[MUSIC PLAYING]

**DR. JIMMY CHOW:** Hi, this is Dr. Jimmy Chow. And I'm from Phoenix, Arizona. I'm in rural Illinois in the operating room of Dr. Mark Schinsky. And we're here to watch a live total knee replacement surgery using the Journey II CR knee system with Visionaire computer prenavigation.

Before we go into everything, I'm going to go give a brief presentation about the Journey II CR system with some highlights about Visionaire. And then I'm going to proceed with Dr. Schinsky showing us his plan and the remaining of the surgery. So this is what we look like without masks on.

I want to use this as a reminder for you guys to anyone who's listening in to ask questions as we go. We are receptive to questions as we go. And hopefully, we'll be able to answer those to the best of your satisfaction during this presentation and live surgery.

This first slide is really to highlight the benefits of what we're trying to do with the Journey II system. In the dark blue, our graph show what conventional knee replacement does. And in the light blue are what regular knees do without a knee replacement, as we're supposed to be doing naturally.

And if you look at all these different activities, it's very clear that we're not really mimicking normal anatomy or normal function as well as we think we are with knee replacements. And this is just showing us the shortcomings of conventional knee replacement. So how does this stack up against what we're currently doing.

Well, we do know from prior studies that total hip replacement, which is a much more simple joint to replace, shows that most patients are very satisfied and their activities increase after total hip replacement surgery. This means that we're doing quite well with that.

However, with total knee replacement surgery, most patients activities are decreased. And this goes so far to show that many patients-- up to 20% of patients-- are unsatisfied after a knee replacement surgery is performed with their outcomes. So what this shows and I'm going to show on the left side here is a normal knee functioning. And what this highlights is it highlights a roll back as well as a medial pivoting action with a lateral slide and screw home mechanism in extension. This is a normally knee function normal knee kinematics.

With the conventional knee replacement on the right side as you show that motion, you'll see that it works more like a rolling pin on a flat surface. It's kind of more of a rotation without the external rotation and without it has a paradoxical anterior sliding in deeper flexion. And this is far from a normal kinematic motion.

So currently, our conventional knee replacements have limitations. The shapes are non-anatomic. The position yields poor kinematics. And this means that the patients have to learn how to use their knee in an unnatural way.

Looking at these X-rays, you can see that a normal knee has a very straight up and down position. A traditional or conventional knee replacement show a large amount of posterior offset as that femur is sliding posteriorly on the knee itself. If you look at the bottom right hand corner, conventional knee replacements have a sulcus posteriorly. And the reason that this is done is to allow for deeper flexion. But this also means that the typical caring alignment in the sagittal view is a more posterior.

So what the Journey II tries to accomplish and does so quite successfully is to improve the kinematics to the knee. And therefore, improve the performance of the knee itself. On the left side, again, this is a natural knee. And on the right side as we move that along with it, you can see that we are now mimicking standard knee function in a much more kinematic fashion where you're seeing now a screw home mechanism, you're seeing now posterior sliding, and you're seeing a capturing of the medial aspect of the knee as it's rolling.

If you look at all of these lateral X-rays of knees, you can see that the Journey II system-- both the CR and the BCS on the far right. And compare that to the normal knee. The posterior offset is much more aligned with the standard knee alignment. And this is because of some changes in morphology of the knee design with both the femur and the tibial congruency.

What we've done is we've increased the congruency on the medial with a prominent posterior medial aspect. And what this does is it contains the medial side. Conversely, the lateral side is now convex. And that is compatible to what a natural knee actually looks like.

What this does is allows that and actually facilitates a slide and roll backward on the lateral side while containing the medial side and giving the knee an actual functional resistance to anterior drawer or, in essence, making up for an absent ACL. So what this does is it engages throughout a certain amount of motion. And as you start flexing the knee, you can see how it's grabbing in that middle picture.

That posterior lip is preventing that medial translation posteriorly and allowing it to roll laterally instead. And the PCL engages past that degree. And it allows it to function quite stablely and quite more naturally throughout its range of motion.

This slide is meant to highlight that we have a complete system available for the BCS for both difficult, primaries, and revisions. I am proud to announce that the TS version-- the BCS, which is the post and cam version of the knee, has now a total constrained option that has been approved as of June of 2014 and is currently available. There is also a dished insert option for the CR option. And there is a seamless transition tube primary to revision stems.

There was a revision tibial base plate, which fits all of the larger LEGION Revision System stems. And the primary base plate also accepts prior stem extensions, as well. Mark is also going to be using Visionaire guides today. Those Visionaire guides are a patient matching system. They work off of a full length x-ray, as well as a preoperative MRI.

This is done based off of gold standard mechanical access. And it is shape match technology. The idea behind this is to reduce the OR time but mostly to improve alignment.

And this is using the patient's anatomy but of most importance is actually to use the surgeon's preference. And this can be as complicated or as simple as the surgeon wants to make it. It also eliminates the need to violate the intramedullary canal and it reduces sterilization and potential areas of infection because of the fewer tools in the back table. And Mark will show that in a second.

Design features of the blocks show that there are multiple different landmarks. This is the femoral block here that allow us to check visually all the different reference points. And the tibial block is shaped as such. Both of these guides are cut through guides and they're both matched exactly with the standard instrumentation if there's need for adjustment.

This allows for a lot of flexibility. Surgeon preference is set specifically for each surgeon. But each surgeon can have as many preferences as they want. So as I said before, this could be as complicated or as simple as you want.

I personally have three different preferences for each different scenarios. But I know many surgeons who have only one preference and change it per the patient or go of the singular preference and adjust interoperable. This also allows for intraoperative flexibility simply

because everything is interchangeable with a standard tooling. So at no point in time are you outside of your comfort zone with respect to what is currently possible with the standard instrumentation.

