



Symani® Surgical System Research & Publications

AUGUST 2024

SINGLE CENTER STUDIES

➤ The Use of the Symani Surgical System® in Emergency Hand Trauma Care

Authors: Dastagir N., Obed D., Tamulevicius M., Dastagir K., Vogt P.M.
Surgical Innovation – Published June 2024

➤ Minimally Invasive Robotic-assisted Perforator-to-Perforator DIEP Flap Breast Reconstruction

Authors: Kueckelhaus, M.
Plastic & Reconstructive Surgery-Global Open – Published May 2024

➤ 100 Anastomoses: a Two-Year Single-Center Experience with Robotic-Assisted Micro- and Supermicrosurgery for Lymphatic Reconstruction

Authors: von Reibnitz, D., Weinzierl, A., Barbon, C., Gutschow, C. A., Giovanoli, P., Grünherz, L., and Lindenblatt, N.
Journal of Robotic Surgery – Published Apr 2024

➤ Robot-assisted Microsurgery: Lessons Learned from 50 Consecutive Cases

Authors: Struebing, F., Bigdeli, A., Weigel, J., Gazyakan, E., Vollbach, F., Panayi, A., Vogelpohl, J., Boecker, A., Kneser, U.
Plastic & Reconstructive Surgery-Global Open – Published Mar 2024

SINGLE CENTER STUDIES (contd.)

➤ **First Series of Free Flap Reconstruction Using a Dedicated Robotic System in a Multidisciplinary Microsurgical Center**

Authors: Beier, J. P., Hackenberg, S., Boos, A. M., Modabber, A., Duong Dinh, T. A., & Hölzle, F.
Plastic & Reconstructive Surgery--Global Open – Published Sept 2023

➤ **Benefits of Robotic-Assisted Lymphatic Microsurgery in Deep Anatomical Planes**

Authors: Weinzierl, A., Barbon, C., Gousopoulos, E., von Reibnitz, D., Giovanoli, P., Grünherz, L., and Lindenblatt, N.
JPRAS Open – Published July 2023

➤ **Exploring the Learning Curve of a New Robotic Microsurgical System for Microsurgery**

Authors: Barbon C., Grünherz L., Uyulmaz S., Giovanoli P., and Lindenblatt N.
JPRAS Open – Published Dec 2022

➤ **Early Experience Using a New Robotic Microsurgical System for Lymphatic Surgery**

Authors: Lindenblatt N., Grünherz L., Wang A., Gousopoulos E., Barbon C., Uyulmaz S., and Gioanoli P.
Plastic & Reconstructive Surgery--Global Open – Published Jan 2022

PRECLINICAL STUDIES

➤ **Safety and Efficacy of Symani Robotic-Assisted Microsurgery: assessment of vascular anastomosis patency, thrombus, and stenosis in a randomized preclinical study**

Authors: Menichini G, Malzone G, Tamburello S, et al.
Journal of Plastic, Reconstructive & Aesthetic Surgery – Published June 2024

➤ **Ideal suturing technique for robot-assisted microsurgical anastomoses**

Authors: Wessel, K.J., Wendenburg, I., Varnava, C. et al.
Journal of Robotic Surgery – Published June 2024

➤ **Safety and Efficacy of Symani Robotic-assisted Microsurgery: Assessment of Vascular Anastomosis Patency, Thrombus, and Stenosis in a Randomized Preclinical Study**

Authors: Menichini, G., Malzone, G., Tamburello, S., Alice Letizia Andreoli, Mori, F., Ballestín, A., and Shiraki, T.
Journal of Plastic, Reconstructive & Aesthetic Surgery – Published June 2024

➤ **Preclinical Performance of the Combined Application of Two Robotic Systems in Microsurgery: A Two-center Study**

Authors: Wessel, K., Stögner, V., Yu, C., Pomahac, B., Hirsch, T., Ayyala, H., Kückelhaus, M.
Plastic & Reconstructive Surgery--Global Open – Published Apr 2024

➤ **Combined Application of a Novel Robotic System and Exoscope for Microsurgical Anastomoses: Preclinical Performance**

Authors: Wessel, K., Wendenburg, I., Shaghayegh, G., and Kückelhaus, M. et. al.
Journal of Reconstructive Microsurgery – *Open* – Published Nov 2023

PRECLINICAL STUDIES (contd.)

