



FUJIFILM Advanced Image Processing





FUJIFILM Image Processing – Gentle Touch, Brilliant Image

FUJIFILM has over 30 years' experience following the invention of the world's first CR system in defining the latest technology to provide optimized X-ray imaging. Simpler, more efficient with improved workflow for the Radiographer our advanced image processing provides higher diagnostic value with reduced impact for the patients.

FDR D-EVO II



FDR D-EVO GL



FDR nano



FDR

FDR Go



FDR Smart X



FDR Visionary Suite



FCR PROTECT OS



FCR CAPSULA XLII



FCR PRIMA Tm



FCR

NOTE: For the availability of each product in this brochure, please contact your local sales representative.

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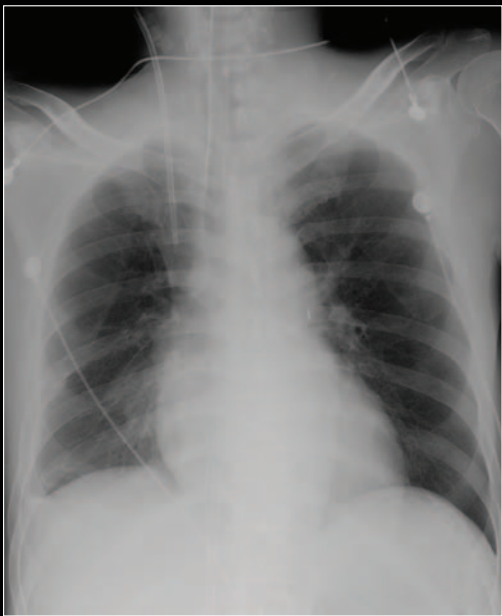
High Definition, Low Dosing and Enhanced Workflow Realized all at once with Fujifilm's latest technology

— Advanced Image Processing using 3D Structure Analysis Technology

1 Virtual Grid

Enhancing the Image quality and workflow of the portable image

Virtual Grid is an image processing software that corrects for the effects of scatter radiation that otherwise reduce image contrast and clarity. Without the need for an anti-scatter grid, this software quickly creates high quality images.



No Grid



Virtual Grid



1:1



3:1



8:1



20:1

Variable grid selection is available to best suite the exposure regions and conditions

Mechanism of Virtual Grid

1. Estimates the amount of direct incident X-ray on the X-ray sensor (A) based on set exposure condition
2. Calculates the level of X-ray transmission through the object (B) based on acquired image data
3. Estimates body thickness based on (A) and (B)
4. Calculates the amount of scatter radiation based on the estimated body thickness
5. Removes the scatter radiation component from the original image



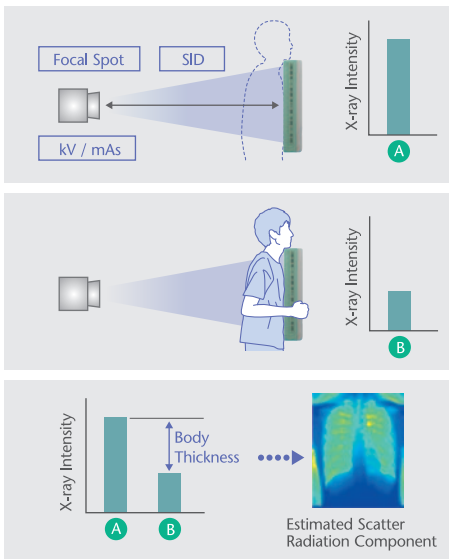
Original Image



Estimated scatter radiation component



Processed Image

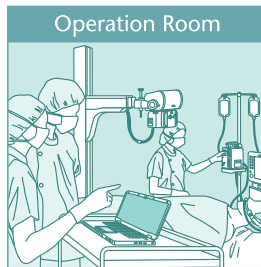


Workflow with Virtual Grid

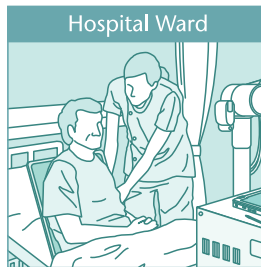
Uneven Image density from mis-alignment of Xray tube and grid is prevented.
Improved Grid free workflow for portable examinations.



X-ray Room



Operation Room



Hospital Ward



Emergency Room

Multiple Body parts supported

Virtual Grid processing is configurable per body part, allowing individual optimization for multiple regions.



