

## Sebastian Mussnig

**Academic Degree:** MD (Dr. med. univ.)  
**Nationality:** Austria  
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**Prepared:** 11. Juni 2025



## Education

- 09/2023 - present:** Medical University of Vienna, PhD UN094 Program *Medical Physics*  
*Implementing routine bioimpedance spectroscopy measurements into hemodialysis practice*  
Junior-Supervisor: Manfred Hecking, Senior-Supervisor: Franz Kainberger  
Thesis proposal graded 1 (excellent)
- 10/2017 - 07/2023:** Medical University of Vienna, Diploma Studies in Human Medicine UN202  
ECTS-weighted GPA: 1.14  
*Bioimpedance Spectroscopy in Pulmonary Hypertension: An Exploratory Retrospective Study*  
Supervisor: Roman Reindl-Schwaighofer, Co-Supervisor: Manfred Hecking  
Diploma thesis graded 1 (excellent)

## Research Affiliations

### Kidney Clinic Research Unit (Group Leader: Christopher McIntyre)

**10/2024 - present** University of Western Ontario, Schulich School of Medicine & Dentistry, Department of Medical Biophysics (Department Head: Jefferson C. Frisbee)

#### Ongoing Projects:

- Patient Optimization Program.* Treatment of critical hemodialysis patients according to best clinical practice in a laboratory-like setting
- $^{23}\text{Na}$  magnetic resonance imaging.* Investigation of cardiac tissue sodium concentrations, and influence of tissue sodium on bioimpedance measurements
- Wearable residual ultrafiltration device.* Prototyping of a wearable device for ambulatory residual ultrafiltration to reach ultrafiltration targets

### HD & Co Research Group (Group Leader: Manfred Hecking)

**07/2023 - present:** Medical University of Vienna, Center for Public Health, Department of Epidemiology (Department Head: Eva Schernhammer)

**11/2020 - 06/2023:** Medical University of Vienna, Department of Medicine III, Division for Nephrology & Nephrology (Department Head: Rainer Oberbauer)

#### Ongoing Projects:

- Longitudinal dialysis symptom tracking and euvoemia management (Long-Itch).* Kuratorium for Dialysis and Transplantation e.V. (KfH) (Weiden, Germany). Principal investigator: Manfred Hecking. Role: trial manager (coordination of patients, personnel, equipment and data).

