

ESSAY - INTERVIEWS

CORRESPONDING MEMBERS OF CROATIAN ACADEMY OF SCIENCES AND ARTS

Department of Medical Sciences

Dear Readers,

Starting with the present issue of our periodical, RAD HAZU, we are introducing a new feature entitled „**Corresponding Members of Croatian Academy of Sciences and Arts, Department of Medical Sciences**“.

This addition will contain a series of interviews, the first of which were conducted by Dr. Ivan Damjanov, Emeritus Professor of Pathology, The University of Kansas School of Medicine, Kansas City, USA; he is also a Corresponding Member of the Croatian Academy of Sciences and Arts. These interviews were produced in cooperation with the editors of “mef.hr”, the official website of the School of Medicine, University of Zagreb. They will appear electronically in Croatian on that website in a regular rubric entitled “*Illustrissimi alumni*”.

The present series was conceived as a set of informally recorded conversations with the best-known and internationally recognized graduates of the School of Medicine, University of Zagreb. The English version of these interviews is now being published by HAZU to make them accessible to a wider readership, including all those who do not understand or read Croatian.

The primary goal of this series of dialogues in RAD HAZU is to present and recognize the outstanding alumni of the School of Medicine who are also Corresponding Members of HAZU. We hope that our readers will enjoy reading about the memorable events in the lives of these physician-scientists, their achievements, and scientific contributions that made them famous worldwide.

The emphasis of these discourses will be on the human side of science and medicine. Our goal was to give the interviewees a chance to reminisce about their trials and tribulations as well the happiness and fun they experienced in their lives. In other words, the objective of the interviews is and will be to give our esteemed interlocutors an opportunity to tell their life story in their own words and show us “how they did it” while still keeping their personal and professional lives in balance.

Finally, it’s a good time to remind you, our readers, of the Latin saying “*verba volant scripta manent*”, which justifies publishing so many written words that otherwise would have been forgotten. By producing these pieces, our purpose was to preserve the informal records of the lives and work of featured physician-scientists; and by transforming their verbal testimonials into written documents, leave a permanent trace of their activities for future generations in the archives of HAZU.

Marko Pećina

Hedvig Hricak Interview



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1. Hedvig-- what a wonderful name! I learned from Google that it is composed of two syllabi derived from old-Germanic words for “battle and fight”. You seem to have been predestined by your parents to be a fighter. Proleptic or maybe there is another story behind your name?

It’s an interesting question – does your name influence who you become? I’m not sure, but as I look at my life, I would say that I have always tried to show courage and perseverance – traits often associated with a warrior – and those traits have certainly been essential in my professional career and my private life.

2. Where did you grow up?

I am very proud and happy to say that I was born and raised in Zagreb, and I have wonderful memories of my childhood and my upbringing. I earned my medical degree from the University of Zagreb School of Medicine. In the years since my graduation from medical school, science has developed vastly and continuously evolved, and therefore, very little of what I practice today is the same as what was practiced back then. However, my experience in medical school gave me a solid foundation, on which I still draw today. First of all, it gave me a thorough grounding in chemistry, biology, physiology and especially anatomy. Furthermore, medical school instilled in me and my fellow students’ great discipline and a very strong work ethic. The professors made it clear that they had high expectations for their students. There were nights and nights of studying. All that book learning was also balanced by laboratory experiments that piqued my curiosity and showed me that I could be a problem solver. Clinical rotations filled me with anxiety, but there was no way around them, and I not only got over the anxiety but learned to love them. Medical school at the University of Zagreb was challenging and rewarding; it gave me a passion for learning and strengthened my determination and persistence in overcoming obstacles.

3. How did you decide to become a radiologist?

I was always interested in physics and mathematics, as well as medicine. Radiology is a unique specialty combining life science and physical science, and I naturally gravitated to it.

4. In America you had to start from scratch? How difficult was it? The so called “optimism of memory” has probably wiped out all the troubles and all the you remember are the happy moments!