Abdomen



No Grid



Virtual Grid

Entire Vertebral Column



Skull



Cervical Spine



Thoracic Spine



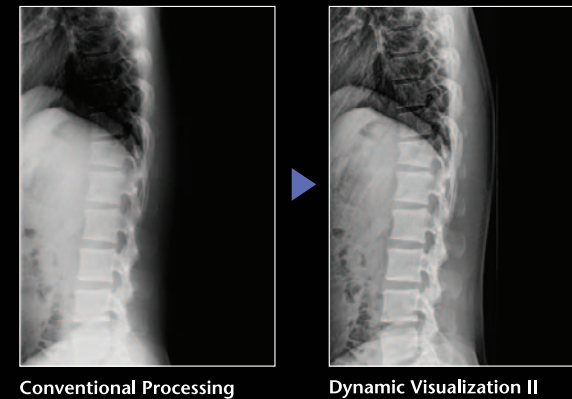
Lumbar Spine

2

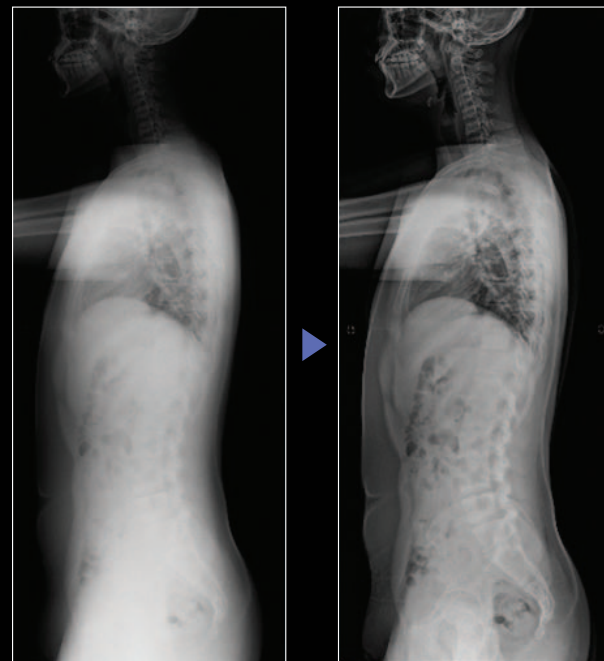
Dynamic Visualization II

Dynamically optimizes image quality using advanced exposure recognition algorithms

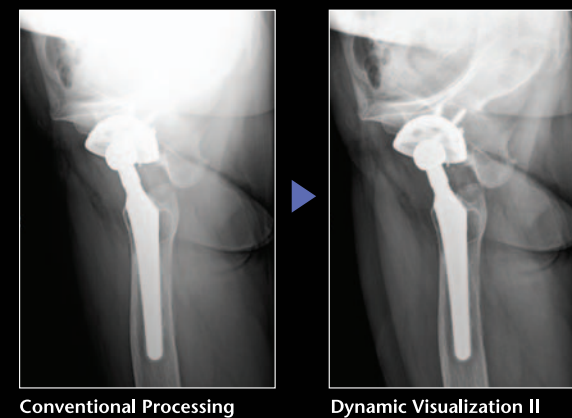
State of the art recognition algorithms automatically adjust contrast and density for individual body parts based on calculation of estimated 3D image data.



Improved detection and display of the Skin edge and out-line of lumbar spine in patients with increased thickness.



In this spinal image, by suppressing black-out and white-out in the image, the alignment of the entire vertebral column and spinal kyphosis is greater visualized.

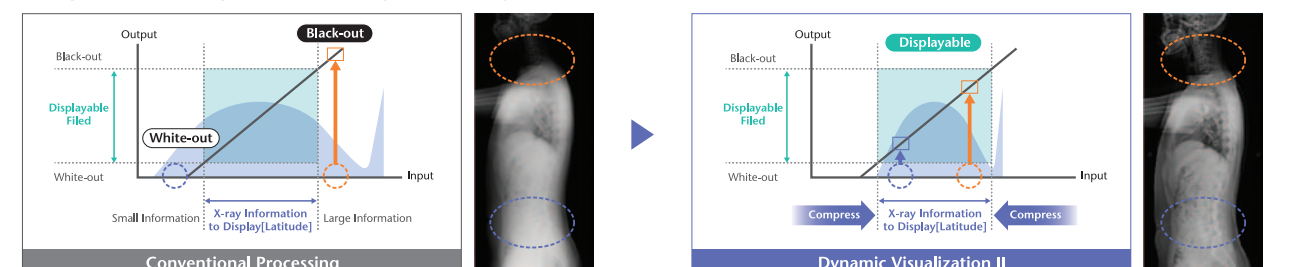


Improved control of the density and contrast in areas with overlapping tissue provides clearer observation of artificial joint replacements.