So bringing it all together, Mark will be utilizing Visionare patient specific cutting guides today. They are using a physiologic matching system-- namely the Journey II CR version of the implant and the patient. We'll be restoring patient kinematics and providing the best possible outcomes for this patient. And I'm going to be turned over the mic to Mark right now who's going to be showing us his dazzling technique.

**DR. MARK SCHINSKY:** We're here today with a 77-year-old patient. We're first going to go through the X-rays and then my preoperative plan. So we can go to those X-rays now please.

So these are the X-rays. These are my standard views I get in my office. So it's a full length alignment view. You can see bilateral knee, she actually has more of a windswept deformity. We're going to be doing her left side, which is a fairly standard varus knee. And she also has some significant patellofemoral disease, as well.

Move my plan now, please. So this is the plan in general. We'll go through each section here individually. So this just shows that she does have some significant varus of this knee.

And these are the plan for my femoral component. We each develop our own individual preferences. And these are just my preferences. But what's nice is you can see all your cuts preoperatively. So you have a good plan going in so you know exactly where these cuts should be. And you're going to have a great idea for what sizes you're putting in.

Similar with to the tibial component, again, this is based upon my preoperative plan. I, in general, try and take as little bone as possible and re-cut if necessary. That's just my preference. I know many other surgeons have several different preferences for how they like to set up their plans.

The guide also shows where the cuts will be and what they look like with the implants in so you know this preoperatively. You have a lot of data going into surgery. So you're very educated just walking in. So these are obviously femoral. And then the tibial components here, as well.

These are what the guides look like on the actual bone. Just again, more information going into surgery so you know where these guides should sit. And finally, again, the lower extremity alignment view. This is necessary, obviously, for getting overall alignment, which is one of the

goals of using this Visionaire technology.

I'd like to just show you a back table. Using Visionaire, we were able to reduce our surgical trays by more than half. So we have limited trays. The JOURNEY trays are the ones on top. My power and my individual custom instruments are on the bottom. Those are just my preferences. But as you can see, we really reduced the number of trays required when we use Visionaire technology.

I think we're now going to go ahead and get started. I'd just like first to introduce my team. We have an excellent anesthesia up top, Dr. Salvacion and John Hayes are our anesthesiologist and anesthetist. Rob Johnson-- physician assistant who works with me. Mary [INAUDIBLE]-- my nurse. Paula who's our surgical scrub and Donna who is our lead ortho nurse here.

So we're going to go ahead and get started and show you the highlights of doing the total knee. Now we've already done our time out. This is my relatively standard incision. I simply mark out the patella and my tibia tubercle. Start a little above the top of the patella. We're just going to walk you through it.

**DR. JIMMY CHOW:** Do you typically use standard arthrotomy with this technique?

**DR. MARK SCHINSKY:** I typically use a midvastus approach for this. That's my standard approach for, essentially, all my total knees except for E vision.

**DR. JIMMY CHOW:** You use the same arthrotomy for your revision cases, as well?

**DR. MARK SCHINSKY:** No, not typically. I typically use a medial parapatellar approach when I need to get far more exposure and further up the femur there.

**DR. JIMMY CHOW:** Can you comment on your use of Visionaire in general? I wanted to know if you were using Visionaire on every case or you're relatively a newcomer to Visionaire or if you've been doing this a lot. What are your thoughts on Visionaire?

**DR. MARK SCHINSKY:** Yeah, so I use Visionaire in certain circumstances. I don't use Visionaire for all my cases. I do think it's extremely useful. We're using it today here today on a relatively standard total knee. I certainly feel that it comes in very handy when there's any question about alignment or any significant deformity. But certainly, you can use Visionaire for all your patients. How about

you?

**DR. JIMMY CHOW:** Well I'm in a system where I use Visionaire for nearly 100% of my cases. But that's more comment on my practice than it is a necessity. I certainly think that Visionaire is really prenavigation and technology in general really shines in the face of significant deformity, especially extra articular deformity or prior surgery around the knee that standard instrumental instruments aren't very useful for. And I think you were just talking about that.

**DR. MARK SCHINSKY:** I would certainly agree with that. So I know she's in varus I'm just going to start out by doing my medial release. This is my fairly standard approach, again, with Visionaire and with getting a preoperative MRI, as well as the alignment views. I know about how much varus she's going to be in and roughly how much release I'm going to have to do so I could at least mentally plan on that before I get started.

**DR. JIMMY CHOW:** Is it fair to say that this gives you a lot more information before you get into the surgery? So does it decrease your stress level during the surgery?

**DR. MARK SCHINSKY:** Absolutely.

**DR. JIMMY CHOW:** Without all the cameras around, that is.

**DR. MARK SCHINSKY:** Yeah, so you have all the data going in. And again, I like that and just to be able to know what I'm planning and how I'm going to go about this surgery in advance. So I like to take down this synovium up top. It's where the Visionaire guide will sit and lock in up top. So I want to be sure I clear that out.

But of course, you don't want to take down any of your bony osteophytes. That'll throw off where your guides are going to sit.

**DR. JIMMY CHOW:** It's important to do that. Otherwise, the block doesn't sit properly in front of the femur. Now I know we were talking prior to you starting the surgery and you said you had played with Visionaire a little bit a few years ago and you find that nowadays as you've kind of rediscovered it you're finding that it's a much more honed and much more sleek system. Is that correct?

**DR. MARK** Yeah, that's correct. So when Visionaire first came out many years ago now, I started using it

**SCHINSKY:** and, to be honest, I wasn't very happy with the results. The alignment was still great. Just interoperable, I wasn't thrilled with the way it was performing.

So more recently, they've made several advances with Visionaire. And actually, they've worked out many, many of the bugs. So for those in the audience who might have tried the Visionaire in the past and got away from it, I certainly think now's a good time to come back to it.

It's really a good system at this point. Certainly you're going to have to work with your engineer. And that's one of the great things with Visionaire. You have a dedicated engineer who you work with who you develop a relationship with and they learn your preferences.