When I moved to the US, my son was only 13 months old. I decided to stay home and enjoy being a mother. It was a luxury, but it gave me peace of mind. Only after our family adjusted to our new life and Peter was 3 years old, I went back and re-started my residency. Before coming to the US, I had only finished 9 months of radiology residency in Zagreb at Vinogradska, so the sacrifice was not that great. It was not easy but at that stage in your life – you just do it! After my residency I transferred to Henry Ford Hospital and continued with my fellowship in ultrasound and CT. After my fellowship I stayed at Henry Ford as a faculty member until the end of 1981. My experiences there allowed me to further develop my clinical skills and launch my academic career.

5. How important is it for a young physician scientist to have a mentor or a role-model?

Based on my own experience as a mentee, my many years of experience mentoring trainees and faculty, and my discussions with successful men and women in other professions, I would say that a strong mentor is indispensable for success in any career. I would also like to add that being a mentor has been one of the greatest joys of my career. My mentees have challenged me to learn about new subjects and opened my eyes to new possibilities with their fresh ideas. Many of them became lifelong friends, enriching my life with love and care in an extended family stretching around the globe.

6. Early in your radiology training you were lucky to meet a very powerful mentor.

I have been very lucky in that I have always had trusted and supportive mentors. When I went to Henry Ford Hospital, William R. Eyler, MD was the chair of radiology there. He was a wonderful radiologist and academic leader – he wholeheartedly believed in the importance of teaching, mentoring, and advocating for research, and he was excellent at doing all of those things. As a mentor he was demanding, but he was visionary, and he always pushed me to go beyond what I perceived as my limits. He encouraged me to apply for my first grant. The grant allowed me to conduct research in the use of ultrasound to evaluate kidney transplants in dogs. It was novel and groundbreaking work, at a time when ultrasound technology was just starting to be disseminated and kidney transplantation was still quite new. I am proud to say the research we conducted is still relevant today. Dr. Eyler's attitude—that everything is possible—shaped my academic personality.

7. Under his tutelage you published your first medical paper, at least I assume so. What was its title?

My very first publication was a case report published during my residency. My first original research paper (Hricak H, Toledo-Pereyra LH, Eyler WR, Madrazo BL, Zammit M: The role of ultrasound in diagnosis of kidney allograft rejection. *Radiology* 1979; 132:667-672) was published under the mentorship of Dr. Eyler. It was an experimental basic science study in canines, investigating US findings in allograft rejection. Many of the findings we described then are still used in clinical practice today. Writing it under his tutelage, Dr Eyler taught me invaluable lessons about how to design a research study, write up the findings and discuss them without repeating the details of the results in the discussion section. However, I was also asked to edit/correct this paper 21 times – and that was before we had computers! I retyped it 21 times. It was the paper that started my academic career knowing that work will not be easy, and that perseverance and focus on the goals you want to achieve are essential ingredients of life journey.

8. From your mentor you learned how to write scientific papers. What else did you learn from him?

Dr. Eyler was a quintessential role model. His gentle but firm style of leadership, his dedication to every aspect of academic medicine—from patient care to education and innovation—has helped shape my vision of what a leader should and can be.

9. You received your scientific doctorate from the Karolinska Institute in Stockholm, Sweden. Most academic physicians in the US do not have such a doctorate. What was the title of your thesis? Why did you decide to go for it? How important was the “Swedish experience” for your future career?

You are correct. Starting postdoctoral studies after you are a full tenured professor at UCSF is indeed unusual. It was the influence of my mother and my background that made me feel that a doctorate is a desirable part of a thorough education. I decided to go to Radiumhemmet at the Karolinska University Hospital. At that point in my career, I was engaged in the fields of gynecologic imaging and radiation therapy, and Radiumhemmet was a recognized center of excellence in the field of radiotherapy, especially for gynecological cancers. Furthermore, at the time I applied, Professor Nina Einhorn, one of the world's most renowned experts in radiation therapy of gynecological cancers, was head of the Department of Gynecological Oncology at Radiumhemmet – a true role model. Unfortunately, Professor Einhorn retired right before I arrived! However, professor Elisabet Björkholm was the new head of the department, and she became yet another wonderful mentor and role model for me. The title of my thesis was “Cancer of the uterus: The value of MR Imaging in primary and recurrent disease and its potential impact on patient management.” Spending time at Karolinska and Radiumhemmet was a cherished experience. Among many lessons learned, it improved my understanding of the importance of multidisciplinary research in cancer care.

