SHIMADZU
Excellence in Science

Tomosynthesis

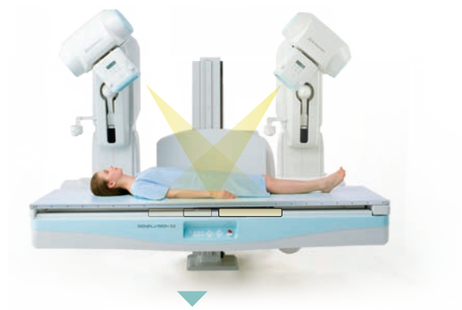
Advanced Digital Multi-Slice Tomography Technology making the invisible visible

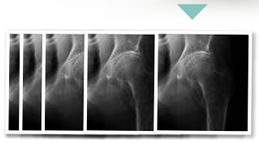
Cutting Edge Application Option
for
SONIALVISION G4

Tomosynthesis

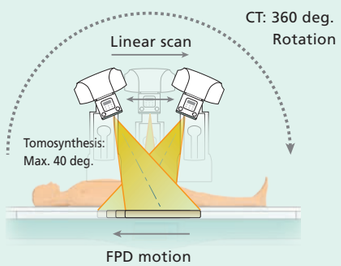
Tomosynthesis is new state-of-the-art imaging technology that integrates cone-beam CT reconstruction technology and digital image processing technology.

A single linear tomography acquisition movement of SONIALVISION G4 imaging chain provides multi-slice coronal tomographic images easily with only a very simple and quick workflow.





Reconstruct multiple coronal section images



Imaging technology that fuses cone-beam CT reconstruction with digital image processing.

High resolution images with little overlap

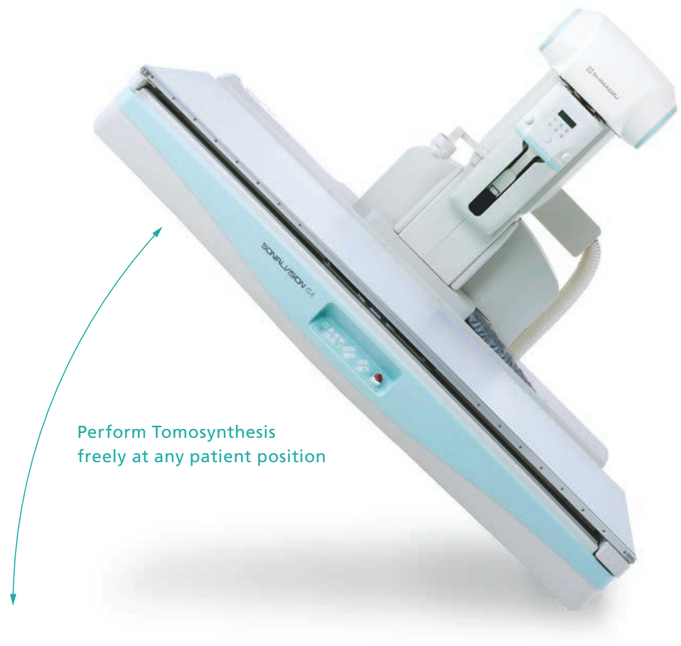
SONIALVISION G4 Tomosynthesis / Tomography images are reconstructed from high-resolution projection images on the superfine resolution Flat Panel Detector (FPD), so that, fine fracture lines and trabeculae can be clearly observed unlike conventional tomographic images. Multiple digital tomographic images are very useful to understanding the front-rear relationship of the observed area and the direction of the fracture line progression.

Tomography at any patient position

SONIALVISION G4 enables performing Tomosynthesis freely at any patient position, such as standing for weight-loaded examinations or lying horizontally on the table. It can also easily examine the elbow or knee in a bended position, which is difficult with a CT scanner.

Only 2.5 seconds Scan Time

Since just one low-dose tomographic scan (2.5 sec/5 sec) can reconstruct the images of a particular cross section many times, this technique requires less time and less X-ray dose than conventional linear tomography. The short examination time would be very helpful for reducing the burden on patients and operators.



High resolution images with less metal artifacts

SONIALVISION G4's superfine resolution FPD and Shimadzu's advanced imaging technology realizes excellent resolution Tomosynthesis / Tomography images with minimal metal artifacts. Therefore, its clinical values are more and more spotlighted nowadays, and practically highly appreciated especially in observing micro fractures or detail diagnosis around metal orthopedic implants or fixators.