## Report of Scholarship

ORCID - Google Scholars - Web of Science - ResearchGate

### Research Investigations (First Author, Co-Author):

5. *Fluid management based on bioimpedance, blood volume and patient reports: A quality improvement project in maintenance hemodialysis.* **Mussnig S**, Naar L, Krenn S, Brosch F, Schneditz D, Beige J, Hecking M. *Kidney Med.* Revision submitted 2025-06-02.
4. *Longitudinal Patterns of Fluid Overload, Blood Volume and Vascular Refilling: a Prospective Study in Patients on Maintenance Hemodialysis.* **Mussnig S**, Krenn S, Waller M, Schmiedecker M, Kurnikowski A, Niknam J, Naar L, Mayer CC, Keane D, Schneditz D, Hecking M, Pstras L. *Clin Kidney J.* Revision submitted 2025-05-14.
3. *Volume and body composition in hemodialysis patients: a bioimpedance study assessing differences by sex.* **Mussnig S**, Niknam J, Matthias C, Widmer S, Gülmez D, Krenn S, Lorenz M, Chazot C, Wabel P, Schneditz D, Hecking M. *Kidney Med.* 2024 May 16;6(7):100837. PMID: 38957221. doi: 10.1016/j.xkme.2024.100837.
2. *Assessment of Bioimpedance Spectroscopy Devices: A Comparative Study and Error Analysis of Gold-Plated Copper Electrodes.* **Mussnig S**, Krenn S, Hecking M, Wabel P. *Physiol Meas.* 2024 Feb 5;45(2). doi: 10.1088/1361-6579/ad205b. PMID: 38237199.
1. *Differences in bioimpedance-derived fluid status between two versions of the Body Composition Monitor.* **Mussnig S**, Schmiedecker M, Waller S, Paschen C, Schneditz D, Hecking M, Krenn S. *Nutrition.* 2023 Jun 14;114:112131. doi: 10.1016/j.nut.2023.112131. Epub ahead of print. PMID: 37467529.
10. *Semaglutide in patients with kidney failure and obesity undergoing dialysis and wishing to be transplanted: A prospective, observational, open-label study.* Vanek L, Kurnikowski A, Krenn S, **Mussnig S**, Hecking M. *Diabetes Obes Metab.* 2024 Dec;26(12):5931-5941. doi: 10.1111/dom.15967. Epub 2024 Oct 7. PMID: 39375862.
9. *The weighing process in patients on hemodialysis: an opportunity to improve volume management.* Niknam J, **Mussnig S**, Matthias C, Waller M, Keil N, Krenn S, Beige J, Schneditz D, Hecking M. *Clin Kidney J.* 2024. sfae275. <https://doi.org/10.1093/ckj/sfae275>.
8. *Patient and Caregiver Perspectives on Gender Disparity in Chronic Kidney Disease: Questionnaire Survey, Based on an Interview Study.* Vanek L, Gülmez D, Kurnikowski A, Krenn S, **Mussnig S**, Lewandowski M, Gauckler P, Pirklbauer M, Horn S, Brunner M, Zitt E, Kirsch B, Windpessl M, Eller K, Odler B, Aringer I, Wiesholzer M, Stamm T, Jauré A, Hecking M. *Am J Nephrol.* 2024 Aug 27;55(5):561-582. doi: 10.1159/000540850. Epub ahead of print. PMID: 39191222.
7. *Continuous insulin therapy to prevent post-transplant diabetes mellitus: a randomized controlled trial.* Kurnikowski A, Werzowa J, Hödlmoser S, Krenn S, Paschen C, **Mussnig S**, Tura A, Harreiter J, Krebs M, Song PXK, Eller K, Pascual J, Budde K, Hecking M, Schwaiger E. *Kidney Med.* 2024 Jun 21;6(8):100860. doi: 10.1016/j.xkme.2024.100860. PMID: 39157193; PMCID: PMC11326904.
6. *Day-to-day variability in euvoletic body mass.* Schneditz D, Hofmann P, Krenn S, **Mussnig S**, Hecking M. *Ren Fail.* 2023;45(2):2273421. doi: 10.1080/0886022X.2023.2273421. Epub 2023 Nov 13. PMID: 37955103; PMCID: PMC10653631.
5. *Estimation of absolute blood volume in hemodialysis patients: a numerical algorithm for assessing blood volume increase after dialysate bolus infusion.* Pstras L, Krenn S, Waniewski J, Schmiedecker M, **Mussnig S**, Niknam J, Wabel P, Mayer CC, Schneditz D, Hecking M. *Biomed Signal Process Control.* 2024 Feb;88:105440. doi: 10.1016/j.bspc.2023.105440.
4. *Bioimpedance-derived euvoletic weight varies in hemodialysis patients - challenging the fixed target weight concept.* Waller M, Krenn S, **Mussnig S**, Schmiedecker M, Niknam-Saeidi J, Mayer CC, Wabel P, Schneditz D, Chazot C, Hecking M. *Nephrol Dial Transplant.* 2023 Sep 14;gfa206. doi: 10.1093/ndt/gfa206. Epub ahead of print. PMID: 37708039.

3. *Ultrafiltration-induced decrease in relative blood volume is larger in hemodialysis patients with low specific blood volume: Results from a dialysate bolus administration study.* Schmiedecker M, Krenn S, Waller M, Paschen C, **Mussnig S**, Niknam J, Wabel P, Mayer CC, Hecking M, Schneditz D. *Hemodial Int.* 2023 Apr;27(2):174-183. doi: 10.1111/hdi.13066. Epub 2023 Jan 26. PMID: 36703281.
2. *Revisiting the concept of constant tissue conductivities for volume estimation in dialysis patients using bioimpedance spectroscopy.* Schneditz D, **Mussnig S**, Krenn S, Hecking M. *Int J Artif Organs.* 2023 Feb;46(2):67-73. doi: 10.1177/03913988221145457. Epub 2022 Dec 22. PMID: 36550616.
1. *The systemic renin-angiotensin system in COVID-19.* Reindl-Schwaighofer R, Hödlmoser S, Domenig O, Krenn K, Eskandary F, Krenn S, Schörgenhofer C, Rumpf B, Karolyi M, Traugott MT, Abrahamowicz A, Tinhof V, Mayfurth H, Rathkolb V, **Mußnig S**, Schmölz L, Ullrich R, Heinzel A, König F, Binder C, Bonderman D, Strassl R, Puchhammer-Stöckl E, Gorkiewicz G, Aberle JH, Jilma B, Wenisch C, Poglitsch M, Oberbauer R, Zoufaly A, Hecking M. *Sci Rep.* 2022 Nov 22;12(1):20117. doi: 10.1038/s41598-022-24628-1. PMID: 36418458; PMCID: PMC9684482.

#### Editorials:

*Mechanistic Basis for Intradialytic Hypertension with Hemodialysis.* Hecking M, **Mussnig S**, Chazot C. *Clin J Am Soc Nephrol.* 2024 Mar 1;19(3):283-285. doi: 10.2215/CJN.0000000000000408. Epub 2024 Jan 24. PMID: 38265791; PMCID: PMC10937007.

