

## **Djordje Radak, MD, PhD, SASA**

### **General and vascular surgeon**

#### **Member of Serbian Academy of Sciences and Arts**

**Professor Djordje Radak**, was born in 1956. in Vrsac, Serbia. He graduated from School of Medicine in Belgrade, with an **average grade of 9.70**. He works in the field of vascular surgery and angiology.

He finished specialization in **general surgery** with distinction in 1986, as well as a subspecialization in **vascular surgery** in 2002.

Master's thesis "Experimental atherosclerosis in light of immunological parameters" in 1983 and doctoral thesis "Surgical significance of carotid plaque exulceration" in 1991, he defended with distinction at the Belgrade School of Medicine.

He passed successfully through all teaching positions at the Medical Faculty in Belgrade, starting from the position of demonstrator in anatomy classes (1978-1980), assistant at the Institute of Physiology (1981-1982), assistant in the Department of Surgery (1987), assistant professor (1994) and extraordinary professor, until a tenured professor of surgery (since 2004).

As a young surgeon, he won the scholarship of the German government (**Deutsche Austausch Dienst - DAAD**) and perfected his surgical skills under famous Prof. Vollmar's mentorship. Later, he continued his training in the UK, the Netherlands and Italy. The knowledge he acquired, he incorporated in the vascular medicine at the Institute for Cardiovascular Diseases "Dedinje", where he became **director of the Clinic for vascular surgery**. He gathered a group of young, good surgeons with scientific ambitions, and gave them ability to continue training in famous international schools. He also initiated the first laboratory for non-invasive diagnosis in angiology in Serbia.

Dj. Radak annually performs about 600 reconstructive vascular operations, and the team that he leads performs about 2,000 arterial reconstructions and about 500 endovascular interventions on a yearly base, with the results at the level of major international centers. He implemented new methods in vascular (eversion carotid endarterectomy) and endovascular surgery (thoracic and abdominal stent-graft), as first in Serbia. He designed and introduced into everyday clinical use a **database for prospective follow-up** of early and late results of carotid reconstruction. (2008)

He was elected as a **Chairman of the University Department of vascular surgery and angiology**, at the time of its intensive development. He introduced the Center for Continuous Medical Education and was a mentor for 23 master's degrees, 14 doctoral dissertations and 25 sub-specialization final works. He trained more than 50 vascular surgeons in the country and abroad, and was **vice-dean of the Medical Faculty in Belgrade** (2002).

Professor Radak deals with all areas of vascular surgery. Thanks to his engagement, **Clinic for vascular surgery** of the Institute for Cardiovascular Diseases "Dedinje" has become "High volume" center that annually performs about 20,000 angiological examinations, 2,000 large arterial reconstructions and about 500 endovascular interventions.

Treatment of **carotid artery disease** has made the clinic run by Dj. Radak well-known beyond the borders of Europe. The greatest interest of the professional public was caused by introduction of **eversion carotid endarterectomy** (1993), as a revolutionary new method, passing through a phase of early skepticism of the environment to the complete acceptance and the largest series of operations in Europe (over **13,000**), with the perioperative complications under 0.6%. (Numerous publications and lectures by invitation of the ECSC, CVS, ESCVS).

The introduction into the surgical repertoire of the first bypass operations of **vertebral arteries** (1993) and reconstruction of **supraaortic branches** by **transposition** avoiding the chest opening (1994), has shifted the boundaries of cerebral circulation repair. The introduction of the carotid artery surgery under **local anesthesia** (2001) with intraoperative Flow-metry (1996) and later Near-infrared spectroscopy (2013), enabled good perioperative protection of cerebral metabolism, and thus better results. "Hybrid" procedures in the treatment of multiple lesions of supraaortic branches and peripheral arteries are still in development around the world. Dj. Radak introduced them in 2013, using an open surgery, combined with endovascular approach, thanks to good cooperation with interventional radiologists.

