

## Fertilized ACL Reconstruction FAQ

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### WHAT IS FERTILIZED ACL RECONSTRUCTION?

- A Fertilized ACL Reconstruction is done like any other ACL Reconstruction- with one addition. Before the ACL graft is pulled into place, a bone graft mixture is placed into the bone tunnels.
- This mixture is a combination of bone marrow aspirate concentrate (BMAC), small fragments of the patient's own bone gathered after the bone tunnels are made during surgery (autograft bone) and demineralized bone matrix (DBM) from a donor (cadaver bone).
- The BMAC contains a small number of cells called Mesenchymal Stem Cells (MSCs). These are special cells that have extra healing potential.

### HOW DO YOU GET THE BONE MARROW ASPIRATE CONCENTRATE?

- The BMAC is obtained by using a large needle to remove blood from the bone. Dr. Hess typically uses blood from the upper part of the tibia (just below the knee). Other locations such as the pelvis can sometimes be used. This blood is bone marrow.
- The bone marrow blood is then placed in a centrifuge and spun at high speed for several minutes. This allows the bone marrow to be separated into different portions. We then take out the portion which contains the desirable MSCs – this is the bone marrow aspirate concentrate (BMAC)

### HOW IS A FERTILIZED ACL PERFORMED?

- The BMAC, patient's own bone (autograft bone) and DBM (cadaver bone) are mixed together to form a slurry, which is about the consistency of a thick milk shake. This slurry is placed into the bone tunnels, followed by the ACL graft being pulled into place.
- The ACL graft is now surrounded by this mixture, which creates a great healing environment for the new graft.

### WHY IS A FERTILIZED ACL RECONSTRUCTION HELPFUL?

- During an ACL reconstruction, we are typically taking a *tendon* (either from the patient themselves or from a donor) and using it to replace a *ligament*. A tendon and ligament are similar tissues, but they are not the same.
- One of the most important parts of recovery from ACL reconstruction surgery is the gradual transformation of the graft tissue from a tendon to a ligament. This process is called *ligamentization*.

- We believe that the Fertilized ACL procedure provides an improved healing environment that allows this process to occur faster, possibly allowing patients to return to activities more quickly after surgery.

### ARE THERE RISKS TO HAVING A FERTILIZED ACL?

- While every procedure has associated risks, Dr. Hess has not seen any additional complications since he began performing Fertilized ACLs. The available research also shows no known unique complications (separate from the typical risks of ACL reconstruction).

### IS THERE ADDITIONAL COST TO A FERTILIZED ACL RECONSTRUCTION?

- No, there is no additional cost to patients associated with a Fertilized ACL Reconstruction. We do bill insurance for the kit used to create the BMAC. Dr. Hess is not paid any additional fee to perform a Fertilized ACL Reconstruction.

### ARE THERE ANY PATIENTS WHO ARE NOT CANDIDATES FOR FERTILIZED ACL RECONSTRUCTION?

- This is an evolving area, so things may change over time. However, at this time Dr. Hess is not performing Fertilized ACL Reconstruction on patients with open growth plates, as there is a concern that placing bone graft in the tunnels could cause a growth disturbance.

### WHAT DOES THE RESEARCH SAY ABOUT FERTILIZED ACL RECONSTRUCTION?

- There are not many available research studies at this time to help answer this question. The available research (while limited) shows a high return to sport rate (>90%) with a very low rate of re-tears at 2 years from surgery. To date, there have not been any published research studies comparing Fertilized and Standard ACL Reconstruction.
- Dr. Hess is currently gathering data on his Fertilized ACL patients and is hoping to have some data available to share in 2024.

### HOW MANY FERTILIZED ACL SURGERIES HAS DR. HESS PERFORMED?

- As of early 2024, Dr. Hess has performed nearly 100 Fertilized ACL Reconstructions using this technique.

### WHO CAME UP WITH THE IDEA OF FERTILIZED ACL RECONSTRUCTION?

- This technique was developed by Dr. Chad Lavender, an orthopedic surgeon who works at Marshall University in West Virginia.

## WHAT DOES DR. HESS HAVE TO SAY ABOUT FERTILIZED ACL RECONSTRUCTION?

- “Recovery from ACL reconstruction surgery is a long, challenging process. As surgeons, we are always seeking ways to improve recovery and outcomes for our patients. While modern techniques for ACL surgery have led to good outcomes, we owe it to our patients to continue to search for ways to make things better. I believe that doing something to add improved biology to the healing process (i.e. Fertilized ACL) is the next step toward making ACL surgery better for our patients.”