Mechanism of Dynamic Visualization II

Dynamic Visualization II calculates the entire exposure field using body thickness as 3D information, anatomical structure recognition, suppression of the effect of artificial materials such as metal objects and implants, then automatically optimizing image density, contrast and sharpening.

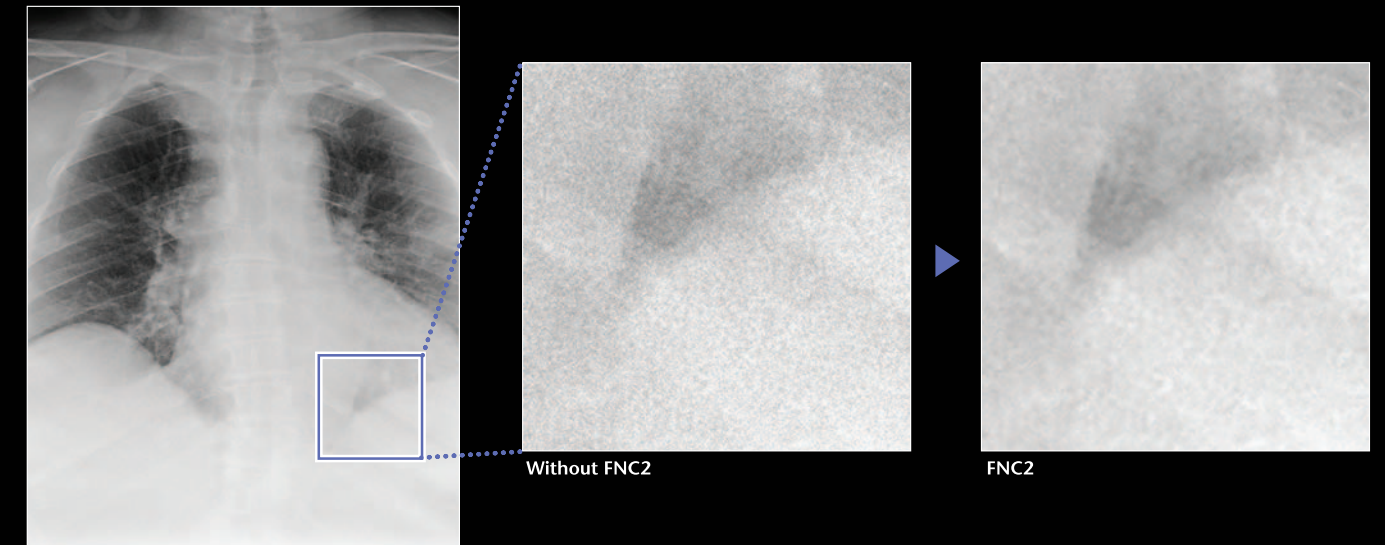
Compression and Optimization of Dynamic Range



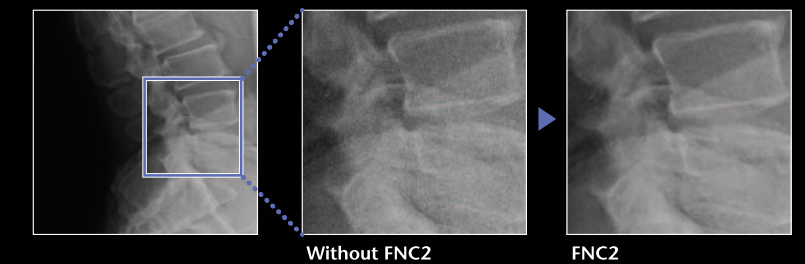
3

FNC2 - New Flexible Noise Control

Supporting dose reduction by suppressing complex noise components from the image



Conventional Processing



Without FNC2

FNC2

FNC2 extracts the noise component in the image by recognizing complex line and dot components as well as estimating the noise amount in relation to body thickness. Then by separating and suppressing the noise component, granularity is improved even when dose is reduced.