Due to the systematic analysis of the results of carotid disease treatment, Dj. Radak has designed and introduced into everyday clinical use the original **Database** (2011) for prospective follow-up of early and late results of medical therapy and carotid reconstruction (surgery, stenting). Electronic database now includes over 4,800 patients, who were followed for more than 4 years and will be controlled to further clinical and ultrasound examinations every 6 months. Multifactorial analysis of these data, in the time dynamics (Life table analysis), allows cross-linking of all technical details of interventions, risk factors and diseases associated with early and late results of treatment of carotid disease, as well as insight into the natural history of atherosclerotic disease.

Intrigued by **aneurysmal aortic disease**, Professor Radak has introduced new methods into vascular surgery in our country, such as **autotransfusion** during major vascular reconstructions (1992), revascularization of ischemic kidney ex vivo (1996), and thoracolumbothomy for thoracoabdominal aneurysm resection (1997). He participated in the **first stent graft** implantation in a patient with a **thoracic aortic aneurysm** (2004), which has opened a new era of endovascular, minimally-invasive treatment of aortic aneurysms. Endovascular interventions are currently applied successfully in an increasingly broad indication field, and endovascular treatment of **aortic aneurysm** (2005) led to the development of combined and hybrid procedures for treating diseases of the aorta and peripheral arteries (2010).

Especially difficult field of surgical work of Professor Radak are resections of large, invasive tumors that infiltrate the large blood vessels. **Medial visceral rotation** to access subdiaphragmatic organs and aorta in **resection of tumors that affect large vessels** he introduced in 1998 (**Int Urol Nephro**).

He participated in the first human **orthotopic liver and pancreas transplants** in our country, including their organization, experimental preparation, indicating and treatment, with the perioperative consultance, from 1996 to 2001.

Professor Radak belongs to the group of current world experts in vascular medicine and surgery. After the election as corresponding member of SASA, he continued and intensified his surgical, educational and scientific activity. He has published over 250 papers in indexed

international journals (on the **JCR**, **WoS** and **Scopus** list) with high impact factor (*Journal of Vascular Surgery*, *Eur J Cardiovasc Surg*, *Ann Vasc Surg*, *Atherosclerosis*, *PLoS One*, *Critical Reviews in Clinical Laboratory Sciences*, *Integrative Biology*, *Current Vascular Pharmacology*, *American Journal of Surgery*, *International Journal of Stroke*, *Vascular, Angiology*, *Phlebology*). Some of the results are accepted as standard in modern vascular surgery. His activity in associations for vascular surgery opens up new opportunities for international cooperation, education and research projects.

Professor Radak has held about 40 lectures as a (invited lecturer) keynote speaker. He organized the visits of many prominent vascular surgeons from around the world, to give lectures at Medical Faculty in Belgrade. Dj. Radak was the European coordinator for *Asymptomatic Carotid Surgery Trial* (ACST I and II), currently the largest international prospective multicenter randomized study in the world, with the results published in the **Lancet**. He was elected as an honorary professor of surgery, *Professore ordinario, Istituto di cardiocirurgia, Università di Milan* (1995). He was a member of the board of the *European Society for Vascular and Endovascular Surgery* (ECSC), 2006 and the *International Union of Angiology* (IUA), 2002. Professor Radak is a Reviewer in the Journal of Vascular Surgery and other journals with high impact factor.

Professor Radak deals with vascular surgery, and the results of his research have been recognized and applied in the vascular surgery praxis and published in the numerous papers and several international and national books. As a professor, he participates in ordinary classes of surgery and postgraduate teaching in Vascular Surgery with Angiology, general medicine and cardiology.

He led the group to write a national guide for **Prevention of cardiovascular disease** (Serbian Ministry of Health, 2005). He has also participated in the creation of another **5 national guides** to good clinical practice for vascular surgery (**carotid, aneurysmal, peripheral and venous disease, vascular urgent situation and the bypass graft choosing**). He introduced new methods in the teaching process (**educational DVD videos**): Surgical approaches to arteries and Vascular surgery.

