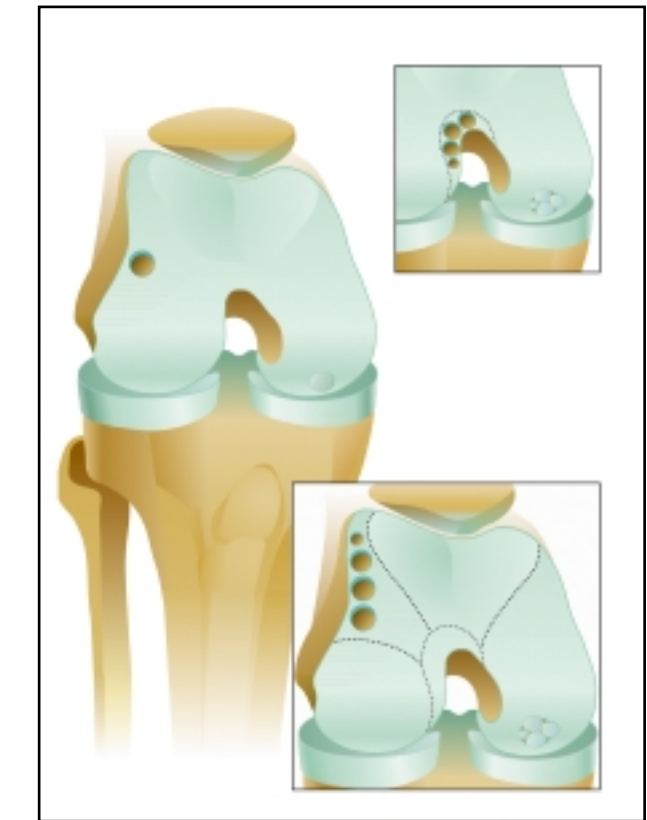


Core Extruder on Tube Harvester Driver/Extractor



9

The donor tube harvester is removed and a Sizer/Tamp measuring at least 1 mm in diameter larger than the diameter of the bone core is positioned over the bone core. Final seating of the bone core flush with surrounding cartilage is achieved by tapping the tamp lightly with the mallet.



When multiple cores of various diameters are elected to be harvested and transferred into specific quadrants of the defect, each core transfer should be completed prior to proceeding with further recipient socket creation. This prevents potential recipient tunnel wall fracture and allows subsequent cores to be placed directly adjacent to previously inserted bone cores.

OATS™ Harvester Sets:

Set of 5 & 6 mm diameter Tube Harvesters w/Collared Pins	AR-1980-05S
Set of 6 & 7 mm diameter Tube Harvesters w/Collared Pins	AR-1980-06S
Set of 7 & 8 mm diameter Tube Harvesters w/Collared Pins	AR-1980-07S
Set of 8 & 9 mm diameter Tube Harvesters w/Collared Pins	AR-1980-08S
Set of 9 & 10 mm diameter Tube Harvesters w/Collared Pins	AR-1980-09S
Set of 10 & 11 mm diameter Tube Harvesters w/Collared Pins	AR-1980-10S

All Tube Harvesters w/Collared Pins are sterile packed and single use

OATS™ Instrumentation Set (AR-1980S)

Tube Harvester Driver/Extractor	AR-1415T
Sizer/Tamp, 5 mm, green	AR-1985-05
Sizer/Tamp, 6 mm, red	AR-1985-06
Sizer/Tamp, 7 mm, blue	AR-1985-07
Sizer/Tamp, 8 mm, purple	AR-1985-08
Sizer/Tamp, 9 mm, gold	AR-1985-09
Sizer/Tamp, 10 mm, black	AR-1985-10
OATS Graft Retriever	AR-1988
OATS Alignment Stick, 5 mm & 6 mm	AR-1989-56
OATS Alignment Stick, 7 mm & 8 mm	AR-1989-78
OATS Alignment Stick, 8 mm & 9 mm	AR-1989-90
OATS Pin Calibrator	AR-1991
Core Extruder	AR-1979
Cartilage Protector Cap	AR-1983
OATS Sterilization Case	AR-1992

U.S. PATENT NO. 5,919,196



**Osteochondral Autograft
Transfer System (OATS™)**

Surgical Technique

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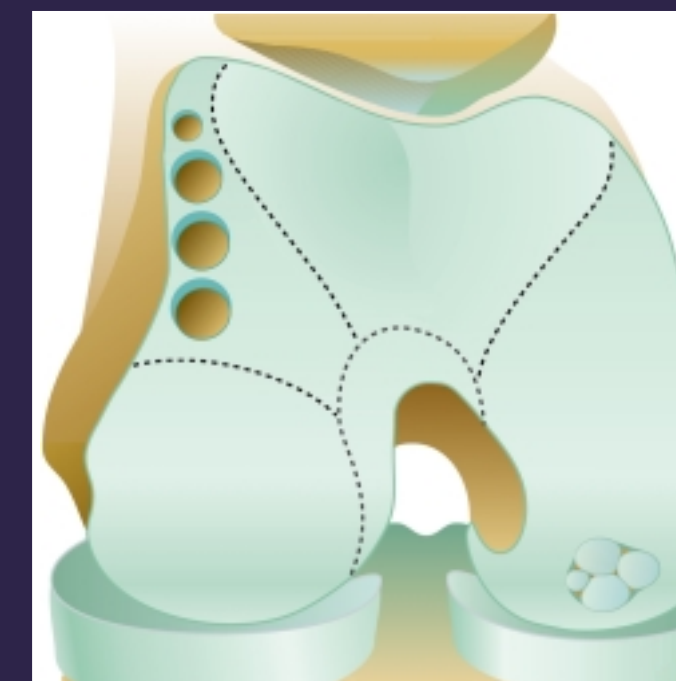
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*The Osteochondral Autograft Transfer Technique and Instrumentation have been developed in cooperation
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Illustrations by Siri Mills*

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Osteochondral Autograft Transfer