

**Aim:** Early Surgical Intervention to Prevent Diabetic Ulcer Formation

**Method:** Diabetes is a multifactorial disease. It affects the vascular, neurologic, and immune systems to name a few. However, the effect on these systems is not the reason the ulcer forms. It is the reason it is so difficult to heal. Diabetic ulcers develop from mechanical pressure. The pressure is generated from anatomical deformities. Anatomical deformity leads to abnormal biomechanical forces. This causes tissue breakdown and the start of the wound cascade.

This is not a justification to do surgery on every diabetic patient. There are factors that influence decision making. Is the patient able to undergo surgery and recover from the procedure? Is the patient ambulatory? Along with other excluding factors.

Prior to any surgical intervention, complete workups are performed, and any conditions found are addressed prior to surgical intervention. Bone, soft-tissue infection, and vascular being the focus

Early surgical intervention to address deformity can either correct anatomical deformity or reduce it. This leads to reduction or elimination of biomechanical deformity. It stops the ulcer from forming or, if it does still form, it is more easily healed.

We have two groups of patients we are tracking.

Group 1 Healed - with deformity showing signs of pre-ulcer

Group 2 Ulcerated - with deformity

Both groups are approached the same: surgical correction of anatomical deformity.

Group 2 can be treated with a 2-step approach - heal the ulcer then correct the deformity. An alternative approach is surgery to correct deformity while healing the ulcer simultaneously.

In this group, fixation and procedure choices can be restricted, secondary to the ulcer.

**Results:** In the past 2 years, we have moved to this approach and no one in Group 1 has developed an ulcer. The ulcers in Group 2 all closed within 12 weeks with only one patient re-ulcerating.

**Conclusions:** We have shown that a new approach to diabetic foot deformity can prevent ulcers. It accelerates healing while preventing or at a minimum, reducing re-ulceration. A small group of physicians and companies have started to investigate the treatment pathway. It will need extensive development but may be an alternative to our current flawed pathway.