And certainly, it's come a long way. So I typically do my patella first. So we're just going to go ahead and cut my patella here.

**DR. JIMMY CHOW:** So I want to use this chance as a reminder to the audience. Feel free to send us questions if you have any questions for us, and we're happy to answer them. And we have the first one that's already come in. That question is what's your criteria for CR versus BCS on your patients? Is there a specific or is your practice very biased one versus the other?

**DR. MARK SCHINSKY:** Yeah, so I'm a, quote/unquote, CR guy. So I use CR primarily unless, for some reason, I can't. So CR's my go to. It's only when there's market deformity, or significant valgus, or anything that I think I certainly might need an additional level of constraint will I get away from-- or if I know, preoperatively, there's some PCL dysfunction. But I go to CR almost-- I wouldn't want to give a percentage but probably 90 or so percent of my patients. With my patella cut, I usually make a quick cut initially, remeasure, and then finish it up from there.

**DR. JIMMY CHOW:** So I'll use this as a chance to comment on the fact that what you just said-- this is an absolutely seamless transition between CR and BCS. So if you decide intraoperatively that you want to use a PS type of insert or the BCS, you can do that or you can make the decision based on the same tooling, the same instrument, and the same trials.

**DR. MARK SCHINSKY:** Absolutely.

**DR. JIMMY CHOW:** And that's true of the more constrained options, as well.

**DR. MARK SCHINSKY:** That's correct. And since the more constrained version of the poly came out, that's certainly been a benefit. It's allowed me to go in starting out with CR for more of my knees because I know I have got that as a back up if I need it.

**DR. JIMMY CHOW:** Another question has come in. Who benefits from this technology? Namely kinematic matching-- physiologic matching-- knee, the JOURNEY II CR. Is this only for your young patients? Are you using it for all of your patients? What is your criteria on that end?

**DR. MARK SCHINSKY:** So certainly the younger more active patients will certainly benefit from this technology. However, as you can see today, we're doing this on a 77-year-old. So I don't have any specific age cutoffs where I will not do a JOURNEY II. I think all patients deserve a kinematic knee and can benefit from a kinematic knee. How about you?

**DR. JIMMY CHOW:** I've actually been, kind of, coming at this fairly slowly. I started using the JOURNEY II CR almost a year and a half ago. And in doing so, I kind of came into this a step wise fashion from legion. I went from doing, maybe, 50/50 to now I'm doing probably closer to 90/10. I'm doing about 90% of my patients are JOURNEY II CRs and the other 10% based on what I believe may be significant deformity or maybe someone who's extremely large girth I'm using the legion primary simply because of the increased number of revision options that are directly attached to it. But that's my only major criterion. I would probably use the JOURNEY II CR for all of my patients.

**DR. MARK SCHINSKY:** All right, so we're just exposing the femur now. And we'll see how well this block sits up here. A femur usually sits right on. Usually don't have any issues with it the femur block. And I don't know if you can see that, but that block just sits there. I mean, it's locked in tight and it really doesn't move. And that's usually the way that I found that these some femoral blocks sit. They sit really nice and snug.

**DR. JIMMY CHOW:** Now a key component to facilitating this is the fact that, if you noticed, Mark did not remove the osteophytes beforehand because it significantly increases his locking ability to these blocks and it increases the accuracy of the placement of these.

So this actually uses the osteophytes to reference them to facilitate the positioning of this block. So if you're not used to doing-- if you're used to taking off osteophytes before doing this step, it my change your flow a little bit. But you'll find it actually speeds it up because a lot of those osteophytes are removed with your cuts now instead of having to go through as a separate step. Do you find that your bone cuts are the same? You were primarily a GEN II

user before this. Correct?

**DR. MARK SCHINSKY:** That's correct. Before JOURNEY II, I was GEN II. Correct.

**DR. JIMMY CHOW:** OK, are your bone cuts the same between the two systems?

**DR. MARK SCHINSKY:** You know, I have found some differences between the two. Obviously, the other components are a little different and they function a little differently. But they're not that far off that I've noticed a huge difference between the two.

So this is, typically, how I do these cuts. I'll leave these pins in just for that additional stability. We'll take the pin out on one side, finish cutting that condyle, and take the other side out.

**DR. JIMMY CHOW:** So I have heard the JOURNEY II system being called a knee resurfacing system simply because of the size of the implants. The implant thickness is smaller. Because of that, you may notice that the cuts in the bone of the femur maybe a little less than what you were used to on the GEN II. Conversely, the tibial cuts maybe a little bit more generous but not much. There's another comment that's come through or another question that has come through.

The question is are the kinematics the same for the JOURNEY II CR as they are for the JOURNEY II BCS. I can answer that while Mark is continuing to work. They're very similar, but they're not identical. The JOURNEY II CR and the BCS have nearly identical kinematics max through a certain amount of the motion.

But once you get toward deeper knee flexion, the point inflection where the BCS would have the CAM take over for that slide back in deep flexion-- that doesn't exist in the JOURNEY II. So the JOURNEY II CR instead lets off. So what happens is if you have a patient that has extremely tight and extremely good function and stability throughout range of motion until about a certain degree of flexion. I think it's somewhere around 110 degrees or something like that before it becomes a little loose.

Functionally, I think that works fantastically for the patient. The PCL does take over certain at a certain position. And the absence of PCL wouldn't be too loose there. But with the presence of the PCL, we find that it is working very well but it is not identical. And I think it's impossible to standardize a PCLs function among different patients.

**DR. MARK SCHINSKY:** So just one thing I want to point out before I go ahead and cut our femur is this block. This block and this knob here right in the center. I've already pinned it and I'm going to go for it based upon my Visionaire plan.

But certainly if you don't use Visionaire or even with Visionaire you could certainly adjust this block posterior to shift this guide up and down. So I think that's one of the key features of this block is your ability to move it interoperable. I'm just going to go with my plan at this point. I'm going to make this anterior cut first.

