

**Medical Coverage Policy** | Meniscal Allograft  
Transplantation and Collagen Meniscus Implants



**EFFECTIVE DATE:** 05/20/2008  
**POLICY LAST UPDATED:** 01/20/2015

### OVERVIEW

Meniscal allografts and other meniscal implants (e.g., collagen or polyurethane) are intended to improve symptoms and reduce joint degeneration in patients who have had a total or partial resection of the meniscus.

### PRIOR AUTHORIZATION

Prior authorization is not required.

### POLICY STATEMENT

#### **BlueCHiP for Medicare and Commercial:**

##### Meniscal allograft transplantation:

Meniscal allograft transplantation may be considered medically necessary in patients who have had a prior meniscectomy and have symptoms related to the affected side.

Meniscal allograft transplantation may be considered medically necessary when performed in combination, either concurrently or sequentially, with treatment of focal articular cartilage lesions.

##### Collagen meniscal implants:

Collagen meniscal implants are not medically necessary as there is insufficient peer reviewed scientific literature that demonstrates that the procedure/service is effective.

### MEDICAL CRITERIA

None

### BACKGROUND

Historically, the role of normal meniscal cartilage was greatly underappreciated, and until some 30 years ago, torn and damaged menisci were routinely excised. However, it is now known that the menisci are an integral structural component of the human knee, functioning to absorb shocks and providing load sharing, joint stability, congruity, proprioception, and lubrication and nutrition of the cartilage surfaces. Total and partial meniscectomy frequently result in degenerative osteoarthritis. The integrity of the menisci is particularly important in knees in which the anterior cruciate ligament (ACL) has been damaged. In these situations, the menisci act as secondary stabilizers of anteroposterior and varus-valgus translation. With this greater understanding, the surgical principles of treating torn or damaged menisci evolved to favor repair and preservation whenever possible.

Meniscal allograft transplantation may be considered medically necessary in patients who have had a prior meniscectomy and have symptoms related to the affected side, when all of the following criteria are met:

- Adult patients should be too young to be considered an appropriate candidate for total knee arthroplasty or other reconstructive knee surgery (e.g., younger than 55 years)
- Disabling knee pain with activity that is refractory to conservative treatment
- Absence or near absence (more than 50%) of the meniscus, established by imaging or prior surgery

- Documented minimal to absent diffuse degenerative changes in the surrounding articular cartilage (e.g., Outerbridge grade II or less, < 50% joint space narrowing)
- Normal knee biomechanics, or alignment and stability achieved concurrently with meniscal transplantation

Meniscal allograft transplantation may be considered medically necessary when performed in combination, either concurrently or sequentially, with treatment of focal articular cartilage lesions using any of the following procedures:

- autologous chondrocyte implantation, or
- osteochondral allografting, or
- osteochondral autografting

Meniscal allograft transplantation has been investigated in patients with a previous meniscectomy, or in patients who require a total or near total meniscectomy for irreparable tears. There are 3 general groups of patients who have been treated with meniscal allograft transplantation:

- young patients with a history of meniscectomy who have symptoms of pain and discomfort associated with early osteoarthritis that is localized to the meniscus deficient compartment
- patients undergoing ACL reconstruction in whom a concomitant meniscal transplant is intended to provide increased stability
- young athletes with few symptoms in whom the allograft transplantation is intended to deter the development of osteoarthritis. Due to the risks associated with this surgical procedure, prophylactic treatment for this purpose is not frequently recommended

Issues under study include techniques for processing and storing the grafts, proper sizing of the grafts, and the most appropriate surgical techniques (e.g., suturing or anchored with bone plugs). Four primary ways of processing and storing allografts (fresh, fresh frozen, cryopreserved, and lyophilized) have been reported. Fresh implants, harvested under sterile conditions, are less frequently used since the grafts must be used within a couple of days to maintain viability. Alternatively, the harvested meniscus can be fresh frozen for storage until needed. Another commonly used method, cryopreservation, freezes the graft in glycerol, which aids in preserving the cell membrane integrity and donor fibrochondrocyte viability. Cryolife (Marietta, GA) is a commercial supplier of such grafts. In addition to freezing, donor tissue may be dehydrated (freeze-dried or lyophilized), permitting storage at room temperature. Lyophilized grafts have been shown to be prone to reduced tensile strength, graft shrinkage, poor rehydration, post-transplantation joint effusion, and synovitis and are no longer used in the clinical setting. Several secondary sterilization techniques may be used, with gamma irradiation the most common. The dose of radiation considered effective has been shown to change the mechanical structure of the allograft; therefore, non-irradiated grafts from screened donors are most frequently used.

Tissue engineering that grows new replacement host tissue for individual patients is also being investigated. For example, the ReGen Collagen Scaffold (Ivy Sports Medicine, formerly ReGen Biologics), which may also be referred to as the Menaflex™ collagen meniscus implant or CMI™, is a resorbable collagen matrix comprised primarily of type I collagen from bovine Achilles tendons. The implant is provided in a semilunar shape and trimmed to size for suturing to the remaining meniscal rim. The implant provides an absorbable collagen scaffold that is replaced by the patient's own soft tissue; it is not intended to replace normal body structure. In addition, because it requires a meniscal rim for attachment, it is intended to fill meniscus defects after a partial meniscectomy. Other scaffold materials and cell-seeding techniques are being investigated. For example, Actifit® (Orteq) is a biodegradable polyurethane scaffold that is currently being studied in Europe. Non-absorbable and non-porous synthetic implants for total meniscus replacement are in development. One total meniscus replacement that is in early phase clinical testing is NUsurface® (Active Implants), which is composed of a polyethylene reinforced polycarbonate urethane.