Minimal X-ray Dose

Tomosynthesis allows you to observe multiple slices of volume data with minimizing X-ray dose, requiring a single linear tomography stroke acquisition only. By switching the field-of-view and using collimation, X-ray exposure to areas outside the area of interest, such as when viewing the femur, can be minimized to prevent unnecessary radiation exposure.
A "Low-dose Tomosynthesis" mode is available to reduce the dose level even further, which makes the system ideal for the pediatric use as well.

High Definition Imaging

The 1x1 high definition mode (using 6-inch field-of-view) allows you to obtain tomosynthesis images with even higher spatial resolution. This mode is very effective to diagnose small areas such as bones in the finger tips etc. with more precision.

Oblique Tomosynthesis*

The Oblique Tomosynthesis feature provides oblique tomographic images reconstructed at any optimal angle up to +-20 degrees laterally or vertically to match your ideal diagnosis angle.
This feature helps when examining spines, hip joints and other areas that could be difficult to be observed by the standard horizontal tomographic images parallel to the table-top.

The whole cervical vertebra can be observed by tilting the tomographic image

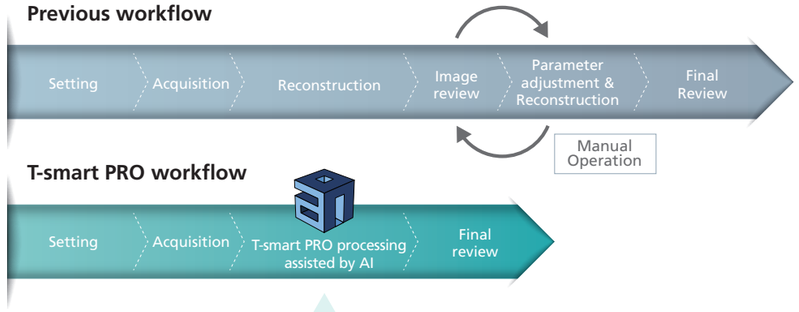
*Requiring the "Side Station i3" separately.

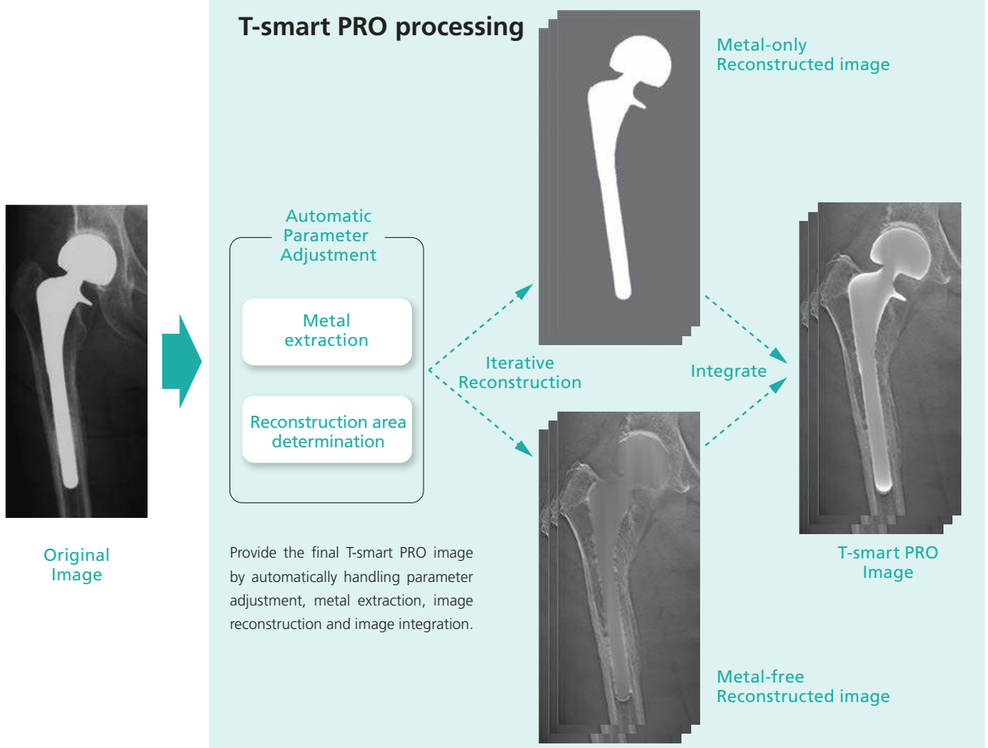
Shimadzu metal artifact reduction technology using AI image processing enables to focus on patient care by providing easy-to-interpret Tomosynthesis images with more efficient workflow.