Currently, he is **Chairman of the University Department of vascular surgery and angiology**. Dj. Radak was the president of the **Section of Vascular surgery and angiology** of Serbian Medical Society (SMS) from 2002 to 2005. He is a regular member of the **Academy of Medical Sciences** of the SMS and a **member of the Scientific Council of the Academy** of Medical Sciences of the SMS. He is the current **president of the Association for Vascular Medicine** of Serbia. Professor Radak was a Board Member for Education in English, of School of Medicine in Belgrade (2000). He has been elected in several expert committees of the Ministry of Health of Serbia and was a member of the jury for awarding annual prizes of Belgrade Chamber of Commerce for the best doctoral dissertation (2013). He is inviting consultant to the Special Hospital for Cerebrovascular Diseases "Sveti Sava" and Special Hospital for Rehabilitation "Banja Koviljača".

International communication in and around vascular surgery, for Professor Radak was an opportunity to enable to the young surgeons to be involved in social-science network through membership in selected **associations**: Serbian Medical Society, Society for Vascular Medicine Serbia, International Union of Angiology (IUA), European society for Vascular Endovascular Surgery (ESVES), International society for Vascular Surgery (ISCM), International society for Transplantology.

Prof. Radak's monographs and textbooks have launched a high-quality publication in our vascular surgery. Postgraduate tutorial "**Surgical approaches to arteries**" has experienced two editions, and a monograph "**Brain revascularization**" is preparing for the second edition. The author insists on a simple and systematic solution to the largest practical problems. Generations of surgery residents have accepted these books as a kind of "primers" for surgical techniques and guidebooks of the surgical decision-making.

Professor Radak is a member of the Board of *European Society for Vascular and Endovascular Surgery (ECSC)*, 2006<sup>th</sup> and the *International Union of Angiology (IUA)* 2002<sup>th</sup>. He is *Section Editor* in *Open Cardiovascular Medicine Journal*, and a *member of the Editorial Board* of the *World Journal of Clinical Case (WJCC)*. He is reviewer of the *Journal of Vascular Surgery*, *BMC Cardiovascular Disorders* and *Angiology*. He is a longtime editor in chief of the journal "*Medical Investigations*" of Medical Faculty in Belgrade. He is the member of the editorial board of the *Military Medical Review*, *Acta Medicinæ Facultatis Naissensis*, *Actual Novi Sad* and *Acta Medica Saliniana* and reviewer of many books and 8 international journals.

Scientific and practical work of Dj. Radak has led to recognition of vascular medicine in our country and the development of angiology, which was further demonstrated by the inclusion of vascular surgery as a separate specialty in the new curriculum of the School of Medicine. He is the founder of the **School for angiologic ultrasound diagnostics**, which takes place twice a year, traditionally, for 8 years, with practical training that lasts three months, based on the "*Hands on Education*" principles. He initiated and led several schools for young vascular and endovascular surgeons from Serbia, Central and Eastern Europe and a large number of seminars of continuous medical education. He won the annual award for scientific work of Serbian Medical Society, medal "Captain Misa Anastasijevic", as well as medal "Dr Vladan Djordjevic" of Military Medical Academy.

He was elected in November 2009 as corresponding member of SASA, participating in the Committee for Cardiovascular Pathology, Committee of Human Reproduction, Committee for tumors of the urogenital tract and interdepartmental Committee for studying the life and work of Serbian scientists.

Dj. Radak has focused his clinical research and innovations on the diagnosis and treatment of arterial and venous disease in vascular surgery. He has published numerous scientific papers trying to enrich the good results of surgery with basic research and thus reduce the number of complications; he also tries to approach to the treatment of genomic, proteomic and metabolic causes of atherosclerosis and aneurysmal disease.

Bibliography of Dj. Radak comprises a total of **828 papers**. Bibliographic base analyzing notes:

<b>Publications</b>	<b>Total</b>
<b>Papers in indexed journals (on the <i>JCR</i>, <i>WoS</i> and <i>Scopus</i> list)</b>	<b>242</b>
<b>Monographs and chapters in monographs of esteemed publishers</b>	<b>148</b>

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<b>Papers in (inter)national journals That haven't been indexed</b>	<b>111</b>
<b>Excerpts in monographs and thematic anthologies</b>	<b>313</b>
<b>Editor</b>	<b>14</b>
<b>Total</b>	<b>828</b>

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He is an author on invitation in 20 chapters in international books, and as **the single author** he has published several books and graduate textbook:

- **Radak Dj. Surgical approaches to the arteries.** Prosveta, Belgrade, two editions, 1996 and 2004. The textbook for postgraduate studies of Medicine in Belgrade.

