

SpineFAQs

Bone Grafting & BMP

Many times when patients need spine surgery, they are recommended to have a fusion. This is a procedure to stabilize two or more bones together so that there is no longer any motion. Creating a fusion is actually tricking the body into thinking it has a broken bone. The body then grows more bone between those getting fused.

The cells that create new bone cannot do so just sitting there. They need a scaffolding (or support system) in order to create bone. In addition, these cells need a chemical stimulus to continue to grow. This is where bone grafting comes in.

What is bone brafting?

Bone grafts are merely bone transplanted from one part of the body (or from another person) to another. The purpose of bone graft is to provide the scaffolding and the chemical stimulus for bone to continue to grow. If taken from the patient it is called Autograft. If taken from another person (a dead person called a 'donor') it is called Allograft.

Why is bone grafting important?

Fusion could not occur without bone grafting. In addition, in some circumstances, instability will remain without bone grafting.

Where is the bone obtained?

This depends on what the bone is used for. If being used for an Anterior Cervical Discectomy and Fusion (ACDF), I use bone from the Iliac Crest. (This is the front of the pelvis, along the waistline). If we are doing a lower spine fusion, the bone is generally taken from the back of the pelvis. Similar type of bone can be gotten from the bone bank which is a source of allograft. This bone was taken from dead people and processed to be clean and safe.

What are the risks of using Autograft (bone from me)?

Because we have to take bone from your body to put into the spine, there is a risk of infection, pain, and muscle injury at the site where the bone was

taken from. In addition, there is the possibility of injuring the tissues and nerves around that area.

What about Allograft?

Should I be nervous about another person's bone?

Because allograft is taken from someone else, there is always the possible risk that a disease like hepatitis or AIDS (HIV) could be passed on to the recipient. Fortunately this is extremely rare. Most bone that we use in the spine is treated with freeze drying which kills off all cells and viruses. This nearly eliminates the risk of disease passing on. In addition, all donors are screened for diseases such as hepatitis, AIDS, and cancer, and are not allowed to be donors if found to have any disease.

What is BMP?

BMP or bone morphogenetic protein, is one of the body's chemicals that promotes bone growth. It (among others) is important in bone cell growth, but is naturally available in only small amounts. Recently, genetic engineering has allowed the production of concentrated BMP (called recombinant BMP or r-BMP) which can be used in spine fusion. It has been shown to substantially increase the bone production. BMP is expensive, but we use it in patients who may have trouble forming bone...such as those who have osteoporosis, smokers, people who have had bone graft procedures done before and therefore do not have any more bone to harvest, people who are having multiple levels fused, and at the surgeon's discretion. BMP has been a big advance in our ability to get the bones to fuse. BMP is NOT used in the cervical spine anteriorly.