



## Digital volume tomography (DVT)

X-ray examinations using computed tomography (CT) or magnetic resonance imaging (MRI) have been in use for many decades and provide medical professionals with precise diagnostic information thanks to 3D images.

Digital volume tomography (DVT) is another X-ray-based sectional imaging procedure. Like CT and MRI, this is used to examine bony structures by means of 3D reconstruction. The difference to conventional X-ray procedures is that with DVT a conically diverging X-ray beam is emitted instead of a narrowly focused one. This is why it is also called a cone-beam CT. Digital volume tomography is further differentiated by the fact that the recording time is only a few seconds and shows a higher image resolution with a large number of details. Diagnoses of bones and joints can be made precisely, but DVT examinations are unsuitable for soft tissues.

Similar to CT, an X-ray tube rotates around the patient. However, these are usually much smaller, as the origin of the DVT lies in the X-ray examination of the head. Even though the areas to be examined have now expanded to include the entire body with the new technology, the smaller but high-resolution measuring systems have remained in use. In this way, only the required part of the body is exposed to X-ray radiation, which is why it is significantly reduced.

State-of-the-art DVTs like the Planmed Verity specialise in orthopaedic imaging (high-resolution 3D images of the extremities) as well as maxillofacial imaging (3D images of the jaw and facial area). The imaging unit is equipped with two individually adjustable and padded seat positioning options, positioning trays, as well as a positioning camera and laser. In this way, versatile patient positioning as well as increased patient comfort can be ensured.

Furthermore, it provides clear information about malpositions and biomechanical deficits through 3D weight images. Due to the versatile positioning of patients with and without weight bearing on the device, the anatomy can be analysed completely realistically and naturally and diagnostic possibilities can be better exploited. The technology is currently the only one capable of displaying 3D image data of the anatomy and real loading conditions.

### INNOVATIVE TECHNOLOGICAL APPROACH

- ◇ **Company:**  
Planmed OY
- ◇ **Product:**  
Planmed Verity
- ◇ **Field of application:**  
Extremities, jaw and facial area
- ◇ **Advantages:**  
Time saving  
  
Less radiation exposure  
  
High resolution image quality & more detail  
  
3D images with and without weight loading of the corresponding body parts  
  
Increased patient comfort
- ◇ **Website:**  
<https://www.planmed.com/>

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