DEDICATED INSTRUMENTS

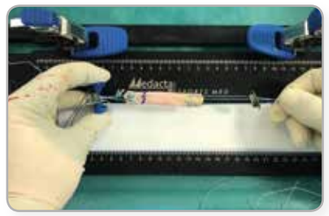
M-ARS ACL TRAY
(2 LEVELS)

KNEE GENERAL TRAY
(1 LEVEL)

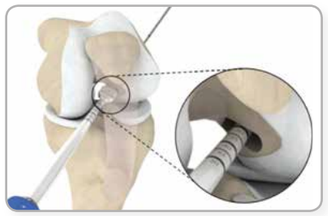
KNEE PREP. TABLE TRAY
(1 LEVEL)

DEDICATED SURGICAL TECHNIQUE

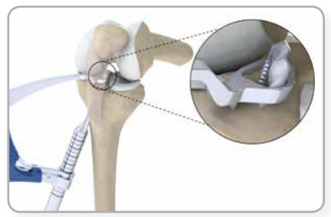
1. Graft Preparation



2. Graft Reinforcement

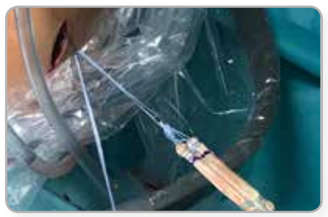


3. Femoral Tunnel Creation



4. Tibial Tunnel Creation

5. Anatomical Tunnels



6. Anatomical Graft Insertion

Images 2 and 6 by courtesy of Prof. Dr. Christian Fink, Gelenkpunkt, Innsbruck - Austria

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[1] Sanders TL, Maradit Kremers H, Bryan AJ, Larson DR, Dahm DL, Levy BA, Stuart MJ, Krych MJ. Incidence of Anterior Cruciate Ligament Tears and Reconstruction: a 21-Year Population-Based Study. American Journal Sports Medicine. 2016 June; 44(6): 1502-7. doi 10.1177/0363546516629944. [2] David Zbrojkiewicz, Christopher Vertullo and Jane E Grayson. Increasing rates of anterior cruciate ligament reconstruction in young Australians, 2000–2015. Medical Journal of Australia. 2018; 208 (8): 354-358. || doi: 10.5694/mja17.00974. [3] Pierre Chambat,corresponding author Christian Guier, Bertrand Sonnery-Cottet, Jean-Marie Fayard, and Mathieu Thaunat. The evolution of ACL reconstruction over the last fifty years. Int Orthop. 2013 Feb; 37(2): 181–186. doi: 10.1007/s00264-012-1759-3. [4] Śmigielski R, Zdanowicz U, Drwięga M, Ciszek B, Ciszkowska-Łysoń B, Siebold R. Ribbon like appearance of the midsubstance fibres of the anterior cruciate ligament close to its femoral insertion site: a cadaveric study including 111 knees. Knee Surgery, Sports Traumatology, Arthroscopy. 2015;23(11):3143-3150. doi:10.1007/s00167-014-3146-7. [5] Rainer Siebold, Peter Schuhmacher, Axel Brehmer, Francis Fernadez, Robert Smigielski, Joachim Kirsch. Tibial C-Shaped Insertion of the Anterior Cruciate Ligament Without Posterolateral Bundle. Anterior Cruciate Ligament Reconstruction: A Practical Surgical Guide, Springer Berlin Heidelberg. 2014;19-27. [6] Robert Ś migielski, Urszula Zdanowicz, Michał Drwięg, Bogdan Ciszek , and Rainer Siebold, Ribbon like Anatomy of the Anterior Cruciate Ligament from Its Femoral Insertion to the Midsubstance. Anterior Cruciate Ligament Reconstruction: A Practical Surgical Guide, Springer Berlin Heidelberg. 2014;3-10. [7] Tomoyuki Mochizuki, Akimoto Nimura, Kazunori Yasuda, Takeshi Muneta, and Keiichi Akita, Anatomic and Histological Analysis of the Midsubstance and Fanlike Extension Fibers of the ACL, Anterior Cruciate Ligament Reconstruction: A Practical Surgical Guide, Springer Berlin Heidelberg. 2014;11-17. [8] Rainer Siebold and Robert S˙migielski, Arthroscopic Appearance of the "C" –Shaped Insertion of the Anterior Cruciate Ligament, Anterior Cruciate Ligament Reconstruction: A Practical Surgical Guide, Springer Berlin Heidelberg. 2014;33-35. [9] CD. Murawski et al, Anatomic Anterior Cruciate Ligament Reconstruction Current Concepts and Future Perspective, Cartilage. 2013 Jul; 4(3 Suppl): 27S–37S. doi: 10.1177/1947603513486557. [10] Petersen W, Forkel P, Achtnich A, Metzlaff S, Zantop T. Technique of anatomical footprint reconstruction of the ACL with oval tunnels and medial portal aimers. Arch Orthop Trauma Surg. 2013 Jun;133(6):827-33. doi: 10.1007/s00402-013-1741-6. PMID: 23632778 [PubMed - indexed for MEDLINE]. [11] R. Siebold, P Schuhmacher, F Fernandez, R S˙migielski, C Fink, A Brehmer, J Kirsch Flat midsubstance of the anterior cruciate ligament with tibial "C"-shaped insertion site Knee Surg Sports Traumatol Arthrosc (2015) 23:3136–3142. [12] R. Śmigielski, U. Zdanowicz, M. Drwięga, B. Ciszek, A. Williams The anatomy of the anterior cruciate ligament and its relevance to the technique of reconstruction Bone Joint J 2016;98-B:1020–6. [13] C Janovsky, C Cohen Kaleka, MT Seixas Alves, M Ferretti, M Cohen Synovial C-Shaped Tibial Footprint of the Anterior Cruciate Ligament The Orthopaedic Journal of Sports Medicine, 4(11), 2325967116671300.

