

Meniscal refixation using the Fast-Fix™ meniscal repair device: preliminary results

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INTRODUCTION

● “Biomechanical properties of all-inside meniscus anchors (FastT-Fix) are comparable to conventional vertical suture techniques.”

Zantop T et al Am J Sports Med. 2004

● “The FasT-Fix provided load at failure, stiffness, and displacement comparable with that of vertical mattress sutures.”

Borden P et al Am J Sports Med. 2003

● Healing rate with FasT-Fix: 86% in 39 patients with meniscal repair.”

Draviaraj et al ESSKA Congress, Athens, 2004



INTRODUCTION

Loads to Failure of Repair Devices Tested

Device	Mean	Standard Deviation	No.	Range
FasT-Fix vertical	70.9 N	± 33	14	36.5-136.9 N
FasT-Fix horizontal	72.1 N	± 23.5	16	37.3-106.7 N
Dart (2)	61.7 N	± 19	10	34.0-98 N
RapidLoc	43.3 N	± 3.98	14	36.5-52.5 N
Arthrotek screw	28.1 N	± 7.9	10	16.0-38.2 N
Vertical 2-0 suture	80.4 N	± 8.5	13	63-93 N
Horizontal 2-0 suture	55.9 N	± 18.8	10	21-79 N

“The vertical FasT-Fix suture had a mean load to failure of 70.9 N (1 SD +/- 33). The horizontal FasT-Fix suture had a mean load to failure of 72.1 N (+/- 23.5).

The vertical sutures' mean load to failure was 80.43 N (+/- 8.5)
The horizontal sutures' mean failure load was 55.9 N (+/- 18.8)”

Barber FA et al Arthroscopy 2004



Aim of the study

- To evaluate clinically and by means of MRI, 61 meniscal longitudinal tears in 58 patients repaired with the FasT-Fix™ system, with a medium-term follow-up



Material & Methods

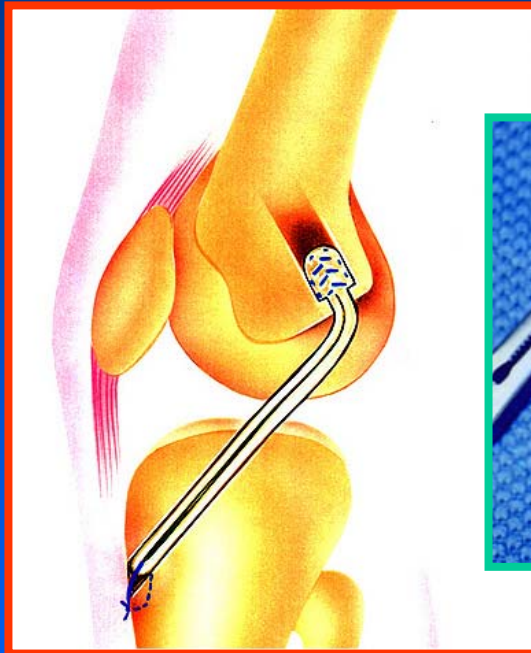
Inclusion criteria - Indications:

- Vertical full thickness
- Length > 10 mm
- Location of the tear < 6 mm from meniscocapsular junction
- No former meniscus surgery
- No evidence of arthritis during arthroscopy
- Stable knees: ACL rec. or isolated tears



Material & Methods

Operative technique



Fast-fix™

**ACL reconstruction by an
implant free technique**

Paessler H.H., Mastrokalos D.S.,
Orthop Clinics North Am 2003

Material & Methods

Rehabilitation following meniscus refixation

- 4w (ROM 0-30°), next 2w (ROM 0-90°), all in brace
- PWB during the first 4 – 5 weeks
- Quadriceps training
- Proprioceptive training

*No sports for 4-6 months,
depending on length of lesion*



Material & Methods

61 tears in 58 patients

- 37 (64%) men – 21 (36%) women
- 26 (43%) right – 35 (57%) left
- 30 acute – 31 chronic (> 3 weeks)
- 34 medial – 27 lateral
- 16 – 54 years (mean 36 years)



Material & Methods

- **from injury to repair: 2 - 196 days (mean 35)**
- **39 (64%): meniscal repair + acl rec**
22 (36%): isolated meniscal tear
- **22 (36%) < 3mm (red),**
39 (64%) between 3 and 6 mm (red-white)
- **tears' length: 13 to 31mm (mean 29,1mm)**
- **mean follow-up: 6 to 18 months (mean 12 m.)**
- **N of anchors used: 1 to 13 (average 4.4)**



