



## Vein visualisation technology

There are several problems that can arise during blood collection. The most common is that the superficial veins are very thin and therefore difficult to locate. Roller veins, which shift easily in the connective tissue, can also cause difficulties that require the needle to be inserted several times in order to hit the vein correctly. This is not only stressful for patients who suffer from syringe anxiety, but also when dealing medically with children or the elderly, where the veins are generally more difficult to see or feel.

The vein visualisation technology makes it possible to find suitable veins and veins painlessly and thus make it easier to place access points for infusions or blood sampling, for example. But what is behind the technology and the so-called vein mapping?

Using a near-infrared imaging technique, it is possible to create a visual map of the veins on the surface of the skin in real time. Two different lasers are needed to make this possible. One is an invisible infrared laser and the other is a visible red laser. These two lasers cooperate and image the subcutaneous vascular system at a depth of up to 10mm.

The haemoglobin contained in the blood absorbs the infrared light, which causes the light reflection in the veins to be reduced. When the light beam hits the skin, the vascular system there is therefore displayed darker than the surrounding tissue. This change in reflection is detected by a recognition system, which is able to determine the location, pattern and structure of the veins and project them digitally onto the patient's main surface. The vein mapping is made visible by the green laser.

According to independent studies, the vein map guarantees 98% success of the needle insertion.

### INNOVATIVE TECHNOLOGICAL APPROACH

- ◇ **Company:**  
AccuVein Inc
- ◇ **Product:**  
AV500 Vein  
Viewing System
- ◇ **Technological basis:**  
Near-infrared  
technology
- ◇ **Field of application:**  
Visualisation of the  
subcutaneous vascular system
  - For vascular interventions
  - For blood collection procedures
- ◇ **Website:**  
<https://www.accuvein.com/>

### Advantages of vein visualisation

- Simple and painless real-time application
- Assists in localisation and assessment of open veins avoiding valves and branches
- Reduces patient discomfort and anxiety

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