So this guide is also labeled 1, 2, 3, 4, 5. It tells you just the order to go in. So I will usually make my anterior cut first, take a look and be sure I'm happy with those. As I was making the cut, I could tell I didn't notch.

So I'm right on where my plan said I was supposed to be. I have noticed with the system though that I like to take another cut up front just to take off this little extra half millimeter after I make that second cut. We're going to switch some of my retractors out here.

**DR. JIMMY CHOW:** Now I do distal cut first and the femur proximal tibial cut first. And the point here is not there's a right or wrong way to do this. It's just that using Visionaire does enforce you to do one over the other. So you can do this in a gap balancing fashion. You could do it in a [INAUDIBLE] section or some combination thereof, depending on your comfort level.

**DR. MARK SCHINSKY:** I just found making all my distal fermoral cuts first allows my tibial guide to go in a little easier.

**DR. JIMMY CHOW:** So as you can see, there is an additional cut on this. It's no longer a four in one or five in one cut. It seems like a six in one cut or whatever. But the point is that it's not significantly more difficult to do this part of the procedure. That extra cut just serves to save more bone on the distal femur.

**DR. MARK SCHINSKY:** Do you have a smaller [INAUDIBLE]? I like to make my cuts just clean up any residual osteophytes around the side just so it doesn't throw off my balance later on. And as you can see, no violation of the intramedullary canal is one of the other benefits of a Visionaire technology.

**DR. JIMMY CHOW:** Do you find that that affects your postoperative bleeding?

**DR. MARK SCHINSKY:** You know, we have seen a little one of the things though as we relatively recently just instituted tranexamic acid. So whether or not it's more of the Visionaire or the TXA-- I can't tell you specifically which is which. How about you? Have you found this made a difference?

**DR. JIMMY CHOW:** You know, I'm kind of in your camp with this. It's hard for me to tell exactly. But I will tell you that sense we moved to a tourniquet-less procedure, we found a decreased amount of intra-articular hematoma. It's hard for me to think that the Visionaire isn't somehow related to that because you really aren't violating this major pipeline in your canal.

**DR. MARK SCHINSKY:** So now we're going to get this tibial guide to sit on here. I just like to make sure it's nice and clean. And this guide has a little less of a surface area for the tibia than it does on the femur. So I just like to be sure it's nice and clean and that it's going to sit nicely.

So this guide, as you saw from the slides, has many different reference points on it. I like to use this outrigger on it as well as just a secondary check. And it just helps me find and have it sit right where I need it to sit. Now she's a little larger. I may actually need to take just a little more skin here. Can I have a skin knife back?

**DR. JIMMY CHOW:** By the way, I'd like to point out right now that Mark has not selected the smallest patient for us to working on today. So he's doing this nice minimally invasive knee surgery in a patient with a fairly high BMI.

**DR. MARK SCHINSKY:** So we have the dropper out there. You can see that it sets nice and sits right on there. This guide sits basically right where it's supposed to be.

Obviously, my leg is a little spun. So if you spend it back there we're pointing basically [INAUDIBLE] right through the ankle. So I like that. And it it's really pretty nice and solid on there, as well. And that's about the alignment that I'm looking for out of these guides. So we're going to go ahead and draw it and pin it. Got a mallet? Never mind. We got it

**DR. JIMMY CHOW:** Remember the audience has asked if we use Visionaire for our difficult cases. And I'll reiterate, I think it really shines in our difficult cases. It's probably the main reason to use Visionaire.

**DR. MARK SCHINSKY:** So I do, essentially, the same technique for my guides as I do for my femur. Put the top holes in, start making my cut, and then I'll come back, take the pins out, and finish the cut. I just think it provides that little extra stability. And we're actually going to-- she does have a little extra soft tissue. So we may switch out our retractors for my kind of usual retractor over here just to sure

I really protect that MCL.

I'm going to leave my pins in. Again, I know I usually take a relatively small cut. I never mind recutting. I'd much rather do that, initially. So this does not look like a lot of proximal tibia here. But we'll check it with our spacer block.

**DR. JIMMY CHOW:** So you're cutting out a bridge to protect your PCL. Is that what you're doing?

**DR. MARK SCHINSKY:** Yeah, that's what I typically. It's an extra step during surgery. It adds an extra minute or two. But I like that little block there. Usually it pops up sometime during the case. I don't mind that either. The PCL has an insertion way down the back of the tibia.

So even if I lose my bone block, I'm still going to go ahead and do a CR knee. But just an extra check for me just to be sure I don't cut through the PCL during surgery.

**DR. JIMMY CHOW:** So I like that you left the tibial pins in. I do that for both of my distal cut and my proximal cut when I'm doing a long legged extension gaps. But I wanted to use this moment to comment on the fact that this patient did have a preoperative flexion contracture. Is that correct?

**DR. MARK SCHINSKY:** Yeah she did have a slight contracture. Correct.

**DR. JIMMY CHOW:** And she's also on the tighter side. Is that correct?

**DR. MARK SCHINSKY:** That is correct.

**DR. JIMMY CHOW:** So the likelihood of us having to recut this tibia is actually quite high.

**DR. MARK SCHINSKY:** It is quite high. Correct.

**DR. JIMMY CHOW:** And the nice thing is that we've actually planned for that. So you are anticipating that going forward. And it's not a fire and forget mechanism because you just already know in your head what to expect going forward.

**DR. MARK SCHINSKY:** Come up. Come up. Can we have the laminar spreader? I like to take out my meniscus in extension. I just like a little tension on the capital when we take it out. So as you can see, we are going to be fairly tight in here. But that's all right. I'm also going to take down some of these osteophytes medially now that I've made my cut.

**DR. JIMMY CHOW:** I use this same technique. I like removing my menisci in extension, as well. I find it's very clean and it's very easy to do.