10. Your “big entry” into academic radiology occurred in California. Could you walk us through those years by pointing out a few key events that shaped you for the rest of your life?

I believe that my academic career started when I was at Henry Ford Hospital. As a budding academic I had offers from a number of institutions, including the University of Michigan and UCSF. The decision to go to San Francisco was partly influenced by my personal life. I was very lucky I made that choice, because when I came to UCSF, they had just acquired clinical MRI, and I had the chance to engage in the beginning of yet another revolution in radiology. Early on, I was able to conduct pioneering research into renal as well as gynecological and prostate MRI that helped lay the foundation for their ongoing use today.

11. The move to Memorial Sloan Kettering in New York was yet another milestone in your carrier, catapulting you to the acme of American and international radiology. Modesty aside, could you list for us a few of your most important achievements during your New York phase of life?

In my career choices – luck played a big role. As I moved from one place to another, my move always coincided with the birth of new technology. At MSK it was molecular imaging – and I again seized the opportunity. In terms of my own, personal research, I am proud to have been able to develop a strong and productive research team in genitourinary—and especially prostate cancer—imaging. I also made sure that our research was always grant funded, not just because of the funds needed to perform a study, but even more importantly because it is important to obtain peer-reviewed validation of your ideas. When I came to MSK, I brought with me an NIH R01 grant to pursue research into MRI and MR spectroscopic imaging (MRSI) of the prostate, which was followed by further NIH funding and research into multiparametric MRI of the prostate, once again advancing clinical applications of MRI. Most recently, we have been fortunate to acquire the technology for hyperpolarized (HP) MRI. Performing some of the first studies of HP-pyruvate MRI in patients and combining this technique with targeted DNA sequencing, we identified a potential link between actionable genomic alterations and metabolic information derived from HP-pyruvate MRI. I am very grateful to my team – as once again we opened a new field of imaging and future research and clinical applications.

Outside my own research efforts, I am proud to have been able to foster improvements in patient care, research and education. As an academician I am very passionate about education – and

helping to nurture the next generation of physician scientists. Again, supported by grant awards, we were able to develop a large fellowship and observership program in our department that brings physician scientists to MSK from all over the world. Extending educational efforts to global communities and always including young scientists from under-represented and less fortunate backgrounds has been a hallmark of our program.

12. You have received a lot of awards and recognitions for your professional work. Which one means the most to you?

Yes, I have indeed been very fortunate, and I am grateful to have received a number of awards. Each and every one has a special meaning. It is very difficult to choose a “favored child”. Maybe mentioning awards outside my field of Radiology has a different implication as it recognizes not only myself but the entire field of Radiology. For example, receiving the David Rall Medal from the National Academy of Medicine (photo) for my leadership in the Academy was special, as it was the very first time that the Academy acknowledged a radiologist with that award. Similarly, receiving honorary doctorates from Ludwig Maximilian University in Munich (photo) and the University of Toulouse III, Paul Sabatier (photo) was an unbelievable honor for a physician. However, being recognized in your home country is very special, special beyond words. I vividly remember the moments when I was inducted into the Croatian Academy of Sciences and Arts and when I received the Order of the Croatian Morning Star of Katarina Zrinska Presidential Award (photo). More recently, being recognized at the 100-year anniversary of the University of Zagreb was another of the most memorable, emotional highlights of my life (photo).



Figure 1. David Rall Medal received by Hedvig Hricak from the National Academy of Medicine



Figure 2. Honorary doctorates of the Ludwig Maximilian University, Munich (up) and the Toulouse III, Paul Sabatier University



Figure 3. Stjepan Mesić, President of the Republic of Croatia, decorated Hedvig Hricak with the Order of the Croatian Star with the Effigy of Katarina Zrinska



Figure 4. Ceremony marking the 100th anniversary of the founding of the Faculty of Medicine of the University of Zagreb, 2017 – Hedvig Hricak receiving acknowledgement (up); Hedvig Hricak with invited guests at the festive dinner (down)

13. For the 100-anniversary celebration of the founding of the Medical Faculty, University of Zagreb, you were honored and asked to make a presentation as one of the most successful alumni (see photo!). A great honor, congratulation. I know that you are a very modest and self-effacing person, but nevertheless, please tell us how did it feel?