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M-ARS ACL

MEDACTA ANATOMIC RIBBON SURGERY

REDISCOVER THE ANATOMICAL WAY

Brochure

Joint | Spine | **Sports Med**

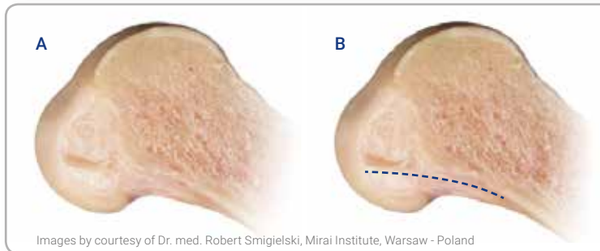
INTRODUCTION

ANATOMY
The main function of the ACL is restraint of anteroposterior translation of the tibia relative to the femur. It also acts as a secondary restraint to tibial rotation and valgus or varus stress.

EPIDEMIOLOGY
The mechanisms of injury is typically a sudden deceleration or rotational maneuver with a force that sends the tibia one way and femur another (typically because the foot is planted and the body spins). The incidence of ACL is considered a common orthopedic injury with an annual incidence of 68.6 on 100.000 population- in US[1] and 77.4 on 100.000 population in Australia.[2]

TREATMENT
Anterior cruciate ligament (ACL) reconstruction has evolved considerably over the past 30 years. This has largely been due to a better understanding of ACL anatomy and in particular a precise description of the femoral and tibial insertions of its two bundles.[3]

Based on anatomical studies[4,5,6,7,8,11,13] and thanks to the experiences learned in previous years[3], there is a better understanding of the anatomy and biomechanics of the ACL. It has been documented that the ACL is neither round nor double round but it is flat (ribbon-like) with a specific C-shape tibial insertion.



