BIOGRAPHY

Biography: Ralph Peterli, MD

Ralph Peterli¹

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Professor Ralph Peterli grew up in Basel, Switzerland. During his senior year of high school, he was a foreign exchange student and sent to Phoenix, Arizona. As a competition alpine skier not the preferred location for skiing. Professor Peterli quickly learned to appreciate the hospitality of the people and loved the beauty of the American Southwest. Ralph went back to Phoenix every summer break during medical school, of which he graduated in Basel in 1986.

Over the years, the University of Basel has had some prominent chairs of surgery: Professor Rudolf Nissen did his first fundoplication in Basel and his successor, Professor Martin Allgöwer was a general surgeon who was one of the founding members of the AO (Association for the Study of Internal Fixation). Ralph did his surgical training in Northwestern Switzerland. From the very beginning, he was interested in research and academics. He became a staff surgeon and later deputy head of a very active visceral surgery unit at St. Clara Hospital in Basel, a University affiliated private non-profit hospital. Since 1997 Professor Peterli has been head of the bariatric

unit and teaching at the University of Basel. In 2008 he earned a research fellowship at the University of Lund, Sweden. In Switzerland, visceral surgeons do not subspecialize like they do in other countries. Therefore, Ralph is as much a colorectal surgeon, general surgeon, and surgical oncologist, as he is a bariatric surgeon. From the beginning, Professor Peterli was interested in minimally invasive techniques and robotics. In 2019 the St. Clara Hospital merged with the University Hospital of Basel to become Clarunis, University Centre for Gastrointestinal and Liver Diseases: an interdisciplinary academic unit in which gastroenterologists and visceral surgeons work together on the same team. Ralph is currently the deputy head of the visceral surgical department and head of visceral surgery research and the bariatric unit.

Ralph was among the pioneers to develop the operative technique of the laparoscopic gastric banding operation including the perioperative management in Switzerland. During the last 25 years, he initiated a number of prospective and retrospective trials aimed at improving therapeutic strategies to surgically treat patients with severe obesity. It was not the number of patients operated on but the high follow-up rate reaching up to 98% at 5 years that gave his work international notoriety. This extremely high follow-up rate is partly due to the health care system in Switzerland paying for outpatient visits but also due to the disciplined nature of the Swiss resulting in high compliance and adherence. Professor Peterli's team searched for predictors of outcome to better allocate the right patient to the different surgical options. They developed a unique staged therapeutic concept of primary gastric banding followed by biliopancreatic diversion/duodenal switch for the non-responders to banding. The concept had to be abandoned due to the better overall results seen with the laparoscopic gastric bypass and sleeve gastrectomy as primary bariatric interventions. Ralph always wanted to work on interdisciplinary and inter-professional teams that met at eye level to develop management strategies for preoperative selection and preparation of patients as well as follow-up algorithm. His fellow clinicians and researchers looked into the long-term side effects of bariatric operations on bone metabolism, gastro-oesophageal reflux, dumping, nutritional deficits, and strategies to reduce surgical adverse events. As PI of a Swiss multi-center randomized trial

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(SM-BOSS), comparing the laparoscopic sleeve gastrectomy with gastric bypass, he successfully conducted a landmark study in the field. He published early and intermediate results in the number one surgical journal and the 5-year results in JAMA. Professor Peterli received several prizes for the clinical outcomes as well as for the metabolic results looking at the mechanisms of how these operations improve glycemic control and metabolism. Ralph recently started another Swiss multicenter RCT together with 18 bariatric centers comparing two variants of gastric bypass procedure with different alimentary and biliopancreatic limb lengths knowing the total small bowel length (SLIM Trial). The goal is to improve the effectiveness of the procedure and minimize the side effects at the same time.

Ralph is an internationally known and respected expert in the field of bariatric and metabolic surgery as well as in metabolic research. At Clarunis in Basel, he has trained many Swiss bariatric surgeons, and for many years he has hosted national and international workshops on bariatric surgery with hands-on courses on standard procedures and revision surgery. He is also a highly regarded invited lecturer or chair of many scientific sessions.

As a researcher, Professor Peterli built a strong local, national, and international scientific network including a number of translational research projects together with his wife, Professor Bettina Wölnerhanssen. To better understand the weight loss independent mechanisms of bariatric operations, they and their collaborators looked into gut hormone profiles influencing satiety, adipokines and bile acids, food preference (functional MRI), microbiome, metabolomics, and pre- and postoperatively comparing gastric bypass with sleeve gastrectomy. They looked into regulatory factors of the gut mucosa in the development of enterohumoral cells of the upper gastrointestinal tract comparing lean patients and patients with severe obesity before and after surgery. In addition, they established a murine model of different metabolic operations and have ongoing projects in the search of potential targets to improve the results of surgery pharmacologically. Bariatric and metabolic operations are an excellent *in vivo* model to study the pathophysiology of obesity and related co-morbidities, such as type 2 diabetes. He has several projects underway aimed at finding the interaction of glucose metabolism and fat tissue inflammation, searching for the role of melanocortin receptors and their precursors in adipose tissue as well as the markers of inflammation, macrophages in adipose tissue, and adipocytes. They looked into proteomics of

adipocyte mitochondria in obese, diabetic patients, and lean controls. Recently they were able to challenge the paradigm that obesity leads to fat tissue inflammation and thereafter to insulin resistance: the loss of insulin/target of rapamycin (mTORC2) signaling seems to first lead to insulin resistance followed by inflammation.

Ralph is president of the Swiss Society for the Study of Morbid Obesity and Metabolic disorders (SMOB) and scientific co-chair and board member of the European Chapter of the International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO-EC). As a consequence of his experiences as a foreign exchange student in his youth, he has always tried to get different people from different countries, backgrounds, and beliefs together who usually don't work together. His goal is to bring basic researchers in the field of obesity, nutrition, and diabetes together with clinicians (physicians and surgeons) in combined international and national congresses and meetings. There are a number of prejudices between these professions that may be reduced by person-to-person interaction and the presentation of solid research. In 2016 the first combined European congress took place in Gothenburg, and since then he is involved in the scientific program organization of many national, European, and world congresses. Unlike in the USA, where the two organizing societies of the Obesity Week are starting to separate their congress activities, in Europe, the European Association for the Study of Obesity (EASO) and IFSO-EC are trying to have a joint European congress every 3–4 years. Ralph is playing an active part in this as he intends to build bridges between researchers, physicians and surgeons for the goal to make the stigma of obesity disappear and improve treatment results.

Without his wife Bettina, he couldn't have been such an active surgeon, teacher, and researcher. He also engages in politics. Ralph has two adult children and two grandchildren. He also has two young children with Bettina. He most enjoys spending time with them either skiing in the Bernese Alps in the winter or doing other outdoor sports including mushrooming in warm seasons as well. He always enjoys discussing all sorts of scientific and political issues.

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