

# The CRA's 2023 Emerging Investigator: Dr. Lihi Eder

You have a broad background in rheumatology with specific training and expertise in psoriatic arthritis, musculoskeletal ultrasound and cardiovascular diseases in rheumatic patients. You are Director of the Psoriatic Arthritis program at Women's College Hospital and co-Director of the Cardio-Rheumatology Program (University of Toronto), an interdisciplinary program that aims to improve the management of cardiovascular morbidities in rheumatic patients by developing novel models of care through research and educational activities. Can you tell us more about your research and its implications?

My research questions are triggered by questions that arise during my encounters with patients in the clinic. My main area of research is psoriatic arthritis (PsA), which is such a fascinating, heterogeneous disease with many unresolved issues. I combine clinical research using both large patient registries and population-based data with translational research using both imaging and laboratory biomarkers to improve our understanding of PsA. Specifically, my research on the transition from psoriasis to PsA aims to improve early diagnosis of PsA by developing new clinical prediction tools and employing targeted use of musculoskeletal ultrasound. I also use ultrasound to improve phenotyping of PsA by integrating imaging data with laboratory biomarker data. Using this combination, I aim to find ways to personalize the selection of advanced therapies.

Our cardio-rheumatology network, the first of its kind in Canada, involves a collaboration of rheumatologists and cardiologists. We aim to optimize the management of cardiovascular risk factors in patients with inflammatory rheumatic disease through early screening and the use of vascular imaging, such as coronary calcium score, to identify high-risk individuals. This allows the initiation of early therapies, such as statins, to reduce cardiovascular risk. We have seen more than 400 patients with rheumatic diseases since we opened the clinic in 2017 and approximately half of them required initiation or modification of medications following their visit to the clinic to reduce their cardiac risk. We also have a few anecdotal cases of patients who were found to have critical coronary artery blockages that were identified and successfully treated following their clinic visits. Overall, I am satisfied with the fact that my research contributes to the understanding of rheumatic diseases, and also influences the care of individual patients.



You were awarded the Canada Research Chair in Inflammatory Rheumatic Diseases (2021-2026) for studying barriers to equitable care in rheumatology, including the role of sex and gender as determinants of disease outcomes. Can you describe some of the most significant findings in this research area?

This is a recent area of research for me that stemmed from a study that I published as a PsA research fellow with Dr. Dafna Gladman. We found that female patients with PsA do worse than male patients considering their level of pain, physical function, and quality of life. This is despite the fact that male patients tend to develop more joint damage. More recently, we

studied population-based data and showed that female patients with PsA, ankylosing spondylitis (AS) and rheumatoid arthritis (RA) require more visits to the rheumatologist before receiving a diagnosis of these conditions. In addition, I analyzed randomized clinical trial (RCT) data and found that female patients are less likely to achieve the minimal disease activity state in PsA compared to male patients. It is unclear what are the mechanisms underlying these differences in clinical features and response to treatment. I lead a Canadian Institute of Health Research (CIHR)- and Group for Research and Assessment of Psoriasis and Psoriatic Arthritis (GRAPPA)-funded study with 40 sites across the world, which will attempt to tease out sex-related biological factors such as pharmacokinetics and immune factors from gender-related socio-cultural factors, such as pain reporting and coping mechanisms, in patients with PsA starting advanced therapies. We hope that by better understanding these sex and gender mechanisms, we can develop sex/gender-specific approaches to improve care of both men and women living with PsA.

Are there other areas of interest that you would like to investigate in the future?

I hope to study the role of obesity in PsA, as I believe it has a major influence on disease susceptibility, course and response to therapy. My group is conducting an RCT that studies the role of dietary modification as an adjunct therapy in PsA. I hope to explore more closely the use of behavioural and pharmacologic interventions to improve eating habits and lower weight as ways to manage PsA, especially in people who do not achieve optimal outcomes.



Dr. Lihi Eder receiving her award from CRA President Dr. Nigil Haroon at the CRA Annual Scientific Meeting in Quebec City, which took place in February 2023.

Your research efforts have resulted in over 140 peer-reviewed publications in medical journals, book chapters and editorials. You are frequently invited to present the results of your studies in national and international conferences in the fields of rheumatology, dermatology and cardiology. You are an elected member of the GRAPPA steering committee and President of the Canadian Rheumatology Ultrasound Society. As a recognized expert in rheumatology, you received a New Investigator Award from the Arthritis Society (2016) and an Early Research Award from the Ontario Ministry of Research Innovation and Science (2018). What has been your proudest professional accomplishment to date?

I am proud of all of these awards and achievements; it is very hard to choose just one as they happened at different stages of my career and were all meaningful. They mostly remind me to pause, take a deep breath and recognize how very fortunate I am to have the opportunity to get paid for doing something that I enjoy so much.

What are some of the highlights and challenges you have experienced thus far in your career? How have you overcome these challenges?

My career path has been long and somewhat unplanned. As an international fellow who did not originally plan to become a scientist, I spent more than six years doing PhD and postdoc training. Moving with two babies to Toronto, going back to Israel, and then moving back to Toronto was also not easy, especially with all our extended family living on the other side of the globe. However, I do not regret any of the choices I made.

I have always liked travelling and being a scientist has given me the opportunity to visit many new places and meet people from different countries, many of whom became good friends. This is definitely one of the highlights of my job. I also enjoy the fact that I can effect change through my research. Studying clinical questions that arise during my encounters with patients and being able to provide answers to patients through my research as well as influence the field is a huge bonus.

What was your first thought when you learned that you would receive this award?

It is great to receive such recognition from the CRA. This award means a lot to me since it comes from my peers, the Canadian rheumatology community. I feel very honoured.

For those wanting to pursue rheumatology and a career in research, what advice would you give them? Have you had key mentors who supported your career path? If yes, what were the key learnings you gained from them?

My best advice is to keep an open mind, explore different career options, and not be discouraged by the length of training needed to become a scientist. I had really good mentors who supported my career and continue to do so. A key piece of advice that I was given by one of my mentors is to always work with people who can teach you something that you don't know.

If you weren't pursuing research as a career, what would you be doing?

I would be a veterinarian. That was my childhood dream.

If you had an extra hour in the day, how would you spend it? Sleeping in an extra hour in the morning.

You are marooned on a desert island. What book would you like to have on hand with you?

"A Tale of Love and Darkness" by Amos Oz. A highly recommended Israeli novel.

What is your favourite food or cuisine?

I usually don't say no to any type of chocolate dessert.

What is your dream vacation destination?

Any place with warm weather, a sandy beach, and good food.

How many cups of coffee does it take to make a productive day?

No more than two.

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