Meniscal allograft transplantation, performed in combination with other surgical interventions, appears to improve symptoms in some patients with a prior meniscectomy who are considered too young to undergo total knee replacement. Evidence consisting primarily of retrospective case series indicates that this procedure may produce short- to intermediate-term pain relief in selected patients. Although short- to intermediate-term results are promising, the literature does not permit conclusions concerning the effect of meniscal transplantation on the long-term progression of degenerative changes and joint space narrowing.

Meniscal allograft transplantation is associated with a high number of complications, including tears of the transplanted meniscus, displacement, or arthrofibrosis. Careful selection of patients and surgical technique appear to be critical for success of this procedure. (3, 10) These major interventions are considered salvage procedures and are not recommended to be performed casually or by surgeons without extensive experience and expertise in complex knee reconstruction. Therefore, meniscal allograft transplant may be considered medically necessary for patients with prior meniscectomy who have disabling knee pain, and who are too young to be considered for total knee arthroscopy.

Similar types of evidence are available for meniscal allograft transplantation in combination with treatment of focal articular lesions, with case series reporting short- to intermediate-term improvement in pain and functioning. Based on the available evidence and clinical input, meniscal allograft transplantation may be considered medically necessary when performed in combination with treatment of focal articular cartilage lesions in patients younger than 55 years with disabling knee pain that has not shown an adequate response to physical therapy and analgesic medications.

The collagen meniscus implant, for which the FDA decided to rescind the clearance for marketing in 2010, is considered investigational. Current Randomized Control Trials (RCTs) do not report improvements in outcomes for the majority of pain and functional status measures. In addition to FDA approval, mid-to long-term follow-up from controlled studies with a larger number of subjects is needed to determine whether implantation of a collagen scaffold is able to slow joint degeneration, reduce pain, or otherwise improve the net health outcome.

There are no randomized controlled trials for the polyurethane meniscal scaffold, and this product is not approved for marketing in the U.S. at this time. Therefore, synthetic meniscal implants are considered investigational.

## COVERAGE

Benefits may vary between groups/contracts. Please refer to the appropriate Evidence of Coverage or Subscriber Agreement for applicable surgery coverage/benefits.

## CODING

### BlueCHiP for Medicare and Commercial

The following CPT code may be considered medically necessary when reported with a diagnosis code listed below:

**29868**

#### ICD-9 Diagnosis Codes that may support medical necessity:

717.0 – 717.4

717.40 – 717.43      717.49      717.5

836.0 – 836.2

#### ICD-10 Codes



ICD10 Codes.pdf

The following HCPCS code is **not medically necessary**:

**G0428**

#### RELATED POLICIES

None

#### PUBLISHED

Provider Update	Apr 2015
Provider Update	Feb 2014
Provider Update	Nov 2012
Provider Update	Jan 2012
Provider Update	Jan 2011
Provider Update	Jan 2010
Provider Update	Oct 2009
Policy Update	Jul 2008

#### REFERENCES

1. Bouyarmane H, Beaufils P, Pujol N et al. Polyurethane scaffold in lateral meniscus segmental defects: Clinical outcomes at 24 months follow-up. *Orthop Traumatol Surg Res* 2014; 100(1):153-7.
2. Johnson DL, Bealle D. Meniscal allograft transplantation. *Clin Sports Med* 1999; 18(1):93-108.
3. Matava MJ. Meniscal allograft transplantation: a systematic review. *Clin Orthop Relat Res* 2007; 455:142-57.
4. Centers for Medicare and Medicaid Services (CMS). Decision Memo for Collagen Meniscus Implant (CAG-00414N) 2010. Available online at: <http://www.cms.gov/mcd/viewdecisionmemo.asp?id=235> Last accessed February, 2014.
5. Elattar M, Dhollander A, Verdonk R et al. Twenty-six years of meniscal allograft transplantation: is it still experimental? A meta-analysis of 44 trials. *Knee Surg Sports Traumatol Arthrosc* 2011; 19(2):147-57
6. Hergan D, Thut D, Sherman O et al. Meniscal allograft transplantation. *Arthroscopy* 2011; 27(1):101-12.
7. Verdonk PC, Demurie A, Almqvist KF et al. Transplantation of viable meniscal allograft. Survivorship analysis and clinical outcome of one hundred cases. *J Bone Joint Surg Am* 2005; 87(4):715-24.
8. Verdonk PC, Verstraete KL, Almqvist KF et al. Meniscal allograft transplantation: long-term clinical results with radiological and magnetic resonance imaging correlations. *Knee Surg Sports Traumatol Arthrosc* 2006; 14(8):694-706.
9. van der Wal RJ, Thomassen BJ, van Arkel ER. Long-term clinical outcome of open meniscal allograft transplantation. *Am J Sports Med* 2009; 37(11):2134-9.
10. Hommen JP, Applegate GR, Del Pizzo W. Meniscus allograft transplantation: ten-year results of cryopreserved allografts. *Arthroscopy* 2007; 23(4):388-93

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