





## Guiding the Needle to the Deepest Layers of the Body

Dr. Christian Schlegel, head physician of the sports medicine department at the Swiss Olympic Medical Center Bad Ragaz, uses the Aplio a450 for diagnosis and treatment of musculoskeletal (MSK) injuries. The system's unmatched image quality and beam function enable him to access the tiniest tendons and deeper layers of the muscles and will allow him to perform new types of interventions into the spinal facet joints, he told Visions.

### A renowned sports medicine provider

The Swiss Olympic Medical Center Bad Ragaz in the canton of St. Gallen has been providing care to elite athletes for the past 16 years.

Located in a popular spa and health resort, the center is a renowned institution in sports medicine in Europe, caring for both Switzerland's and Liechtenstein's Olympic teams. But Dr. Schlegel and his team also increasingly treat non-professional athletes who want to resume sports practice after an injury.

"Two thirds of our activity involves patients who had surgery and want to return to their activity level before operation," he said.

A typical day at the center includes the examination and treatment of patients who present either with sports trauma or different MSK problems caused by diseases such as osteoporosis.

The center also carries out medical and sports checkups, laboratory testing, performance diagnostics and training advice.

Because patients are so eager to return to their activity level before trauma, managing their expectations is a major component of Dr. Schlegel's work and a precondition for him and his team to deliver the best possible care.

"Patients want to go back to sports practice as soon as possible. It can be challenging to help them train adequately and reduce their usual training for them to recover completely," he said.

To make sure patients do recover, all the specialists in the team – sports physicians, physiotherapists and scientists, psychologists and nutritionists – work closely together. They also cooperate with trainers and therapists who are involved in patient recovery outside the center.



To diagnose and treat MSK injuries, Dr. Schlegel uses a combination of tools, including imaging.

The comprehensive diagnostic work-up starts with taking the patient history followed by a thorough manual examination to locate the problem. Then he uses x-ray, CT, MRI and ultrasound to collect more information and confirm results.

X-ray and ultrasound are also central to guiding injections of hyaluronic acids, platelet-rich plasma or cortical steroids to the joints and tendons.

Dr. Schlegel uses ultrasound almost every day not only to improve precision during injections, but also to increase

patient comfort: "It's less painful for the patient because I can insert the needle precisely and directly in the right place.

To provide optimal treatment, Dr. Schlegel chose Canon's Aplio a450 a year ago.

### **Unveiling the smallest structures with high image quality**

"The main reason I decided to buy the Aplio is the impressive image quality for MSK diagnosis," he explained. "The second reason is that the needle guide, which is called the BEAM function, enables me to easily see the needle with a special enhancement function. That's very helpful when I perform injections."

When he chose the system, Dr. Schlegel focused on how it enables to see the nerves and guide the needles, as these are the two most difficult tasks when performing an intervention.

"I need very high image quality to see the right structures and then, when I do an injection, I need these additional tools such as BEAM and needle enhancement," he said.

Since it was installed in December 2019, the Canon equipment has fully met and even exceeded the expectations. "I simply enjoy working with the Aplio a450," he said. "I like the great images and the easy-to-use reporting function. I get a really good and detailed report, which I can seamlessly introduce into



*The Medical Health Center opened in 1957, the institute for sportsmedicine in 1998 and became an official Swiss Olympic Medical Center six years later. The center treats all elite athletes from juniors to regional and national levels, providing advice and support inter alia in the following areas: check-ups and performance diagnostics, optimization of physical and mental performance, injury prevention, management of strains, training and nutrition.*



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*Dr. Christian Schlegel, head physician of the sports medicine department, Swiss Olympic Medical Center Bad Ragaz.*

### **Biography**

*Dr. Christian Schlegel is head physician of the sports medicine department of the Swiss Olympic Medical Center Bad Ragaz in Switzerland. He specializes in physical medicine and rehabilitation, sports medicine, manual medicine, interventional pain management and musculoskeletal ultrasound. He was head physician of the Swiss Olympic Team in the Winter Olympic Games between 2006 and 2014. Dr. Schlegel worked as a medical doctor and sports instructor for alpinism and skiing at the Swiss Federal Institute of Technology in Zurich (ETH Zurich) for over 20 years.*

my patient’s history. I can also use the report when I talk to other physicians and patients, it’s a good reference.”

The Aplio a450 is particularly well suited for specific and complex procedures, such as special injections to the nerves or deep structures.

The hip can be particularly challenging to access, especially in larger patients. “The deeper you are, the more difficult it is to get images. But with this system I made big progress. Compared to other machines, the Canon offers very good quality in the hip and deep layers,” he said.

Dr. Schlegel can perform more examinations with the Aplio a450, for example in the shoulder, the ankle, the Achilles’ tendon or the plantaris and patellar tendons.

He also uses the Aplio to guide a number of infiltrations and injections to treat tendinitis or peri-tendinitis for partial tears of the tendons in the ankle or the hip.

Some very small tendons and structures were nearly impossible to see

with previous equipment, Dr. Schlegel explained: “It was very difficult to find the infrapatellar branch of saphenous nerve with the machine we had before. But we did find it with the Aplio a450. It’s especially good to image this structure.”

The most spectacular case he treated with the Aplio a450 was a patient with chronic knee pain who underwent a block of the infrapatellar nerve. “The patient was pain-free for the first time in two years. By the second injection, the pain disappeared. It was very impressive what we could achieve with ultrasound control on the Aplio a450,” he said.

So far, Dr. Schlegel is the only specialist in his institution using the Aplio a450, but this might change soon as colleagues are starting to notice the system’s potential for their field as well.

“Some time ago, I had an emergency patient and needed to call Dr. Küpfer from our angiology department to examine the vessels,” Dr. Schlegel said. “He was so impressed by the quality of my machine that he now wants to get one as well.”

### **Future applications with the Aplio a450**

Dr. Schlegel wants to focus more on treating tendons and back problems and is convinced that this will be possible thanks to the Aplio’s high imaging quality.

He wants to offer injections into the spinal facet joints, which he now performs under x-ray control. “My intention is to do these procedures with ultrasound to diminish radiation exposure. I’ve attended courses on the topic but haven’t tried yet,” he said.

Moreover, Dr. Schlegel was impressed by the complete absence of technical issues during and after the installation of the Aplio 450. “I’ve been working with the equipment for nearly a year and haven’t had any technical problems. That was quite surprising because usually, with such sophisticated equipment, you would have issues. The Aplio is very reliable.”

The learning curve with the Aplio was easy and fast, about two weeks, Dr. Schlegel concluded: “You can always improve some details. But for daily practice, it works.” //