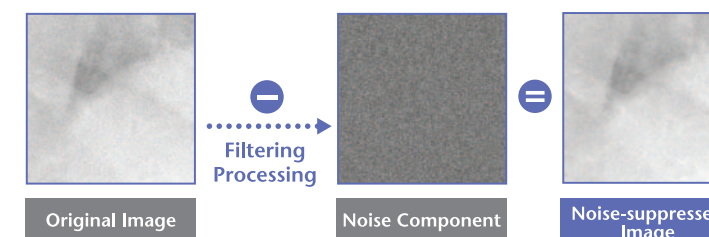


Without FNC2

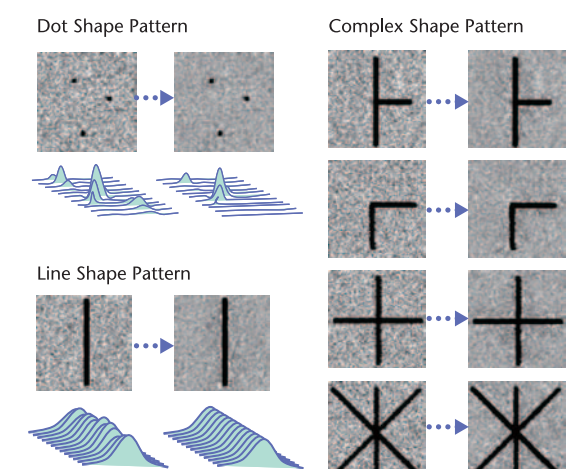
FNC2

Mechanism of FNC2

Based on Pattern recognition results and the estimated body thickness information a noise filter is applied to suppress noise signals unrelated to the human body structure.



Noise Reduction for Each Pattern

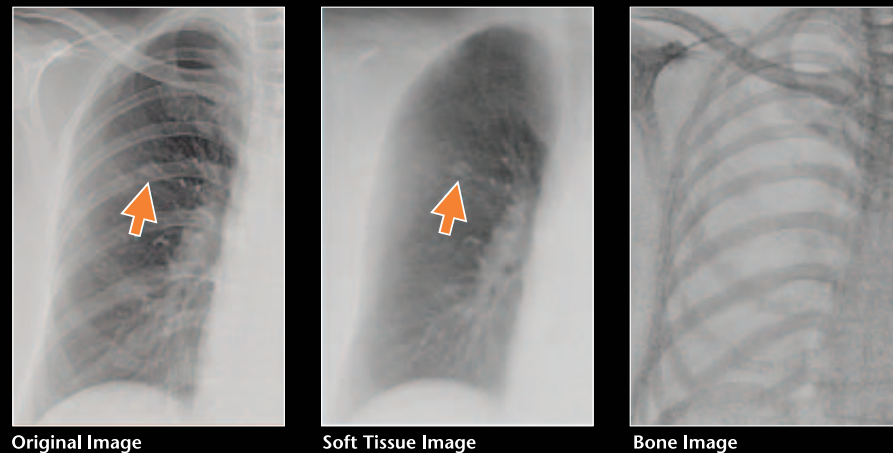


4 Energy Subtraction

Improved visualization of anomalies by reducing the appearance of underlying/overlying structures

*This function is only available with FDR Visionary Suite.

Energy Subtraction separates images of soft tissue and bone for improved viewing.