Material & Methods

Evaluation:

- **I. Clinical:**
 - a) tenderness on palpation
 - b) effusion
 - c) McMurray test
 - d) Knee stability testing incl. KT-1000 evaluation

- **II. Magnetic Resonance Imaging**

- **III. OAK** (Orthopädische Arbeitsgemeinschaft-Knee Evaluation Sheet)

- **IV. Tegner S.S.**



Results:

- **6 clinical failures (9.8 %):**
 - 3 cases: with tenderness, effusion, McMurrey (+)
 - 1 case : McMurrey (+) and tenderness
 - 2 cases: effusion after sport activities

- **In 3 cases: re-arthroscopy with partial meniscal removal**



Results:

Age:

> 30: failed 3/33 (9.1%)
< 30: failed 3/28 (10.7%)

Meniscus:

Med: failed 3/34 (8.8%)
Lat : failed 3/27 (11.1%)

Sex:

Men : failed 4/37 (10.8%)
Women: failed 2/21 (9.5%)

Length of tear:

> 25 mm: failed 3/33 (9.1%)
< 25 mm: failed 3/28 (10.7%)

Concomitant injury:

Isolated tear: failed 2/22 (9.1%)
ACL rec. : failed 4/39 (10.2%)



Results:

Time from injury:

Over 3 weeks : failed 5/31 (16%)

Under 3 weeks : failed 1/29 (3.3%)

Location of the tear:

Red-red : failed 1/22 (4.5%)

Red-white: failed 5/39 (12.8%)



Results:

OAK (Orthopädische Arbeitsgemeinschaft- Knee Evaluation Sheet)

- Excellent result: 44/61 (72%)
- Good result: 9/61 (15%)
- Fair result: 3/61 (5%)
- Poor result: 5/61 (8%)



Results:

Tegner Score

- Return to prior activity level: 39/58 (67%)
- One level below: 16/58 (26%)
- More than one level below: 4/58 (7%)

2 patients gave up sports



Results:

MRI - evaluation

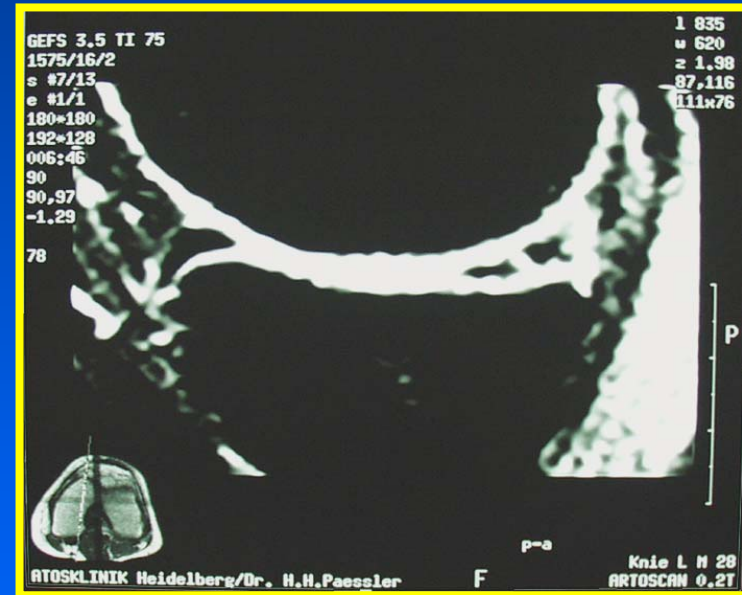
Reicher ES:

I° : 9/61 (15%)

II° : 21/61 (34.5%)

III° : 10/61 (16%)

IV° : 21/61 (34,5%)



Results:

Complications

In 6 out of 61 cases (9.8%):

- 4 arthrofibrosis (one needed release 3 months postop)
- 2 clinical infections (arthroscopical debridement)



Results:

Pitfalls associated with FasT-Fix meniscal repair
(Miller MD et al, Arthroscopy 2002 Oct)

- Skin and iliotibial tract at risk
- Device could not be effectively used at the anterior and extreme posterior horn
- Failure of the suture during tightening
- Intra articular deployment of the implants
- Difficulty in advancing the trigger for arming the second anchor
- Difficulty in placing vertical sutures
- Expensive



Advantages of FasT-Fix™ suture system

- No sharp edges, small diameter of instrument
 - ↳ no iatrogenic chondral lesions
- Easy and quick handling
- Repositioning before suturing possible
- Holding power close to vertical sutures





Many thanks,

mein Chef
and to you all