T-smart PRO(*) assisted by AI

Tomosynthesis-Shimadzu Metal Artifact Reduction Technology PRO

"T-smart PRO" is our latest and advanced Tomosynthesis technology. T-smart, our highest-grade metal artifact reduction technology, is combined with Shimadzu's AI image processing technology, which uses deep learning technology. T-smart PRO solves time and complexity problems by automatically adjusting the reconstruction parameters based on the metal size, metal type, and body part. The entire workflow is so simple that anyone can obtain Tomosynthesis images with ease and efficient workflow.



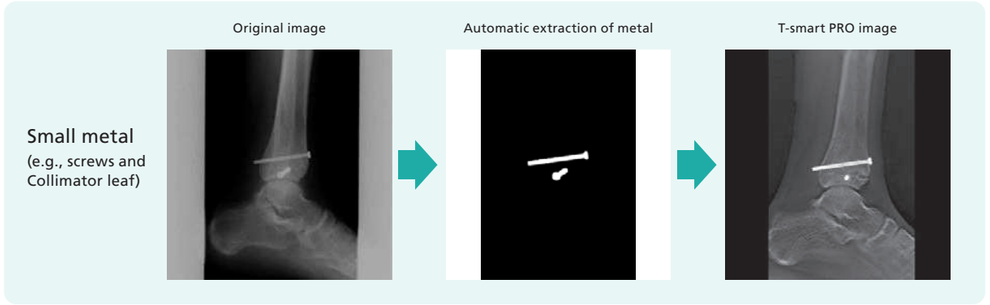


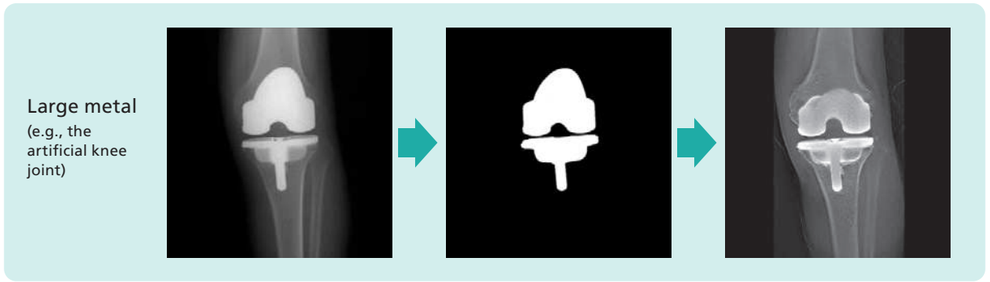
T-smart PRO provides enhanced Tomosynthesis images by suppressing the artifacts around the metal objects even further. This application greatly helps orthopedics especially for patients with metal implants or fixators, as it enables diagnoses the boundary between bone and implant very exactly.

Features for providing optimal images

Automatic extraction of metal

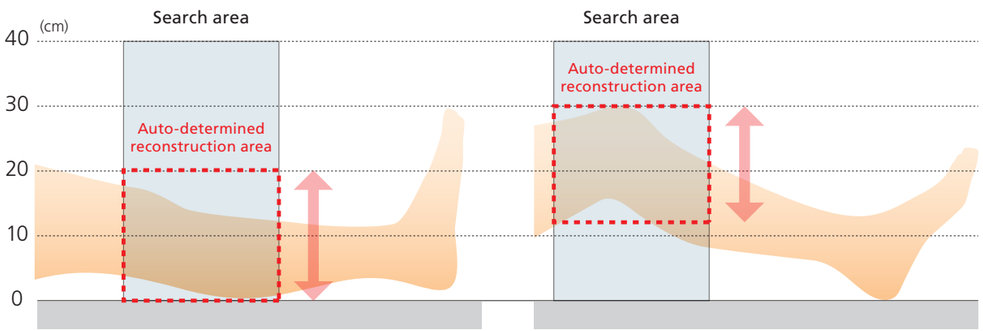
T-smart PRO using AI technology automatically and accurately extracts and separates metal from an original image. It is possible to automatically set parameters that previously required skilled setting techniques, and to easily obtain reconstructed images minimizing metal artifacts.





Automatic determination of reconstruction area

T-smart PRO estimates height and body thickness of the target and automatically sets the range of image reconstruction. It can reduce the possibility of deviation of a region of interest from a reconstructed image that may occur with manual settings, and enables a patient to have Tomosynthesis examination in a more comfortable position.



This image explains the concept of Automatic determination of reconstruction area.

See more about clinical images

* The AI (Artificial Intelligence) technology used in T-smart PRO is a "trained model" that was trained at some point and performed accuracy evaluation. It doesn't continue learning after installation.
* Requiring the "Side Station i3" option separately.

Label Description: Multi-purpose Digital R/F System SONIALVISION G4

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