- **Radak Dj. Brain revascularization,** Akademska misao, Belgrade, Textbook for postgraduate studies, School of Medicine in Belgrade, 2001.

- **Radak Dj. Carotid surgery.** Monograph of the international importance, textbook for postgraduate studies of vascular surgery and angiology, Faculty of Medicine, University of Belgrade, 2012.

According to the official data of the University Library, in the Science Citation Index and Web of Science databases, a total number of **1791 citations** (with 1307 "on behalf" of citations) were found. His Hirsh index (***h-index***) is **17**. In the Scopus database, Elsevier a total of **779 citations** was found, of which 101 citations, and a value of Hirsh index (***h-index***) amounts **16**. Google Scholar database has **826 citations**, with ***h-index*** of **18**. Professor Radak publishes in magazines with the highest impact factor, and **in indexed journals** (JCR on the list, WoS and Scopus).

### **Selected bibliography of Dj. Radak:**

1. **Radak Dj,** Labs KH, Jager K. Doppler-Based Diagnosis of Restenosis after Femoropopliteal Percutaneous Transluminal Angioplasty: Sensitivity and Specificity of the Ankle/Brachial Pressure Index versus Changes in Absolute Pressure Values, **Angiology** 1999, 50(2): 111-122.
2. **Radak Dj,** Popović A. Immediate Reoperation for Perioperative Stroke after 2250 Endarterectomies: Difference between intraoperative and early postoperative stroke, **Journal of Vascular Surgery** 1999; 30(2): 245-251.
3. **Radak Dj,** Radević B, Sternić N. Single Centre Experience on Eversion versus Standard Carotid Endarterectomy A Prospective Non-Randomised Study, **Cardiovascular Surgery** 2000, 8(6): 422-427.
4. **Radak Dj,** Rosato E. Kinking and Coiling of the internal carotid artery, **Angiologia**, 1994, 6: 195-199. Spanish.
5. **Radak Dj,** Ilijevski N, Nenezić D. Temporal Trends in Eversion Carotid Endarterectomy for Carotid Endarterectomy for Carotid Atherosclerosis: Single-Center Experience with 5.0034 Patients. **Vascular** 2007; 15(4): 1-7.
6. MRC Asymptomatic Carotid Surgery Trial (ACST) Collaborative Group (**Radak Dj.** et al.). Prevention of Disabling and Fatal Strokes by Successful Carotid Endarterectomy in Patients with Recent Neurological Symptoms: Randomized Controlled Trial. **Lancet** 2004; 363:1491-502.
7. **Radak Dj,** Davidovic L, Vukobratov V. et al. Carotid Artery Aneurysm: Serbian Multicentric Study, **Annals of Vascular Surgery** 2007; 21(1): 23-29
8. **Радак Ђ.: Хируршки приступи артеријама,** Просвета, Београд, Два издања, 1996. и 2004. Уџбеник за последипломску наставу Медицинског факултета у Београду.
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prevention after successful carotid endarterectomy for asymptomatic stenosis (ACST-1): A multicentre randomised trial. **Lancet**. 2010 Sep 25;376(9746):1074-84.