**DR. MARK SCHINSKY:** It's a little dark in there obviously because of the lighting requirements for the cameras here. It's a little dark in the back, and I usually have my headlight on. But we'll make it work here.

So let me just see the spacer block. So I can already tell that just for the audience's benefit she is quite tight here. I may be able to jam it in there. But that's not what I like to do. And I haven't done a full medial release yet either. So we know she's pretty tight. So I'm just going to go ahead and re-cut since we know we're going to need to do it.

**DR. JIMMY CHOW:** Now when you're doing this type of a knee when you're doing the JOURNEY II CR, what are you aiming for in terms of your polyethylene size?

**DR. MARK SCHINSKY:** I try and stay on the minimalistic side So I'm actually aiming for a nine. I'm very happy with that. You know, I certainly don't want to get up into the 15 range so I try and really stay as small as I can.

And once again, for me, I don't mind recutting. I know some surgeons see that as a failure. But I certainly don't. I'd much rather take less bone and re-cut rather than take too much bone.

**DR. JIMMY CHOW:** I share your sentiments completely. And with the more traditional knee systems, I would always aim for a nine. But it needs to mentioned that this system has one millimeter increments on the earlier sizers. So I don't see any issues with aiming for a 10. And that gives you a little leeway in the direction.

I find I aim for a 10, and if I need a 9 I can go to it without recutting. I change that technique only because of this system. And I think it's one of the strengths of this system-- the new resolution in plastic sizes.

**DR. MARK SCHINSKY:** So with traditional instrumentation, I typically cut my tibias in extension, as well. So I don't know if the audience picked up on that. But I'm pretty used to cutting an extension. So that's why I did it here rather than putting it back into flexion. We'll take that out. Do you have the

osteotome?

**DR. JIMMY CHOW:** So I want to use this time again. If there's anybody who has any questions in our audience, feel free to send them to us. We are answering those. We're also filtering those. So feel free to ask whatever you want. If it's not appropriate for this session, then we won't include it.

**DR. MARK SCHINSKY:** All right. So we're going to go ahead and try our spacer block again just to see if we've made enough room. And if not, I will likely still need to do a little more medial release here. And she was in some fairly decent varus-- just to get her completely balanced.

But I can get my nine in. And I am for, actually, these knees to be a little tighter than I do with other knees. I think that certainly adds to stability. So I still like my alignment. We're nice and solid now. She's maybe got a millimeter or so immediately. I don't know if you can see that in there similar laterally.

So she's with full extension. So we're probably going to go with that. And if I need to do a little more later, we will.

**DR. JIMMY CHOW:** Very nice.

**DR. MARK SCHINSKY:** All right, we're actually going to now bring her back up into flexion. We put our pins in ready. So we know our rotation for our tibia. And we're going to go ahead and see if we can find those holes again.

Now that I made a re-cut, it may be a little harder to find. So I may end up floating this tibia. But it is nice to have those holes there for your rotation based upon your plan preoperatively? Do you use those are rotational holes or do you float your tibia?

**DR. JIMMY CHOW:** I'm sorry. I didn't hear that.

**DR. MARK SCHINSKY:** Oh, sorry. Those top down holes on the tibia-- do you use those for your alignment with Visionaire?

**DR. JIMMY CHOW:** So those are there for alignment and rotation, as you said. But no, I don't use those for mine personally. Is that what you use?

**DR. MARK** Yeah, we're going to demonstrate that here. Again, standard instrumentation-- obviously, I

**SCHINSKY:** don't have that. But here we're going to-- if I can find them again now that I made a re-cut, we're going to try and use them . I think there's one of them right there. And we'll probably use that one to find our other one. You got one other pin?

**DR. JIMMY CHOW:** What's your typical turnaround time for the Visionaire blocks?

**DR. MARK SCHINSKY:** So that's variable. That actually overhangs level. So we are going to go ahead and just free float this one. So sometimes, once you make the re-cut they sit perfectly again. But I just don't like where this one's sitting. So I'm going to go ahead a free float this one.

So blocks is usually a couple to a few weeks, in general. I'm not sure what Smith & Nephew wants me to tell they are, because I don't want to over promise. But they're usually pretty quick. I don't usually have that being an issue though. I'm booking out a couple months, generally. So I have plenty of lead time, usually. It's not a significant issue.

**DR. JIMMY CHOW:** Yeah, it's not as obvious to me either. My money surgical schedule is pretty full for about three months in. But I do know that in a pitch they'll be able to get them to me between two or three weeks, which is pretty darn fast in the industry.

**DR. MARK SCHINSKY:** So since I'm going to free float it, I'm going to go ahead and take out some of posterior osteophytes on the steamer femur and go ahead and prepare that. And then we're going to just put our trials in and free float it that way. So even though she doesn't have a ton of osteophytes in the back, I do still like taking these down almost everybody.

**DR. JIMMY CHOW:** Now as you do this, you know that the posterior chamfer cut is angled. Do you find that there's less of an osteophyte back there to get with this new femur implant design?

**DR. MARK SCHINSKY:** I do. So especially compared to other designs, I do find that there's less. I got a little meniscus left here. I couldn't see without my hoodlight. So we'll take that down here.

**DR. JIMMY CHOW:** Yeah, I'm finding that I have to clear significantly less of that posterior bone out in order to get a good contour. It's kind of a nice little side effect of this.

**DR. MARK SCHINSKY:** This is one of the more annoying parts of the case, though, for me. Sometimes getting this out of the back when it's all bound up in capsule. Do you have the smaller [INAUDIBLE], Paula? So again, you can see, I think, with this laminar spreader in here, it also gives you a good idea of having rectangular cuts. So we're going to be hopefully balanced fairly well.

I could stick the spacer block back in, obviously, at this point. But I typically don't. I found that actually-- I've been very satisfied with how much balance I've had. I know you're more of a gap balancer. But I've been, actually, very pleased with the stability throughout the entire range of flexion. Not just mid flexion but extension, full flexion, and mid flexion. We're going to go ahead and put on our trials now.