Case 1

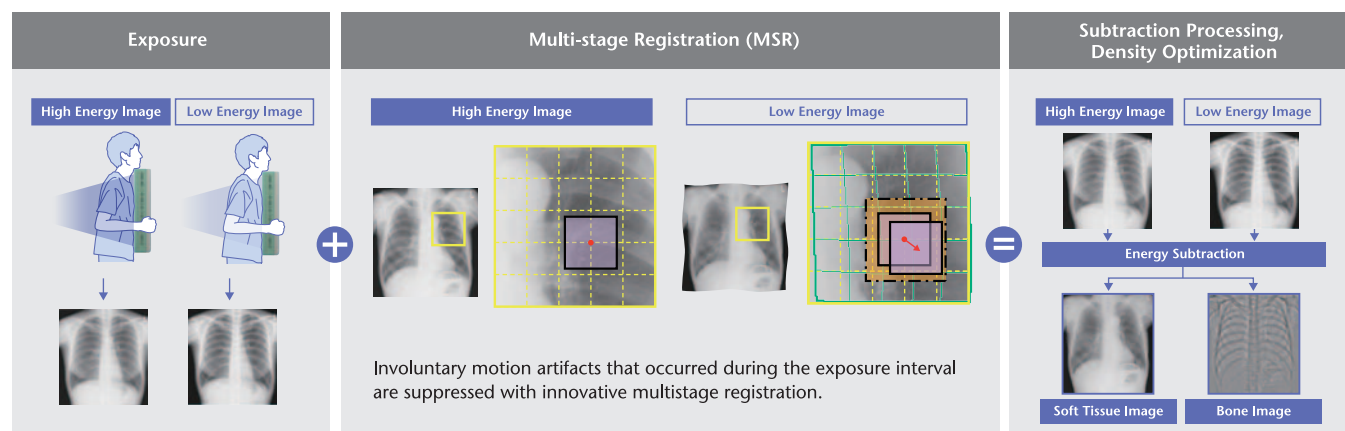
Visualization of the Tubercle is more distinctive in the soft tissue image compared to the original image.



Case 2

The original image shows an indeterminate opacity which is clearly identified on the bone image and not on the soft tissue image identifying it as calcification.

Mechanism of Energy Subtraction

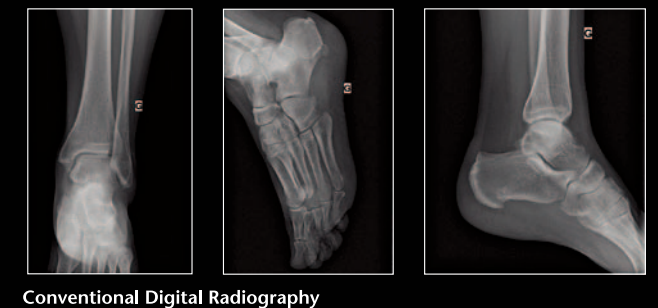


5 Tomosynthesis

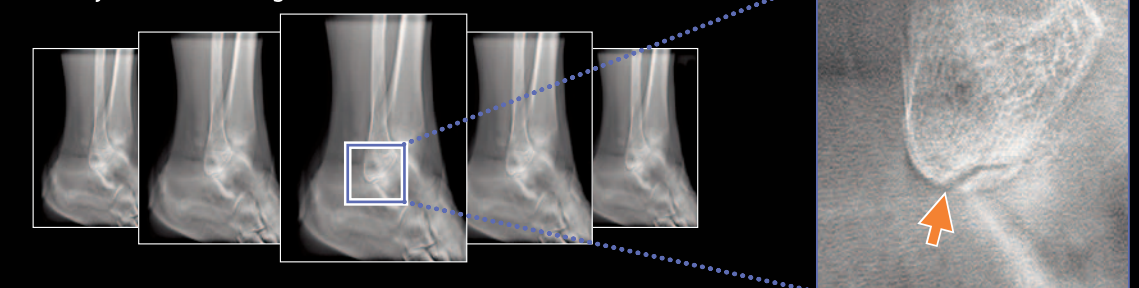
Multiple slice image acquisition that yields additional diagnostic information

*This function is only available with FDR Visionary Suite.

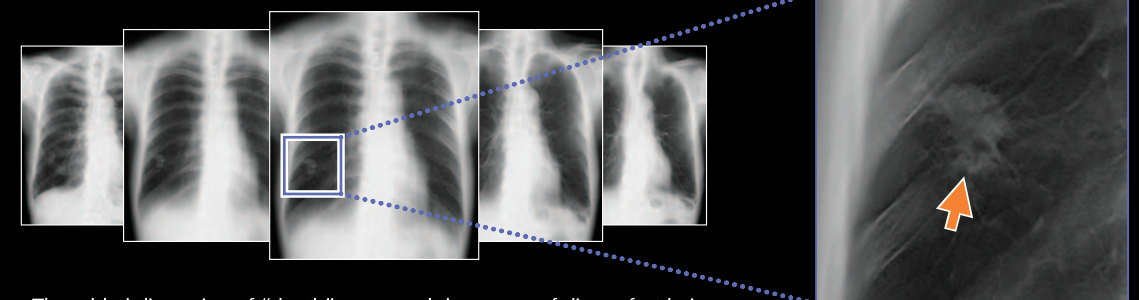
Tomosynthesis is an advanced radiography application that produces multiple tomographic image slices from a single sweep of the X-ray tube. These "slice" images add a dimension of "depth" providing the Radiologist with images clear of overlapping structures for clearer diagnosis. Tomosynthesis can be effective for a variety of clinical tasks, including chest, orthopedic imaging and otology.



