Publications on Tutoplast® Costal cartilage  
(As of February 2007)

CC-1 Dumbach J and H Rodemer  
**Solvent preserved human cartilage for correction of contour defects in maxillofacial surgery**  
(Lösungsmittelkonservierte Humanknorpel zur Korrektur von Konturdefekten in der Mund-, kiefer- und Gesichtschirurgie)  
Dtsch Z Mund Kiefer Gesichtschir. 18(3), 1994(Article in German, English translation available)  
*Report on 51 grafts in 32 patients for correction of various facial contour defects. Follow-up 7-75 months, mean 32 months. 2 grafts were lost, 12 grafts showed partial resorption without effect on clinical results.*

CC-2 Corti A and G Taidelli  
**Reconstruction surgery of the nasal pyramid**  
(Chirurgia ricostruttiva della piramide nasale)  
White paper (Article in Italian, English translation available)  
*Report on 32 patients, follow-up 1-3 years. One graft was nearly completely absorbed, 8 grafts showed partial absorption within 6-12 months. The authors recommend slight overdimenioning.*

CC-3 Brunner FX  
**Implant materials-what has proven where and when?**  
(Implantatmaterialien-was hat sich wo und wann bewährt?) (Article in German, English translation available)  
Eur Arch Otorhinolaryngol, Suppl. 1993;1  
*Review. Among various grafts and implants Tutoplast Costal cartilage is mentioned. The author has used it in 25 patients for saddle nose correction. No resorption occurred within 4 years follow-up.*

CC-4 Demir Z et al.  
**Preserved costal cartilage homograft application for the treatment of temporomandibular joint ankylosis**  
*Over a period of 4 years 7 patients were treated with Tutoplast Costal cartilage with satisfactory results.*

CC-5 Akal M and M Kara  
**The use of a homologous preserved costal cartilage in an infant with Poland’s syndrome**  
Eur J Cardiothor Surg, 21, 2002  
*Case report on a successful rib reconstruction with Tutoplast costal cartilage. After 3 years the patient is asymptomatic.*

CC-6 Demirkan F et al.  
**Irradiated homologous costal cartilage: versatile grafting material for rhinoplasty**  
Aesth Plast Surg, 27, 2003  
*In 65 patients Tutoplast Costal cartilage was used for various rhinoplasty procedures. Mean follow-up was 33 months, range 6-49 months. No resorption affecting the aesthetic result was noted. In one case an exposed graft was trimmed and successfully reimplanted.*
CC-7 Velidedeoglu H et al.
Block and Surgicell-wrapped diced solvent-preserved costal cartilage homograft application for nasal augmentation
Plast Reconstr Surg, 115, 2005
In 68 patients Tutoplast Costal cartilage was used. In 45 cases a block graft was used and in 23 cases diced pieces of 0.5-1mm, wrapped in Surgicell, was used. Mean follow-up was 36 months, range 6-60 months. No resorption, dislocation or extrusion was observed.

CC-8 Kovacs L et al.
Computer aided surgical reconstruction after complex facial burn injuries-opportunities and limitations
Burns, 31, 2005
Case report. Successful reconstruction of a nose destroyed from severe burn injury.

CC-9 Schneider G
Bioimplants-Characteristics and use
(Bioimplantate-Eigenschaften und Anwendungshinweise)(Article in German, English translation available)
Laryngo-Rhino-Otol, 82, 2003
CME article on biological grafts in ENT. Tutoplast Costal cartilage is recommended for reconstruction of bony and cartilaginous structures (cranium, nasal dorsum, septum, larynx, trachea). The Tutoplast-Process is part of the questionnaire.

Animal studies

CC-A1 Fini G et al.
Animal experimentation of the transplantation of autogenous, allogenous and xenogenic fresh and preserved elastic cartilage
Manuscript. VIII Natinal Congress of the Italian Society of Maxillo-Facial Surgeons, Rome, 1993
Various forms of cartilage, including Tutoplast Costal cartilage were tested in guinea pigs. Tutoplast healed uneventfully, remained stable and was encapsulated with a thin fibrous membrane.

CC-A2 Dal T and B Demirhan
Reconstruction of tracheal defects with dehydrated human costal cartilage: An experimental study in rats
Otolaryngology-Head and Neck Surgery, 123(5), 2000
Slices of 4x6x2mm Tutoplast costal cartilage were implanted into tracheal defects in rats either solely rehydrated, preimplanted subcutaneously in the groin and then transplanted with the fibrous capsule as free graft or as vascularised graft. Because of problems with graft infection and lack of epithelisation the authors do not recommend Tutoplast as first choice in tracheal reconstruction.

CC-A3 Sungur N et al.
Solvent dehydrated costal cartilage: Evaluation in a rabbit model
J Craniomac Surg, 16(1), 2005
Slices 1x1cm of autogenous ear cartilage and bone from the ilium and Tutoplast costal cartilage were implanted subperiostally in rabbit calvaria and examined after 4 and 12 weeks. No differences were found between the autogenous cartilage and Tutoplast. The autogenic bone showed some resorption.
Laboratory studies

CC-L1 Tasman A-J et al.

**Antibiotic impregnation of cartilage implants: diffusion kinetics of fluorochinolones**

(Antibiotische Imprägnation von Knorpelimplantaten: Diffusionskinetik von Fluorchinolonen) (Article in German with English abstract)

Laryngo-Rhino-Otol, 79, 2000

*Fresh cadaveric and Tutoplast Costal cartilage were soaked with various antibiotics for various times. Fresh cartilage was soaked for 90 minutes to reflect the intraoperative situation with autografts and dry Tutoplast was soaked for 18 hours. As was to be expected Tutoplast produced a higher minimally inhibitory concentration for a longer time. The authors recommend this procedure in cases where infected grafts have to be exchanged.*