**DR. JIMMY CHOW:** So there's a question that I came up that I was trying to look into right now. It was pretty predictable that it was going to be tightened extension before the surgery. The question is how much distal femur did you end up taking? And is that adding to your having to react the tibia or would you have wanted to put that into your preoperative plan? I think you've already answered that to some degree.

**DR. MARK SCHINSKY:** Yeah, so you can certainly build that into your plan. And as you start using more and more of these, you're going to tweak your plan a little bit. So as you first work with your engineer, you'll do a couple cases and find out what works for you. And you can always tweak it.

This is about how I like my distal cut. So I'm actually fairly happy with that. That's why I want the tibia rather than going back up the femur. One thing I do want to point out about the implant is those posterior cuts are angled 15 degrees in the back. So to put this implant on, you can't just put this implant on straight.

You need to essentially hook it on the posterior condyles and you roll it up. And it usually goes on fairly easily when you do that. It's going to be [INAUDIBLE] where it is medial to lateral. About there.

**DR. JIMMY CHOW:** I find that this fits extremely snugly, too.

**DR. MARK SCHINSKY:** That's correct. I found that as well. And I'm going to knock it over just a little more. Then we're going to go ahead and pin the top pin here, Paul.

**DR. JIMMY CHOW:** Design aspect of that posterior chamfer also that it kind of grabs the femur. So it removes any of that shucking force that might happen with varus/valgus stresses against the femur in liftoff. So theoretically, it should contain a lot of the varus/valgus to that distal femur. And I'm going to guess that it might actually get rid of some of those posterior lucencies we see in cemented knees many years down the line. Do you share that sentiment or have you thought about that?

**DR. MARK SCHINSKY:** I do. Yeah, I think that's been some of the theories for some of the loosening for some of the other high flex designs that is in high flexion. Without that gap, it's actually pushing the femur off the end of the bone. We're going to start with a nine bone.

So we'll see if we can get this nine in again. It was a little snug before with that spacer block. But we're going to see if we can get it in. It's usually a little more snug medially just because of that posterior media lip you mentioned in the initial presentation. So you got to get over that hump to get it in.

But once you get it in, it usually fits fairly good and fairly tight. And that's the way I like it. I liked my knees nice and tight. And again, you can see we now have full extension. So I'm happy with that. And we have just a millimeter or so medially and the same laterally. And I mean, just with gravity, she's got great flexion.

So that's kind of how tight I like these knees. And that's usually what I'm aiming for. And I think that's part of the kinematic benefit. If you're a fairly active person, you want your knee to feel solid. You don't want to have that loosening.

And again, testing it throughout the entire range of motion, it feels nice and solid. It doesn't lift off. I know maybe a little hard for you to see in there. But medially or laterally, it doesn't lift off in flexion and certainly not in mid-flexion and extension. So I'm pretty pleased with that.

**DR. JIMMY CHOW:** And you can probably even demonstrate an anterior drawer as well. It very well contains the knee. Obviously, the tibia's not cemented yet. But it contains the knee in that position, as well. Something I'd like to point out here is that you cut exactly symmetric block extension in flexion gaps. And those are different by out a few millimeters because of the size of the femur.

However, the implant itself is asymmetric. There's a three degree build into the tibial plastic. And there's the same build in in the femur. So the idea behind this system is that you're going to want to cut everything in perfect, non-trapezoidal gaps. They're going to be rectangular gaps.

But you're going to end up with a different angle on purpose and that's because the femur and the tibia are perfectly matched. So you'll get a three degree various across your tibial face. But you'll have perfectly balanced gaps. And that's to mimic the normal anatomy.

**DR. MARK SCHINSKY:** Completely agreed. Just with my patella-- I aim for, obviously, the largest size I can get. How about you? I mean, I like as much patella coverage as possible. I think we have good patella

tracking here. Obviously we're not closed down with our capsule yet.

But I think that's going to track very nicely. If there's any question, I certainly take down some of those patella femoral ligament over there. Also, after we cement, we're going to take on some of this lateral for set. And I do that in everybody. And that should help us out here, as well.

**DR. JIMMY CHOW:** Now let's say you didn't like the flexion gap right now. Let's say that right now you thought the flexion gap was a little too tight. What would be your next steps?

**DR. MARK SCHINSKY:** So there's multiple different ways to fix a tight flexion gap. So the easiest way that I typically find is I'll take my tibia off and I'll cut more slope. And I don't mind adding a little extra slope.

If you saw it in my guide or in my plan, I aim to just match the natural slope. So with CR knees, I don't mind adding a little extra slope in if I have a tight gap. I could also, of course, downsize my femur. And I don't mind doing that if I need to, as well.

So this is about where I like it. I basically just floated my tibial component. And I still think that's great rotation. I haven't really moved it all. It's sitting, essentially, right where I want it. So I'm going to go ahead and mark it here. We'll take everything out and then re-pin our tibial component.

**DR. JIMMY CHOW:** So you sound like me. That's what I would do. But I'm actually fishing. I'm trying to get you to say how do you convert this to a PS.

**DR. MARK SCHINSKY:** Well, yeah, I try not to convert it to a PS.

**DR. JIMMY CHOW:** The point I'm trying to make is that there are cut through trials for this. So you can easily convert this to a PS knee with these trials in place just as is. So with the addition of the PS tooling on the front of that femur, you just end of reaming right through. And that's how you make your PS box. So it really doesn't change any of your flow or your steps up to this point.

**DR. MARK SCHINSKY:** All right, so we're going to go ahead and finish our femur now before I finish my tibia. There you go, Mary. So you do need to take out just a skim cut here. And we're already pinned, so my blocks not going to move. So I just take the saw and I just take it down.

Take that little piece out. I'll be sure the edges are clear. And then, I like to just take a little

[INAUDIBLE]. It's usually this part right down here that seems to get in the way.