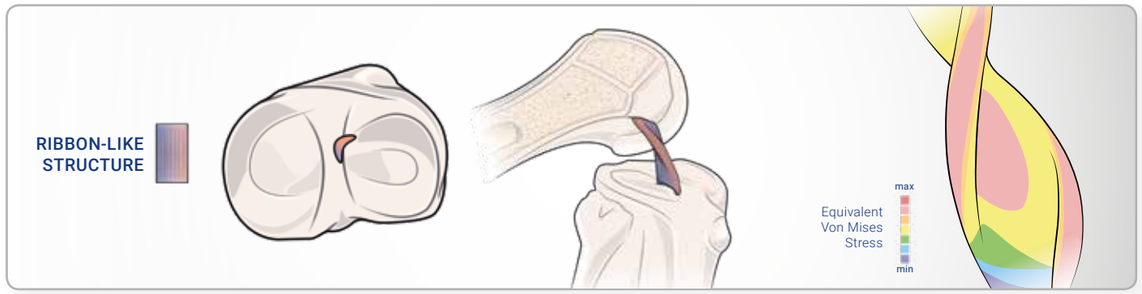
The actual trend in ACL reconstruction is to be more anatomical respecting ACL bone insertion and kinematics of the native ACL.[9,10,12]

(A) Cadaveric dissection of the right lateral femoral condyle. Notice the femoral insertion of ribbon-like ACL fibres are in line with posterior femoral cortex (marked with black dotted line (B)).

Images by courtesy of Dr. med. Robert Smigielski, Mirai Institute, Warsaw - Poland

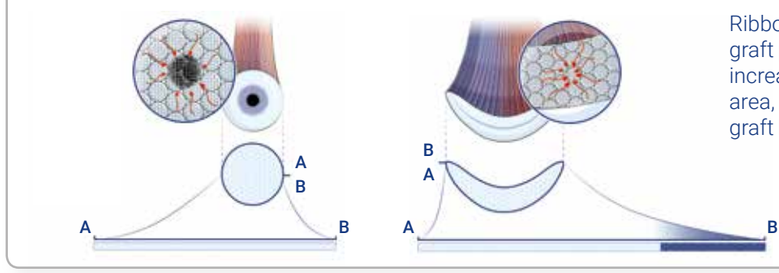
INNOVATIVE SINGLE BUNDLE WITH MORE NATURAL STRESS DISTRIBUTION

The ribbon-like structure of the graft does reproduce the anatomy and can reproduce the kinematics of the two bundles of the native ACL.



UNEXPECTEDLY IMPROVED HEALING

Lower necrosis risk, due to the reduced distance to bone of the ligament internal fibers: the graft's healing process is estimated to be shorter and safer.



Ribbon-like preparation versus standard graft preparation ensures around 25% increase in the graft-to-bone contact area, providing increased probability of graft healing.

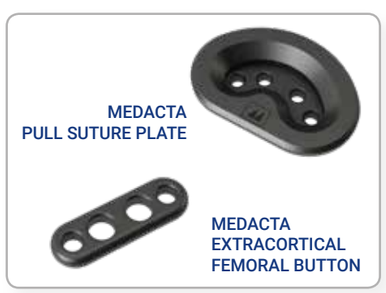
WHY M-ARS ACL?

M-ARS ACL is an original concept to successfully mimic the native anatomical ACL in ACL reconstruction with:

- **INNOVATIVE SINGLE BUNDLE WITH MORE NATURAL STRESS DISTRIBUTION**
- **UNEXPECTEDLY IMPROVED HEALING**
- **DEDICATED IMPLANTS**
- **DEDICATED INSTRUMENTS**
- **DEDICATED SURGICAL TECHNIQUE**

DEDICATED IMPLANTS

The Tibial Pull Suture Plate (PSP) is a C-shaped extra cortical fixation device which is fixed in correspondence to the tibial tunnel, with its body sunk into the tibial tunnel and its edges seated on the tibial cortex, ensuring the correct orientation and tension of the graft.



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