Tomosynthesis Slice Images

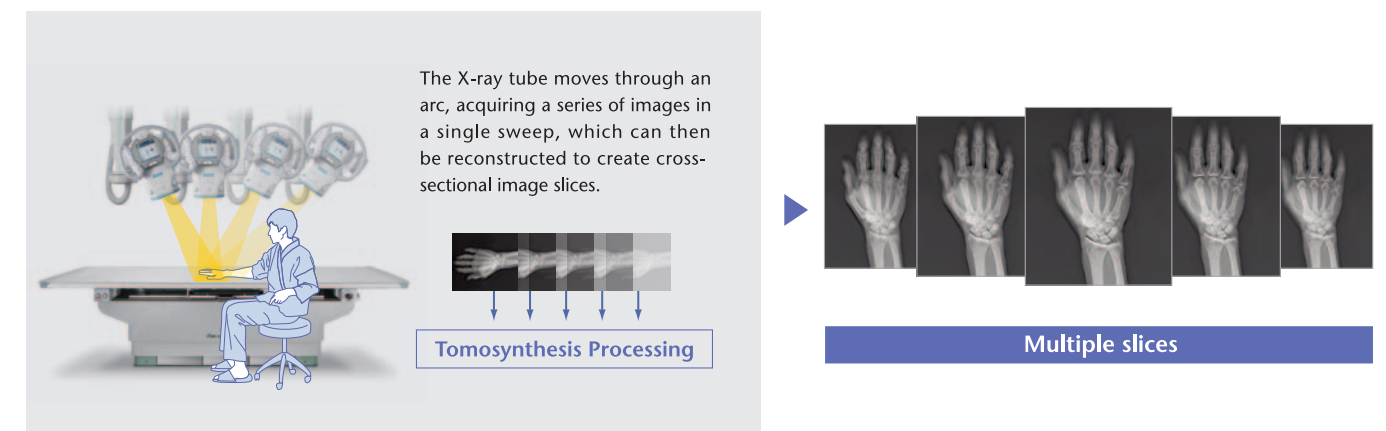


Tomosynthesis Slice Images



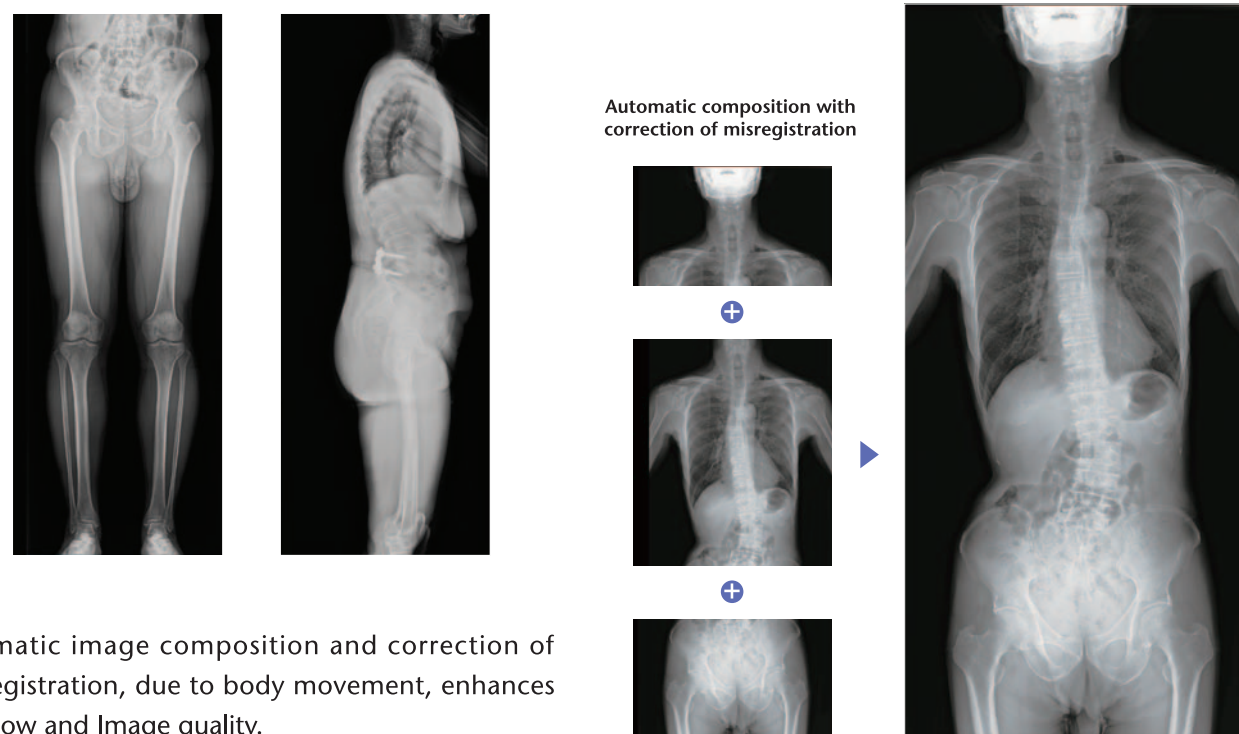
The added dimension of "depth" can reveal the source of discomfort being experienced by patient, reducing the requirement for referral to expensive and time-consuming CT.