So I take a little extra step. There's a little osteophyte, so that probably will help. And I don't know what you call this thing or what it's technically called. We just call it a potato chip.

**DR. JIMMY CHOW:** Yeah, we call it potato chip too.

**DR. MARK SCHINSKY:** It should sit right in there about like that. We're going to go ahead and drill now for our lugs. And then this tool. So this is a very handy tool. It has multi functions. You can use it the lever off your trial poly.

I use it to get this pin out. Usually it comes out fairly easily. And then since this femur is angled the way it is, you got to roll it back off. You can't slap it right back off. But it comes out easily. Just stick this in, pull it down, roll it across. An it comes out very easily. So we're going to go ahead now and finish up our tibia.

**DR. JIMMY CHOW:** So the comment is also made from the audience. How much time do you send on your preoperative plan for these patients?

**DR. MARK SCHINSKY:** Yeah, so that's variable. More complex needs more deformities. Certainly that takes a little longer. You got the handle? But standard straightforward knees once you have the plan down and your happy working with your engineer and they know it's more of a review of the plan. How about you?

**DR. JIMMY CHOW:** I usually just take care of it on my cell phone or my email pretty quickly. But you can go to their website, as well. For me, per patient, it probably takes me about a minute, maybe two at most.

**DR. MARK SCHINSKY:** Yeah. So just one other thing. This is an asymmetric tibia. A lot of the companies now are going to asymmetry tibial components. I find that gives excellent coverage. I marked my rotation, so I have that guide. But I also have the implant itself.

So if you have good coverage on your tibia, which I certainly do here. And again, I know my size for my Visionaire planning. So I've got a couple different references here. And again, that's one of the beauties of this system. You can reference off multiple different points. So we're going to go ahead and pin that right there.

**DR. JIMMY** If anything, I think you might even have more points of reference because you're MRI-based

**CHOW:** [INAUDIBLE] have given you other points to reference, as well.

**DR. MARK SCHINSKY:** That's correct. So you can drill this. A lot of people drill this first. I just go straight to the punch. I haven't found it necessary to drill it. [INAUDIBLE].

Sometimes harder bone-- you got to take these out. Sometimes it just wiggles out. So now we're pretty good. We've prepared, essentially, the entire case. We're going to basically go ahead and open implants and plant them.

**DR. JIMMY CHOW:** So going forward, there's been a lot of questions that I've been waiting until this point to ask regarding what kind of activity you're letting your patients do. Is your rehab any different?

**DR. MARK SCHINSKY:** I'm sorry. I was checking my implants.

**DR. JIMMY CHOW:** I'm sorry.

**DR. MARK SCHINSKY:** No problem.

**DR. JIMMY CHOW:** Yeah, so the question is is your rehab any different? There's been a lot of questions regarding rehab and activity level after the surgery.

**DR. MARK SCHINSKY:** Yeah, so I certainly don't change them for this. But for my activity level, I let them go full weight bearing, basically, starting now-- starting day of surgery. I'm going to just try and go after here a little bit this little chunk of posterior condyle. So I don't change that at all. Polly, you got the [INAUDIBLE].

And then, oftentimes, I'll lose my bone block during the case. Again, I don't mind that at all. That PCL insert so far down the back of the this activity here that I don't mind losing it. So I'd probably say, since I save it, I'd probably lose it in-- I don't know; what did you guys say-- a third of the case or so where I lose it?

Again, that's just part of doing the case. It's more of a block so I don't cut through it. It doesn't actually provide any, I think, additional strength to the PCL. It just helps me from cutting through it. And since I haven't cut through it. I'm with that. There we go. That's what I was looking for.

**DR. JIMMY CHOW:** Do you limit any running or impact activities on these patients long term?

**DR. MARK SCHINSKY:** This is a more kinematic knee. But I still restrict their high impact activities. And I think there's been some consensus . statements out on that. A. lot of my patients-- . the younger, healthier patients are going to go out and do that anyway. But I don't tell them to run or I don't, technically allow them to run.

I don't mind walking. I don't certainly limit walking at all. I let them do doubles, tennis, I let them ski, but the really high impact activities I don't want them doing. I don't want them running for exercise. How much you?

**DR. JIMMY CHOW:** No, I share your sentiments completely. I mean, I can't live their lives for them. So course, if they're doing it, I just want them to be honest with me. But I guide them. I try to guide my patient population to not do impact activities. I have many, many patients who are, regardless of what I say. So I just want them to be forthcoming with me.

What I will say and this is something that I've noticed in my patients-- when I first started using this knee we had or knee systems pretty well dialed in in our practice. I mean, our patients were doing well pretty quickly. They weren't noticing any immediate improvement in function are in our patient population in the way we were doing things I pay controls are improvements are pretty darn good. I think it was pretty equal across the board, given that everybody's doing well.

What I did notice though that going forward our physical therapist noticed when they started using this knee because they said they knee started feeling a lot more stable. And there was more stable throughout their motion then they were prior. They felt like they were more quiet. They weren't making as much noise or rattling as much and that they were a lot smoother whenever they were walking around or doing the motion exercises.

Me personally, at about six months I started noticing a difference because at a about six months and finding that they're endpoint motion is significantly better and what significantly is I don't know because right now I have only anecdotal evidence. But I have patients who are coming in at six months who are getting their feet almost to their butt at six months and are extremely happy or still improving at that point. And that's becoming a more and more common place where it was the exception before.

**DR. MARK SCHINSKY:** I agree. These patients, in general, do very well. I have been very pleased with the amount of motion, their activity level, and just their overall happiness with this knee. So yeah, I've been very pleased. That's why I continue to use it.

**DR. JIMMY CHOW:** Do you put these in more tightly than you did the other knees that you were using like that or looser?

**DR. MARK SCHINSKY:** Again, I like my knees, in general, pretty rock solid. But if anything, I'll put these in a little tighter than other kneed. And I think you have that more kinematic motion. You have that extra rotation of the femur as it rolls back in the flexion. And you want it really solid.

