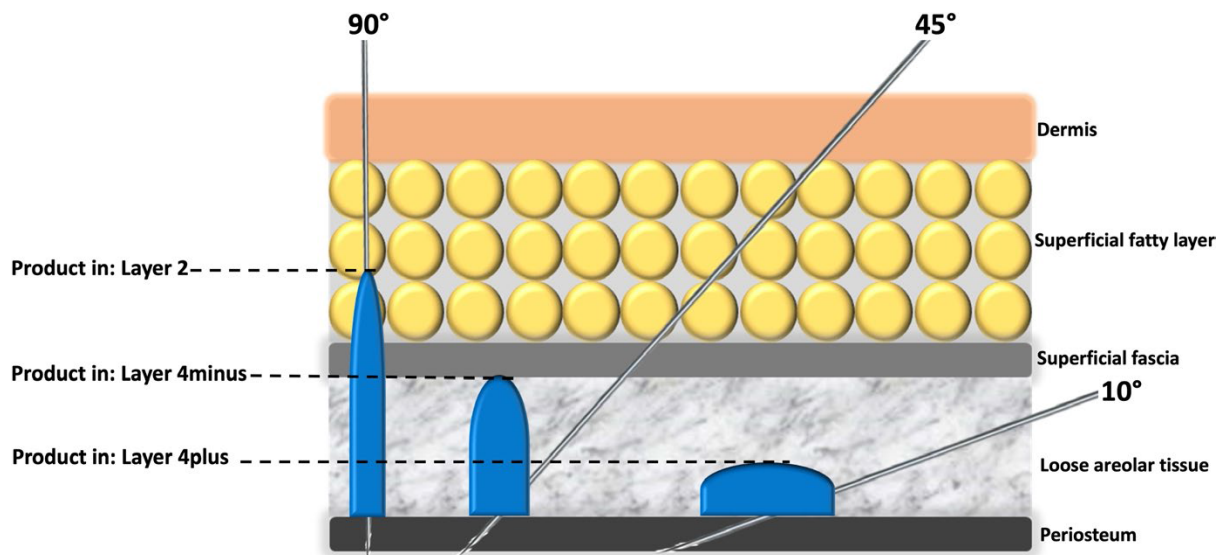


Does filler stay where you injected it immediately after?

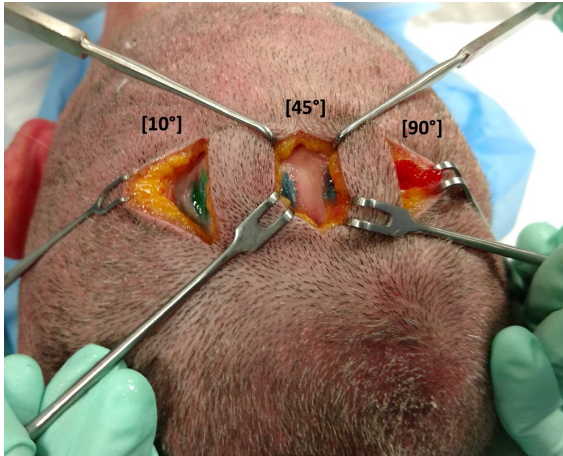
Many injectors (including myself when I first started) think that when making contact with bone and depositing filler, that's exactly where it stays after we withdraw the needle. We now have clear cut evidence that disproves this.

Pavicic et al. (2019) recently published a study that looked at this exact phenomenon. This is an important study because during needle withdrawal, if filler follows the same path, there is a risk of it travelling intravascularly. Needle withdrawal essentially creates a path for the filler to create its own retrograde thread it seems.



Above: diagram showing the resulting position of filler after needle withdrawal depending on entry angle.

25-, 27- and 30-gauge needles were used in multiple areas: forehead, scalp, zygomatic arch and mandibular angle. Angles tested are shown in the diagram above. Dissections were carried out layer by layer to reveal where the dyed filler ended up after deposition and needle withdrawal.



Left: layered dissection reveals differing amount of filler on the periosteum with different angles used for injection.

Interestingly, the study also showed that the smaller the needle size, the less superficial spread occurred of the filler.

Injecting at an angle of 90 degrees to the bone distributed the product retrograde into the subcutaneous fatty layer (Layer 2) 69.7% of the time. This most superficial spread was observed in 9.1% of the 45 degrees injections and in 0% of the cases when injecting at 10 degrees with a bevel down position.

What can we take away from this? Precision during filler placement can be increased by changing the needle size and angle - if precision is defined as the material remaining in the plane of tissue intended. Utilizing a 30G needle and injecting at 10° with the bevel down reduces unwanted product distribution into superficial layers. Angle of injection was shown to have a greater weighted impact on controlling unwanted distribution than did needle size.

Consider taking advantage of these two findings next time you need a product to stay on the periosteum.

References:

Pavicic T, Mohmand HM, Yankova M, et al. Influence of needle size and injection angle on the distribution pattern of facial soft tissue fillers. *J Cosmet Dermatol.* 2019;00:1–7.