

## Hensler Bone Press

### Additional Orthopedic and Neurosurgical Applications

The Hensler Bone Press (HBP) is an innovative disposable device for bone fusion procedures. The device has been widely used for spinal operations with great success, and with its use, brought forward significant cost savings and patient benefit. Understanding the pathophysiology of bone fusion and what this device brings to the table, multiple other applications of the HBP are available. This paper describes a few of those additional uses.

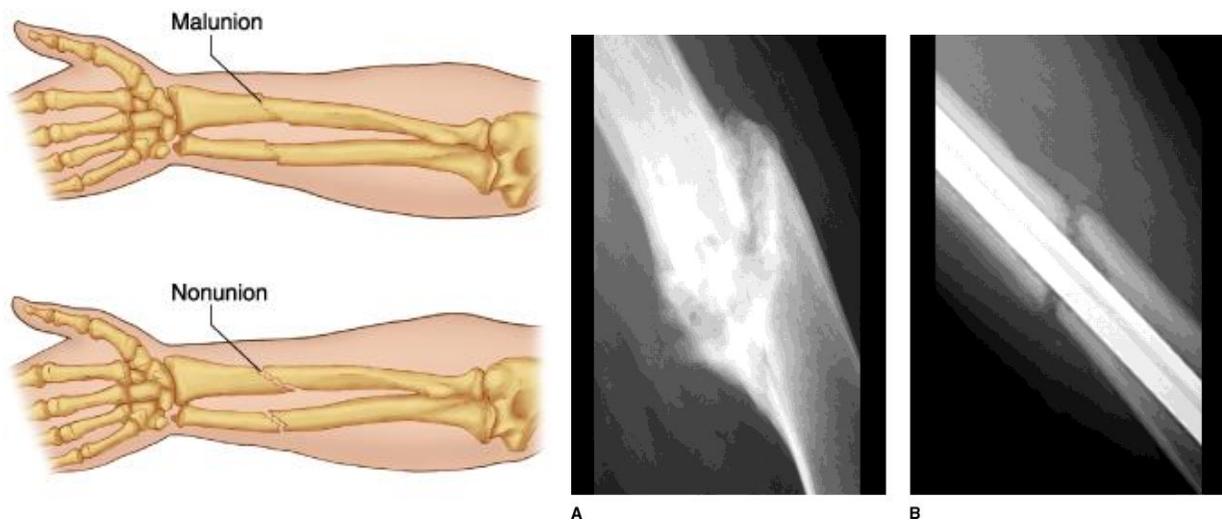
The orthopedic market is a slow titration, but I have a few strategies that can be utilized to reach this market beyond spinal cases. I have spoken with multiple orthopedic surgeons and their PA's. It is well established autologous bone is invaluable. The HBP can be used for the following cases.

The 3 additional applications for use of the Hensler Bone Press include:

1. Malunion / Nonunion
2. Ankle Arthrodesis
3. Craniostomy / Craniotomy Defect Filler

## Additional applications of the HBP for Orthopedics – Long Bone Specific

> Femur, Humerus, and Tibia <



Malunion and Nonunion

By the illustration to the above right, the pseudoarthritic segment is generally drilled away, which requires a well vascularized bone wall between the two (2) non-unified long bone segments. This bone can be collected using the HBP. If the autologous bone is in short supply, the fusion requirement can be supplemented with allograft or synthetic to fill the defect and add to the hardware fusion construct. When coupling this fusion graft with the hardware, will intrinsically optimize the case with LIVE bone cells.

Unfortunately, malunion and nonunion cases occur commonly. It can occur due to a poor reduction, non-healed bone secondary to hardware malfunction, fracture, or simply the bone not healing properly due to heightened risk factors, such as tobacco use and diabetes. Joint bone fractures are a variable, but long bone fractures, podiatry, and cranial applications are present everywhere.

## Arthodesis of Ankle fractures or Nonunion / Malunion.

Ankle fusions are common for podiatry and the use of the high speed drill exists for this application. Podiatrists generally do not harvest from the iliac crest themselves. By not having to share the global cost, as well as decreasing the bone substitute, this affords for significant cost savings, patient benefit, and surgeon satisfaction.



In the pictures depicted to the left and right above, bone is usually drilled away. This bone can be used for the grafting procedure. As you can see, this bone would be beneficial by the images showing the defect created to add to the strength of the hardware construct. By collecting all the drilled autologous bone, this affords the surgeon and patient with maximum autologous bone graft with osteoinductive and osteoconductive properties for the fusion case.



# HENSLER SURGICAL PRODUCTS™

## The basics on how the HBP would be used in these capacities:

The majority of the orthopedic surgeons I spoke to use the Stryker TPS drill for the long bone cases. Generally, any cutting drill bit will generate the bone the HBP can harvest, which will have the scaffolding needed for bone fusion. Diamond burs polish the bone and generate significant heat. This bone is considered NON-viable and should not be used.

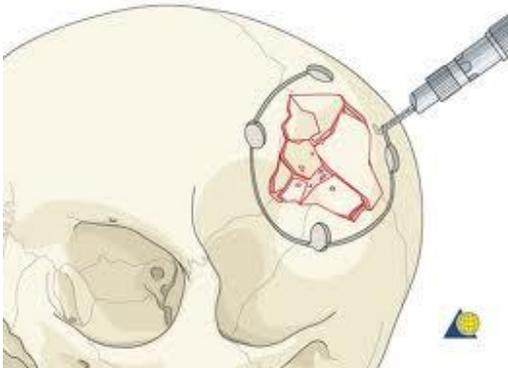
The podiatry surgeons use varying drills with cutting bits, ordinarily. Once the non-fused or fracture line is exposed, the fibrous tissue is removed, using rongeurs and such. Once the bone is exposed, the drill is used to decorticate the proximal and distal surfaces to expose well vascularized bone for lone bone fusions. There is remaining tendons and soft tissues on the back side of the bone after the decortications are left. This will keep the graft in place.

For ankle fusions, once the tissue is removed from the articular surfaces, bone is drilled away which can be collected and harvested. This yields good quantities of autologous bone.

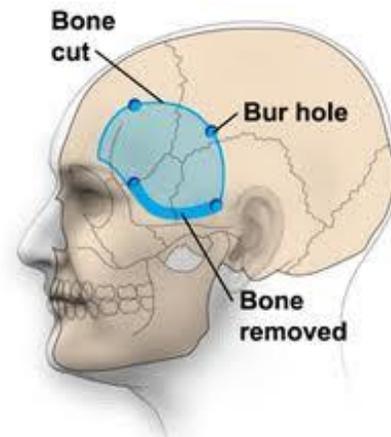
The bone that is drilled away is collected by the HBP. There is generally significant irrigation and little blood, which will optimize the press function. The same is true for the ankle fusions. The bone harvested is used to fill the fracture lines and defect.

## Craniotomy Applications for the Hensler Bone Press

Another practice for craniotomies is filling the craniotomy hole with 'Filler' or allograft. The devices and filler are very pricey, well over \$1,000 for each application. When turning a flap, there is generally significant bone that can be collected. This bone can be harvested and placed into the craniotomy defect, thus not allowing for the option of a bone substitute.



Simply by collecting the bone when turning the flap using the craniotome (as shown to the Left, this bone can be easily collected and used for the defect(s)



The bone would be collected and pressed. This bone would be placed into the Bur hole(s) or defect(s) as needed.

By using this technique, for those surgeons whom would rather fill the hole with a filler-type substance, this option using the HBP allows the patient to use their own bone. This is a significant cost savings and patient benefit, removing any possibility of host rejection or non-compatibility, not to mention decreased risk of infection.