Mechanism of Tomosynthesis



6 Image Stitching

Simple composition of separate images for long-view radiography of entire vertebral column or lower limb

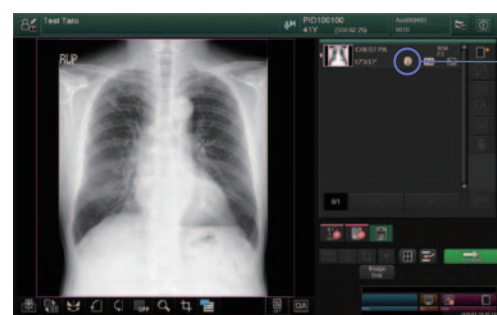


Automatic image composition and correction of mis-registration, due to body movement, enhances workflow and Image quality.

7 Body Movement Detection

Automatic detection of patient's body movement which may cause degradation of image quality

Body movement is detected by using object recognition and edge detection technology, to measure the sharpness of a high contrast "edge" in the image.



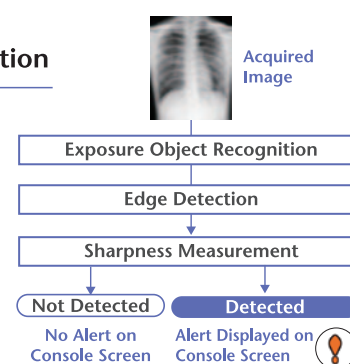
Console Screen



When detecting body movement, the Console Advance displays a warning icon to inform the technologist.

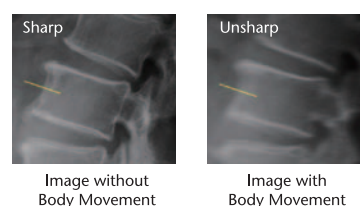
Mechanism of Body Movement Detection

Body movement is detected by using object recognition and edge detection technology, to measure the sharpness of a high contrast "edge" in the image.



Unsharpness caused by Body Movement

Body movement causes blurring in the image, which makes the object unsharp.



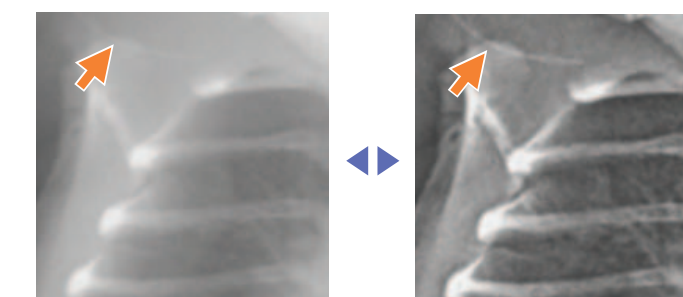
8 Highlighting of Gauzes and Catheter

Enhanced Image highlight presets provide a simple and smart confirmation of gauzes and catheters.



Thoracoabdominal (Highlighting Parameter off)

One-touch highlight presets allow quick confirmation of the presence of post surgery gauze or the correct position of catheters in emergency situations.