Again, if patients are going to be more active, you want them to feel stable and solid. If the little old lady's just getting up from the bed to the bathroom, I don't think that matters as much. They're not going to notice that as much. But I think the younger more active patients are certainly going to notice that their knees are a little sloppy.

**DR. JIMMY CHOW:** Yeah, I agree with you. I do tend to put these in a little more tightly myself. Another question has come up directly at us CR users. The question is do you use CR in inflammatory disease patients?

**DR. MARK SCHINSKY:** Yeah, so there's a little debate in the literature about that. I think some of the older literature will say don't put CRs in in, say, a rheumatoid patient, for instance. There's various stages of rheumatoid disease.

And with the medications now, rheumatoid is a much different disease than it was, say, 20 years ago before a lot of the newer medications came out. So it's not a complete absolute contraindication for me. But I'll think twice about it.

**DR. JIMMY CHOW:** I'm kind of in the same boat as you. I'm maybe a little bit more aggressive. I have no problem putting well controlled rheumatoid patients with A CR knee. Poorly controlled rheumatoid patient, I think, might pose a bit larger problem.

And I do think twice about those patients, especially because when they present to you they probably don't have a working PCL to start off with. But it's rare in this day. At least in my practice, I hardly ever see poorly controlled rheumatoid disease anymore. I think everybody's very well controlled on the new modifying agents.

**DR. MARK** Yeah, I would certainly echo that point. So the tibia's in. We're going to go ahead and get our

**SCHINSKY:** femur in.

**DR. JIMMY CHOW:** A point to that too is if, let's say, the patient has rheumatoid arthritis and then ends up subsequently rupturing their PCL where it becomes incompetent over the course of time and you started off with a CR knee. You still have an option here. There's still a dished component that allows you to deal with that.

So if you have to go in and revise, you might be able to get away with a polyethylene exchange. And this is a situation that we've had historically with other knee systems. I'm only saying this because this knee system has that, as well.

**DR. MARK SCHINSKY:** Yeah, and I would agree. If I go in and I'm thinking about planning on doing a CR knee and if for some reason I get in there and I still want to put the CR in but I don't feel the PCL's confident we have that option. So again putting this in the same way as with the trial. You leave it up and around. It has this nice chamfer cut on the handle.

Start hitting it there. Let it get down. Find it's way. And it usually goes in fairly nicely. Comes out. We use our secondary impactor. Well, we got a clean [INAUDIBLE]. We got a little cement here on the implant. That typically comes off with just a [INAUDIBLE].

**DR. JIMMY CHOW:** There's another comment that was made about the posterior chamfer has been that they kind of prevent some of that loosening wherever you're talking about the deep flexion sheer. But something else that's been brought up more recently is the idea of using a total constrained implant without a stemmed femur. The idea being that if you have a congruent femur like the one that's here, you may actually impart the stresses directly to your bone. You might not need a stem to overcome those varus/valgus stresses. And I think a lot of this design encompasses some of that.

**DR. MARK SCHINSKY:** Yeah, I think that needs a little more investigation. But I think that's very promising. So for me, I typically still use stems on my revisions. That just essentially the way I was trained and the way I've always done it. But yeah, I think there is some credence to that thought. So we're just going to go ahead and get out the rest of our cement back here.

**DR. JIMMY CHOW:** So there's another question coming up about recovery. Have you noticed a difference in recovery when you're using you're JOURNEY II CRs? And subsequently, have you noticed a difference in recover when you're using your JOURNEY II CRs with Visionaire compared to what you were doing before?

**DR. MARK SCHINSKY:** That's a little harder for me to say. I think orthopedics and joint replacements has come a long way with multimodal analgesia and all the advances we made in post operative recovery in general. I think CR is certainly on that continuum and it helps.

But I don't want to say it's the end all and be all but there certainly is some benefit to it. But I can't blame it solely on the CR. I think we're doing a lot now that's helping these patients recover, certainly, in the shorter term.

**DR. JIMMY CHOW:** I want to highlight that maneuver that you just used. You slid the implant in by wiggling your knee up and down without putting it in deep flexion. And the reason that's important is because this is nearly a contained insert on the medial side. You can't really slide it in very easily in deep flexion because of that posterior [INAUDIBLE]. So you do have to use the contour of the femur a little bit to get it in more easily.

**DR. MARK SCHINSKY:** Agreed..

**DR. JIMMY CHOW:** And that's a little finicky part of the surgery. But there's a direct correlation to your post operative stability with that. So with that, I believe that we're done with the surgery. Is there any last closing comments you'd like to make, Mark?

**DR. MARK SCHINSKY:** Again, overall I've been very pleased with this system. It's word very well in my hands. I think patients do great with it. Visionaire technology certainly assists with that. It cuts out steps throughout the procedure, minimizes the back table. I think it can help with efficiency.

Again, lots of benefit knowing going into surgery what you're planning on doing. And just like this case, from my plan, I kept my standard plan even knowing that I may need to take the additional cut. Never mind doing that. And that combined with VERILAST Technology with the OXINIUM on XLPE having excellent wear properties. We didn't really get into that at all.

But again, overall, I've been very pleased with the kinematic nature of this system in general. So at this point, I let my cement harden before I close. I don't know about you, I know lots of people can finish up the case. I don't mind taking an extra few minutes during surgery just to let the cement harden before I move things around.

So once again, I'm very happy with that full extension. We saw we had great flexion. It felt nice and stable. I'm pleased with this knee, overall.

**DR. JIMMY CHOW:** All right. Thank you. That was very well done. So thank Mark for allowing me to visit your operating room, and thank you very much for sharing that with the rest of us. That was very enlightening and an excellent experience. Thank you everyone for tuning in, and have fun with JOURNEY II CR. It's a wonderful system.

[MUSIC PLAYING]