#### Letters:

*Does low pre-dialysis blood volume increase survival? – A call for caution.* Krenn S, Schneditz D, Keane D, **Mussnig S**, Hecking M. *Int J Artif Organs.* Accepted for publication 2025-06-06.

*Dialysate Sodium and Mortality: 140 mmol/L at Hemodialysis Initiation by Default?* Hecking M, Karaboyas A, Krenn S, **Mussnig S**, Beige J, Chazot C, Pecoits-Filho R, Rayner H, Port FK. *J Am Soc Nephrol.* 2024 Jul 1;35(7):972-973. doi: 10.1681/ASN.0000000000000371. Epub 2024 Jun 6. PMID: 38949884; PMCID: PMC11230718.

#### Books:

*10. Dialysetechnik.* Schneditz D, **Mussnig S**, Hecking M. In J. Werner (Ed.), Band 9 Automatisierte Therapiesysteme. Berlin, Boston: De Gruyter, 2024 (in preparation).

### Honors & Prizes

**10/2024 - 09/2025:** Marietta-Blau Grant, OeAD Austrian Agency for Education and Internationalisation

**03/2024 - 06/2024:** NaturTalente high-potential programm, University of Vienna

**12/2022 & 12/2023:** Merit Scholarship, Medical University of Vienna

**10/2022 - 09/2023:** MDPhD Excellency Program, Medical University of Vienna. *Prior admission to PhD courses during the last year of medical school and PhD financing for 11 months.*

### Presentations

**2025-06-05:** 62th Congress of the European Renal Association 2025, Vienna (Austria). Topic: *Fluid management in hemodialysis based on apparative methods and patient-reported outcome measures: A quality improvement project (4 min)*

**2025-01-25** Dialysis Masterclass, Vienna (Austria). Topic: *Bioimpedance in Hemodialysis: Principles and Application (60 min)*

**2024-05-24:** 61th Congress of the European Renal Association 2024, Stockholm (Sweden). Topic: *Sex differences in bioimpedance-spectroscopy-derived fluid status and body composition of maintenance hemodialysis patients (2 min)*

**2024-04-24:** Lecture for dialysis nurses, Vienna (Austria). Topic: *Fluid Management in Hemodialysis (90 min)*

**2024-01-25:** Weidener NephroTreff sponsored by CSL Vifor, Weiden (Germany). Topic: *Hypo- and Hypervolemia (30 min)*

**2023-10-05:** 15th Annual Meeting of the German Society of Nephrology, Berlin (Germany). Topics: *Euvolemia - Never Give Up!, Blood-Volume-Monitor Data Extraction, A Comparison of Two Bioimpedance Spectroscopy Devices (10 min)*

**17/06/2023:** 60th Congress of the European Renal Association 2023, Milan (Italy). Topic: *Comparison of Two Bioimpedance Spectroscopy Devices (2 min)*

**04/05/2023:** Brodovy Dny 2023 - Annual Meeting of the Czech Society of Nephrology, Mikulov (Czech Republic). Topic: *Fluid Management in Hemodialysis (20 min)*

**07/10/2022:** Annual Meeting of the Austrian Society of Hypertension and Nephrology, Vienna (Austria). Topic: *Differences in the measured overhydration of hemodialysis patients between two versions of the Body Composition Monitor (5 min)*

**04/05/2022:** Research Symposium: The Future of Hemodialysis (& review board of WWTF grant LS20-079), Vienna (Austria). Topic: *BCM - old vs. new (15 min)*

## Ad-Hoc Reviewer

BMC Nephrology, The International Journal of Artificial Organs, Hemodialysis International

## Clinical Experience

**08/2022 - 07/2023:** Clerkships at Klinik Hietzing: Dermatology (2 months), Klinik Favoriten: Urology (4 months), Vienna General Hospital: Department of Neurology (2 months), Mein Hanusch Hospital: 1st Medical Department (4 months)

**2019 - 2020:** Internships at LKH Laas: Internal Medicine (3 weeks); UKH Klagenfurt: Traumatology (4 weeks); Vienna General Hospital: Nephrology & Dialysis (2 weeks); LKH Klagenfurt: Gastroenterology & Hepatology, Pulmonology, Cardiology (2 weeks each)

## Other Work Experience

**10/2020 - 06/2022:** Employee at the urological practice of Dr. Türk, 1030 Vienna

**2017/2018:** Lifeguard, Klagenfurt am Wörthersee

**08/2016 - 04/2017:** Civilian Service at the Red Cross Klagenfurt, Emergency Medical Service

## Skills & Interests

**Languages:** German (Native), English (Fluent), French (B2), Italian (B1)

**IT Skills:** MS Office (+++), R (+++), Python (++), SQL (+), Final Cut (+++), Blender (++)

**Interests:** Saxophone (Classical & Jazz), Film, Photography, Composition, Digital Art

**Other:** Good Clinical Practice Certificate (09/21), Driver's License Class B