Highlighting Parameter off

Highlighting Parameter on



Console Screen



By selecting the icon on the console screen, highlight parameters to apply on image can be selected

Immediate Display on Room Monitor

Remote image display function enables images on the console to be displayed on a room monitor, reducing the time to wait for acquired images to be displayed on the room monitor.

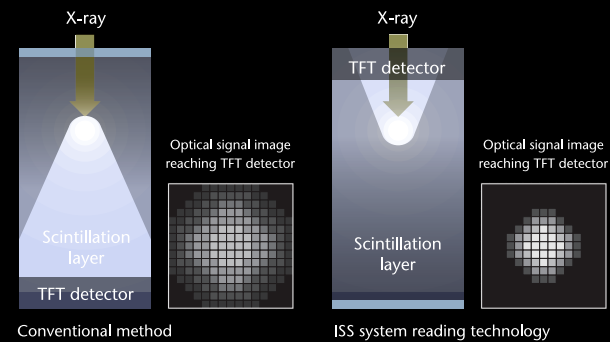


Pursuit of Supreme Image Quality

Exclusive technology used in Fujifilm detector achieves high resolution and low dosing.

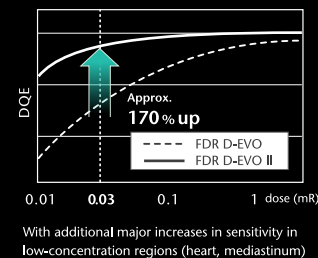
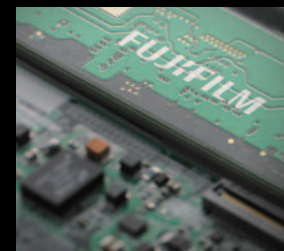
■ Irradiation Side Sampling (ISS) Method

ISS equipped indirect conversion flat panel detector, which bonds optical sensors (TFT) to the X-ray irradiation side unlike traditional flat panel detectors. ISS technology greatly suppresses scattering and attenuation of X-ray signals, creating sharp images with low doses of X-rays.



■ Noise Reduction Circuit

The uniquely developed noise reduction circuit reduces noise in the image. It achieves 1.7 times the DQE of existing systems with a 0.03 mR dose. In particular, granularity of low-concentration regions such as the heart and mediastinum is dramatically improved.



Fujifilm Flat Panel Detector "FDR D-EVO" Series



FDR D-EVO II
G35



FDR D-EVO II
G43



FDR D-EVO II
C35



FDR D-EVO II
C43



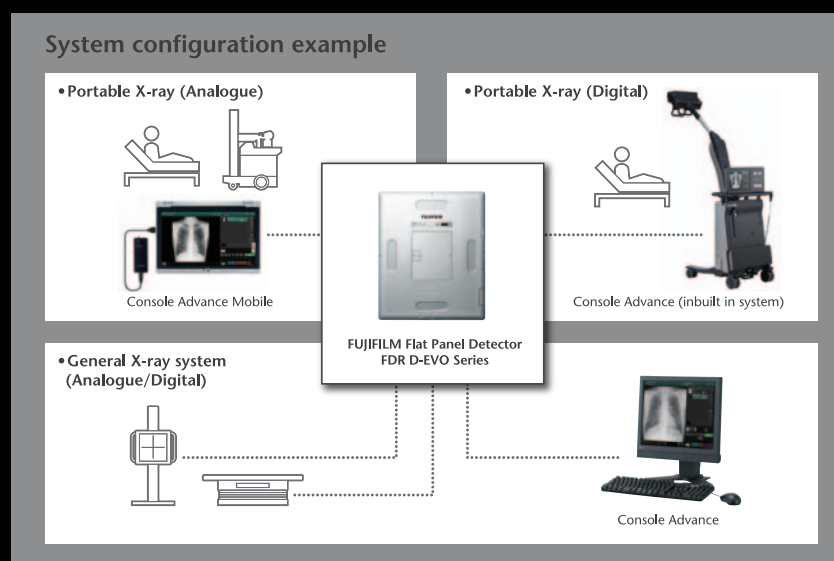
FDR D-EVO II
C24



FDR D-EVO
Advanced C43A

Adaptable to Imaging Environment

Compatible with multiple systems ensuring High definition imaging is available for all scenarios.



Specifications are subject to change without notice.
All products require the regulatory approval of the importing country. For details of availability, contact our local representative.

FUJIFILM
Value from Innovation

FUJIFILM
Advanced Image Processing

FUJIFILM

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