

What “robotic surgery” actually means.

The honest version — what the robot does, what it doesn't, and why your surgeon still makes every decision.

THE ONE-MINUTE VERSION

If you only read one page, read this.

- The robot does not operate — it measures, guides, and verifies while your surgeon performs every step.
- Its real value is objective information: balance and alignment measured instead of estimated.
- Dr. Seem plans each knee to the patient — functional alignment — rather than one standard target.
- Hips get computer navigation on every case; select cases add mixed-reality guidance.
- Choose the surgeon, not the machine.

DR. SEEM'S PERSPECTIVE

I adopted robotics because I wanted better information in the operating room — not because it looks good in an advertisement. The robot has never made a decision in my OR, and it never will. What it does is let me measure what I used to estimate, and personalize what used to be standardized.

— The two-sentence version

A surgical robot does not perform your operation, decide where your implant goes, or work on its own. It is a very precise measuring-and-guiding tool that helps your surgeon execute a plan — a plan the surgeon makes, checks, and adjusts throughout your operation.

"The robot gives me better information. It doesn't give me better judgment — that's still my job."

— Why the name is misleading

"Robotic surgery" suggests a machine operating while the surgeon supervises. The reality is closer to a GPS with lane-keeping assistance: you still drive the car. The system Dr. Seem uses — ROSA® — holds guides in precisely the planned position and continuously reports measurements, while the surgeon performs every step of the operation.

— What ROSA actually does during a knee replacement

- 01 **Builds a working model of your knee.** Using X-rays taken before surgery and landmarks the surgeon maps in the operating room, the system creates a picture of your specific anatomy — your bone shape, your alignment, your ligament behavior.
- 02 **Measures how your knee balances.** As the surgeon moves your knee through its range, the system measures gaps and tension that would otherwise be estimated by feel.
- 03 **Positions cutting guides to the plan.** When the surgeon settles on the plan, the robotic arm holds guides at the planned angles — typically within a degree — so what was planned is what happens.
- 04 **Verifies the result before the implant goes in.** The surgeon checks the real measurements against the plan and can adjust before anything is final.

— What it does *not* do

- It does not choose your alignment, your implant, or your plan.
- It does not cut on its own — the surgeon performs the resections.
- It does not respond to the unexpected — surgical judgment does that.
- It does not replace experience. A tool is only as good as the plan it executes.

— Why Dr. Seem uses it anyway

Because better information supports better decisions. Every knee balances differently, and the difference between a knee that feels “fine” and one that feels natural is often a matter of small choices — a degree here, a millimeter there. Objective measurement helps personalize those choices to your knee instead of applying one standard target to every patient. It also supports a philosophy Dr. Seem practices called **functional alignment** — adapting the plan to the way your knee is built and moves, rather than forcing every knee to one universal angle, while staying within well-studied safe boundaries.

— Hips: navigation and augmented reality

For hip replacement, Dr. Seem uses computer navigation on every case, with ROSA hip software providing real-time measurements of implant position during surgery. In select cases he also uses HipInsight™, a mixed-reality system that projects a three-dimensional view of the plan into the surgeon's field of view. Same principle: more information, surgeon in control.

— Fair questions to ask

- “Do you use the robot on every case, or only some?” (And why?)
- “What happens if the robot is unavailable — can you do my operation without it?” A surgeon should be fully capable either way; the technology assists, it doesn't carry.
- “Does the robot change my incision, my recovery, or my risks?”

THE BOTTOM LINE

Choose the surgeon, not the machine. The right question isn't “is it robotic?” — it's “does this surgeon plan around me, measure what matters, and stay in control of every step?”

RELATED GUIDES IN THIS LIBRARY

- The smart knee, explained
- Partial or total knee replacement?
- Questions to ask any surgeon

— What happens next

If you decide to be seen, the consultation starts with listening — your story, your goals, and what the joint is taking from you. Then an examination, and a review of your imaging together on the screen, so you can see what we see. You'll leave with an honest recommendation and every reasonable option explained — including the option of waiting. Nothing is decided without you.

To schedule: call (540) 667-8975 — Winchester Orthopaedic Associates, 128 Medical Circle, Winchester, VA 22601.

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