➤ **Microsurgical Robotic System Enables the Performance of Microvascular Anastomoses: A Randomized In Vivo Preclinical Trial**

Authors: Malzone, G., Menichini, G., Innocenti, M., and Ballestín, A.
Scientific Reports – A Journal of the Nature family – Published Aug 2023

➤ **New Robotic System with Wristed Microinstruments Allows Precise Reconstructive Microsurgery: Preclinical Study**

Authors: Ballestín A., Malzone G., Menichini G., Lucattelli E., and Innocenti M.
Surgical Oncology – Official Journal of the Society of Surgical Oncology –
Published June 2022



CASE REPORTS

➤ Robot-assisted Lymphovenous Anastomosis Surgery for Lymphocele in the Groin

Authors: Lilja C., Thomsen J.B., Sørensen J.A.
BMJ Case Reports – Published May 2024

➤ Using a Microsurgical Robotic Platform for In-flap Anastomosis in Autologous Bipedicular Breast Reconstruction

Authors: Vollbach, F., Bigdeli, A., Struebing, F., Weigel, J., Gazyaka, E., Kneser, U.
Plastic & Reconstructive Surgery--Global Open – Published Jan 2024

➤ First-in-human Use of a Microsurgical Robotic System for Central Lymphatic Reconstruction

Authors: Grünherz L., Weinzierl A., Puipe G.D., et al.
Plastic & Reconstructive Surgery--Global Open – Published Dec 2023

➤ Nerve Transfers Using a Dedicated Microsurgical Robotic System

Authors: Schäfer, B., Bahm, J., and Beier, J. P.
Plastic & Reconstructive Surgery--Global Open – Published Aug 2023

➤ First-in-Human Free-Flap Tissue Reconstruction Using a Dedicated Microsurgical Robotic Platform

Authors: Innocenti M., Malzone G., and Menichini G.
Plastic & Reconstructive Surgery – Published May 2022

EVOLVING USE – FEASIBILITY STUDIES

➤ Evaluation of the MMI Symani® robotic microsurgical system for coronary-bypass anastomoses in a cadaveric porcine model

Authors: Rusch, M., Hoffmann, G., Wieker, H. et al.
Journal of Robotic Surgery – Published Apr 2024

➤ A technical feasibility study on adaptation of a microsurgical robotic system to an intraoperative complication management in dental implantology: perforated Schneiderian membrane repair using Symani® Surgical System

Authors: Wieker H., Hinrichs C., Retzlaff M., et al.
Journal of Robotic Surgery – Published Oct 2023

➤ A Novel Microsurgical Robot: Preliminary Feasibility Test in Ophthalmic Field

Authors: Savastano A. and Rizzo S.
Translational Vision Science & Technology (TVST) ARVO Journal –
Published Aug 2022



ROBOTICS IN MICROSURGERY EDITORIALS

➤ **Surgical treatments of lymphedema—a literature review on robot-assisted lymphovenous anastomosis (LVA)**

Authors: Engström O., Mani M.
Gland Surgery – Published June 2024

➤ **Central Lymphatic Surgery**

Authors: Grünherz L. and Lindenblatt N.
Plastic & Aesthetic Research – Published May 2023

➤ **Robotic-Assisted Microsurgery for Lymphedema Treatment**

Authors: Gousopoulos E., Grünherz L., Giovanoli P., and Lindenblatt N.
Plastic & Aesthetic Research – Published Feb 2023

➤ **Robotic-Assisted Microsurgery and Its Future in Plastic Surgery**

Authors: Aitzetmuller M., Klietz M.L., Dermietzel A., Hirsch T., and Kückelhaus M.
Journal of Clinical Medicine – Published June 2022

➤ **Back to the Future: Robotic Microsurgery**

Authors: Innocenti M.
Archives of Plastic Surgery – Published May 2022



The Symani Surgical System is authorized for use in the U.S. by the FDA and is a CE marked medical device. Consult your local representative to confirm availability in other geographies. For product indications specific to your region, visit www.mmimicro.com/indications.

Caution: Federal law restricts this device to sale by or on the order of a physician.

