Transcript Details
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Rethinking IOL Dislocation with a Prosthetic Capsule

Announcer:
You're listening to *Eye on Ocular Health* on ReachMD. On this episode, Dr. Frank Brodie will share insights on a first-in-human trial of a prosthetic capsular bag for intraocular lens fixation, which he also discussed at the 2026 Vit-Buckle Society Annual Meeting. He's the co-founder of Long Bridge Medical and the Loving Eyes Foundation as well as an Assistant Professor of Vitreoretinal Surgery at the University of California, San Francisco. Here's Dr. Brodie now.

Dr. Brodie:
Intraocular lens dislocation is becoming more and more of a problem that we're seeing clinically. This is when you have done cataract surgery and there's an intrarocular lens that's sitting in the capsular bag, and then either shortly after cataract surgery or even years or decades after cataract surgery, the capsule will fail. The little support structures—the zonules—will fail, and the lens will partially or all the way fall to the back of the eye, and that's called intraocular lens dislocation. The problem there is that we don't have a great way of putting an intraocular lens back in the eye. All our solutions deal with modifying these lenses in different ways.

But if we really think about the problem, the problem isn't with the lens. The problem is with the capsule. So why are we trying to solve it with a lens? What we really need to do is recapitulate anatomy. We need to develop a capsule that can solve this problem.

I'm excited to present some of the first-in-human data at the Vit-Buckle Society this weekend. The prosthetic capsule takes a very different viewpoint: we don't need to build or modify a lens. What we need to do is fix the piece of anatomy that's not working and that's absent, which is the lens capsule. We devised a very soft, flexible silicone capsule, which you can inject through an IOL injector. You can have an IOL preloaded in it when you inject it. It's got three points of fixation. Those arms—we call them haptic arms—and overlying foot plates sit transsclerally. The footplates sit below Tenon's. The arms are designed to be able to maintain tension across a pretty wide variety of eye sizes and anatomy.

The prosthetic lens capsule has three main components to it. One part is the capsule itself, which can accommodate almost any IOL in the US market. It's got three fixation arms; the fixation arms themselves are of silicone elastomer, and so you can have one size that fits 90 percent of eyes on the market. And then at the end are these foot plates, which are super soft, silicone, low lying foot plates. They sit transsclerally, but sub-Tenon's. And we haven't seen any erosion. We have patients now three years out. It seems to be very compatible, with sitting quietly underneath Tenon's. Those are the major components of the lens capsule.

To implant the LensOne device, you can preload it with an interocular lens or not. You can do it sequentially or preloaded. You put it into a butterfly lens cartridge, and it's injected. The key differences are it can be set up for either an anterior segment surgeon or a posterior segment surgeon. For a posterior segment surgeon, you'll have placed four cannulas, as opposed to your standard three. You'll have an infusion cannula placed where you normally do it, but then you'll have three cannulas placed at 120 degrees apart. And we have a little scleral marker that'll show you.

After you've completed your vitrectomy, remove whatever you need to remove from the eye. You can inject the LensOne using a handshake technique with a max grip or similar forceps, and you can then externalize the foot plates and fixation arms one by one and then re-tuck them underneath the Tenon's. And that's it. That's the whole procedure.

Announcer:
That was Dr. Frank Brodie discussing the development of a prosthetic capsular bag for intraocular lens fixation. To access this and other episodes in our series, visit *Eye on Ocular Health* on ReachMD.com, where you can Be Part of the Knowledge. Thanks for listening!