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11. **Radak Dj**, Milojević P, Hadži-Djokić J. Renal Tumor with Tumor Thrombus in Inferior Vena Cava and Right Atrium: The Report of Five Cases with Long-term Follow-up. **Int. Urol. Nephro.** 2011; 43(4):1033-8.
12. **Radak Dj**, Sotirovic V. Intracranial Aneurysms in Patients with Carotid Disease: Not So Rare as we Think. **Angiology** 2014;65 (1):12-16.
13. **Radak Dj**, Tanasković S, Matic M. Eversion Carotid Endarterectomy-Our Experience After 20 Years of Carotid Surgery and 9897 carotid Endarterectomy Procedures. **Ann Vasc Surg** 2012; 26(7): 924-928.M23
14. **Radak Dj**, Tanasković S, Sagić D. Carotid angioplasty and Stenting is safe and effective for treatment of recurrent stenosis after eversion endarterectomy. **Journal of Vascular Surgery** 2014; 60(3): 645-51.
15. **Radak Dj**, Babic S, Sagic D. Endovascular treatment of symptomatic high-grade vertebral artery stenosis. **Journal of Vascular Surgery** 2014; 60(1):92-7.
16. **Radak Dj**, Davidovic L, Tanaskovic S. A Tailored Approach to Operative Repair of Extracranial Carotid Aneurysms based on Anatomic Types and Kinks. **American Journal of Surgery** 2014;208(2):235-42.
17. **Radak Dj**, Isenovic E. Changes in Hypothalamus-Pituitary-Adrenal Axis Following Transient Ischemic Attack. **Angiology**. 2014; 65(8):723-32.
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20. **Radak Dj**, Sotirovic V. Practical Use of Near-Infrared Spectroscopy in Carotid Surgery. **Angiology**. 2014 65 (9):769-772
21. Sarajlic A, Gligorijevic V, **Radak Dj**, Przulj N. Network wiring of pleiotropic kinases yields insight into protective role of diabetes on aneurysm. **Integrative Biology (Camb)**, 2014 6 (11):1049-1057.
22. **Radak Dj**. Carotid Surgery, Monograph of the international importance, textbook for postgraduate studies of vascular surgery and angiology, University of Belgrade School of Medicine, 2012.

Dj. Radak is lead investigator and coordinator of a large number of national and international projects. Selected **scientific projects** led by Dj. Radak are:

1. Integrated scientific research project "*Carotid Disease in Serbia, pathological dynamics, prevention, diagnosis, and innovative therapeutic procedures*" no. III41002 (2011-2015) Ministry of Science and Education of Serbia.
2. SASA project "*Electronic analysis of the plaque texture in prevention and treatment of restenosis after carotid endarterectomy*" (2010).
3. Large prospective multicenter international study: *Asymptomatic Carotid Surgery Trial II* - ACST II (Prof. Radak is coordinator, and "Dedinje" Clinic is a "Platinum Center" with the largest number of patients in Europe)
4. *Carotid Artery Aneurysms*, Serbian Multicenter Study of Long Term Results, national prospective study is ongoing, but preliminary results were published in *Ann. Vasc. Surg.* It was founded in 2007. The database for the detection of cerebral artery aneurysms in patients with simultaneous carotid disease.
5. *Practical Use of Near-Infrared Spectroscopy and Carotid Surgery*. Routine intraoperative NIRS monitoring in cardiovascular surgery. *Angiology*. 2014.
6. *Vein Consult Program (VCP I and II)*, under the auspices of the International Society for Phlebology, currently in a stage of intensive analysis and publication of results.
7. *Detect now 1 and 2*: Clinical and epidemiological screening of patients with chronic venous disease, with the quantification of pain as an early symptom of Angiology. 2014.
8. *A Prospective Randomised Study to Evaluate the value of Noninvasive Stress Test to Predict Perioperative Cardiac Complications in Patients with one or two Risk Factors with Beta-blocker therapy, and the Protective Effect of Coronary Revascularisation - DECREASE 2*. A multicenter, randomized study (Don Poldermans et al., 2002).
9. *Safety profile of innohep versus subcutaneous unfractionated heparin in elderly patients with impaired renal function treated for acute deep vein thrombosis - IRIS trial*, a randomized multicenter international study.
10. *Carotid Database*, clinical project for prospective following of early and remote results of carotid reconstruction, but also the natural course of the carotid disease within *CardiMed: Cardiovascular medicine precision level systems by molecular and clinical data integration* in collaboration with the *Imperial College of Science, Technology and Medicine, London*.

Djordje Radak has organized, lectured and chaired a large number of symposia and international congresses of vascular surgeons and has spoken in more than 40 invited lectures (plenary and as keynote speaker).