I was truly touched. I was emotional, which I believe was evident in my acceptance speech. The emotions were amplified by my memories of being a student at the university and my gratitude for what the university gave me. They were also amplified by my knowing that my son was in the audience and my mother was watching on TV.

14. In your previous interview for Nacional in 2010 you have mentioned a lot of things you have done for Croatian medicine. But that was 10 years ago. Are there any additional initiatives that you have engaged in to help your Croatian colleagues or to advance the practice of medicine here?

Medical School in Zagreb and our country gave me so much - and I am delighted that I can give back, or "pay it forward." I will always continue to help our colleagues in Croatia however I can. The areas where I can contribute most are education and scholarship. So, one of the ways I contribute is by helping find training opportunities for promising clinician-scientists. I also founded and continue to help organize an annual oncologic imaging meeting in Dubrovnik. Last year it was interrupted by COVID, but we hope to be back next year. I would like to emphasize that the opportunities to help and collaborate are not limited to radiology but extend to the entire field of oncology. Oncology is a perfect example of team science, and its success depends on teamwork between radiology, surgery, radiation oncology, medical oncology, and many other disciplines. Multidisciplinary collaboration is not only essential for patient care, but it also fosters scientific progress and is an enriching life experience.

15. Before my last question allow me to quote a poem by Robert Frost, entitled "Stopping by woods on a snowy evening". I used to recite it to myself while returning home from a long day in the hospital.

The woods are lovely, dark and deep,
But I have promises to keep,
And miles to go before I sleep,
And miles to go before I sleep.

The question for you is: With all those accomplishments behind you, how long is the list of promises that you have made to yourself, and feet that you still must keep?

It's a lovely poem reminding us to never get distracted and to always find the strength to keep our promises. I believe that you should always deliver what you promised and never promise what you cannot deliver. Furthermore, having a purpose is important for continuing to find fulfillment in life. One should always find a purpose and remember, "You are only as good as your tomorrow." You must continuously reinvent yourself, learn and believe that with your work and experience you will make a difference in peoples' lives. One of the promises I have made to myself is to never stop advancing medicine and always help training and educating the next generation of physician scientists. Giving back is an important guiding light in my life journey. As cancer is, unfortunately, a global disease, one of my current and very exciting projects is leading the Lancet Oncology Commission on Imaging and Nuclear Medicine. We in economically fortunate countries should not stand by and do nothing when we know that roughly 80% of the world's cancer burden is in low- and middle-income countries, which have only 5% of the world's resources for dealing with cancer. Therefore, this commission aims to provide, complete data on the prevalence of imaging equipment, personnel and related resources around the world. We also performed a health economic analyses showing, in monetary terms as well as in life years saved, the gains that countries can make by investing in comprehensive cancer care. We hope the results and the recommendations will be used by government agencies, foundations and societies to create a roadmap and timetable for scaling up needed resources. The commission has completed its data collection and health economics analysis and is close to publishing a groundbreaking white paper—but that is only be the beginning. The next steps will be to communicate and disseminate the findings and helping to implement change, and I am looking forward to be able to continue to help and contribute to so much needed improvements in cancer care.

LINK:

http://info.hazu.hr/en/member_of_academy/personal_pages/hedvig_hricak_en/hedvig_hricak_en_biography/

Stevo Julius Interview



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1. How did you decide to study medicine?

If you tell a youngster that he cannot do something, for sure, he will try to do it. At the beginning of the WW2 when the Germans occupied Zagreb I was kicked out of the high school. The text stated "Erased ... based on the laws of racial origin." All of a sudden I got interested in education. When my family "went in to the forest" and joined the partizans twice, in Glina and in Otochac, I enlisted in the local schools, but again the Germans kicked us out. After the war in Tito's school in Zagreb had excellent teachers and in two years we completed the curriculum of 4 years. In the medical school, beside medicine I kept interest in other things. I published two books ("The wisdom of our body" and "On the nervous basis") and became the editor of the medical student journal "Medicinar"

2. How did you come to the US?

First time my wife Mara got a stipend from the Ford foundation to study methods of surveys of populations. Our visas required that after two years we return to the country of origin. Second time I was invited by the Medical School of Ann Arbor.

3. Was it at the University of Michigan at Ann Arbor that you developed an interest in arterial hypertension?

Yes. At my first visit Professor Hoobler gave me a position in Hypertension Division of the Medical School.

4. Did you ever think then that you will still be studying hypertension for the rest of your life and even into your nineties?

An interesting question. I knew that prehypertension, its hemodynamics and possibility of prevention of established hypertension would interest me forever but had no idea about my longevity. My father committed suicide at his seventies. Mother was a heavy smoker which shortened her life. Brother who liked to lay on sun died from a melanoma. People frequently ask me how come I lived so long. No idea! (Nemam pojma) I guess it's my genes. But one thing I know for sure. Do not get obese, don't smoke and try to keep yourself in good shape.

5. Did your first scientific paper published in English deal with hypertension?

Yes.

6. As an academic physician and scientist you were quite productive. How many scientific papers did you publish?

345 papers and 73 chapters in books.



Figure 1. Stevo Julius with friends at his 90th birthday celebration at the ESH Congress in Barcelona, 2018



Figure 2. Stevo Julius: *Avanture u hipertenziji: uspomene medicinskog istraživača* / *Adventures in Hypertension: Memoirs of a Life in Medical Science*, Samobor, A. G. Matoš, 2011



Figure 3. Stevo Julius at the opening of the Congress of the Croatian Hypertension Society and the Central European Meeting at the Croatian National Theatre in Zagreb



Figure 4. Stevo Julius photographed in front of the Palace of the Croatian Academy of Sciences and Arts, corresponding member of which he has been since 2012

7. What is your most important paper?

That's a very difficult question. First let me say that your best paper is not necessarily the most frequently cited now. I choose one of our earliest papers providing the base for understanding of the role of brain in hypertension Julius S, Pascual AV, London R: Role of parasympathetic inhibition in the hyperkinetic type of borderline hypertension. *Circulation* 44:413-418, 1971.

8. In your own assessment, what was your most important contribution to medicine?

I will here use the terms «we» and «our» to underscore that 84 scientist from USA, Europe, Australia, Asia and South America joined me in this work. We understood that repeated increases of blood pressure very early cause damage of the cardiovascular system. Therefore investigating early phases of hypertension (prehypertension) are more likely to reflect causes than consequences of hypertension. Very early we learned that hemodynamic picture of prehypertension (high cardiac output) is different from established hypertension (high vascular resistance). Furthermore prehypertension was associated with increased sympathetic tone,

obesity and insulin resistance. We now understand how increased sympathetic tone causes insulin resistance and obesity as well as how the high cardiac output changes into high vascular resistance. The overall picture is that prehypertension is a precursor of established hypertension that in prehypertension sympathetic tone is increased, that the brain plays an important role in the blood pressure increase and that early treatment of prehypertension may postpone or prevent the established hypertension.

9. You are 92-years-old and you are still giving presentations at scientific meetings. How many invitations have you accepted for this academic year?

Using the zoom I will respond to invitations from Buenos Aires, Vilnius, Timisoara and Ann Arbor.

10. Your autobiographical book «Neither red nor dead» (published in 2003) was translated into Croatian. Did Croatian readers comment about the events described in your book?

I am impressed to see how many people read, and liked the book.



Figure 5. Dr. Julius receiving acknowledgement at the ceremony marking the 100th anniversary of the founding of the Faculty of Medicine of the University of Zagreb, 2017

11. Are you still in contact with the academic physicians and scientists in Croatia?

Yes and I am delighted whenever I get an invitation. Professor Davor Milicic frequently invites me to lecture in Croatia and gives me chance to interact with younger colleagues. My friend professor Bojan Jelakovic has interesting data from his field work in Croatia and we often discuss. On the occasion of 100th anniversary of the University of Medicine in Zagreb I received a plaque for my «support in knowledge transfer and care for the professional advancement of his colleagues in Croatia. About 6 years ago I came to Croatia with a group of cardiologists from Ann Arbor who were quite impressed with the level of medicine in Zagreb. They established contact with Croatian colleagues.

LINK:

http://info.hazu.hr/en/member_of_academy/personal_pages/sjulius_en/sjulius_biography_en/