

Low-dose, Full-body Health Check-ups

EOS® is a low-dose X-ray imaging system that provides high-quality, weight-bearing images thanks to the combination of a slot-scanning technology and simultaneous acquisition of frontal and lateral images. The full body or localized images can be used to create 3D reconstructions and over 100 highly accurate 3D parameters.

The Konan Kosei Hospital acquired the EOS system because of the ability to analyze global posture at a low dose. This made the EOS exam an integral part of their healthy check-up program which is designed to detect and treat spinal pathologies before they progress.



Figure 1: Konan Kosei Hospital

Introduction

Konan Kosei Hospital was founded in May 2008 by combining two, 70-year-old institutions: the Akihoku and the Showa Hospitals. Konan Kosei has approximately 1300 professionals on staff and 678 beds to serve the patients in the Northern Nagoya region of Central Japan.

Since its opening, the Konan Kosei Hospital has been offering a health check-up program authorized by the Japan Society of Health Check-ups that provides high-quality, preventative diagnostic exams to patients. In addition to the typical program, Konan Kosei provides additional exam options such as cranial, lung and breast cancer screenings.

After the EOS System was installed in March of 2017, Konan Kosei began to offer low-radiation health check-ups focusing on spine health. The fast, low-dose, full-body, biplanar system proved to be extremely useful for spine and full-body musculoskeletal screenings. The hospital considers EOS an optimal modality for skeletal examination as a full-body exam can be completed in 20 seconds and at a low dose of radiation.



Figure 2: EOS Exam Room

The Konan Kosei Hospital was recognized by the Japanese Association of Radiological Technologists for its constant commitment to reduce medical radiation.



CHRONIC BACK PAIN

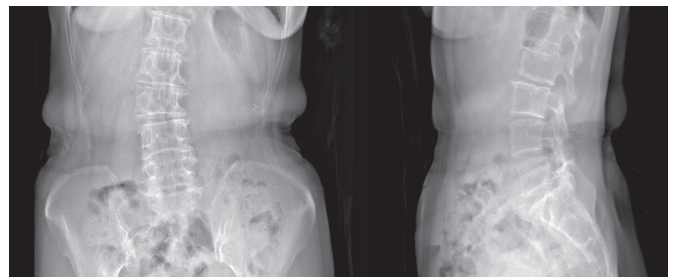


64 year-old female

Patient decided to have a spine check-up exam because she suffered from chronic back pain.

EOS examination revealed a 21° lumbar degenerative scoliosis as well as a L4 degenerative spondylolisthesis, and patient was referred to a spine specialist.

No lower-limb neurological symptoms were observed and the MRI did not show any signs of spinal canal stenosis. Patient was referred to an orthopaedic clinic for a conservative, non-operative treatment.



OSTEOPOROSIS



71 year-old female

Patient with mild back pain elected to have an EOS exam as part of her annual health examination. The results found a degenerative spondylolisthesis at L4 and biconcave appearance (fish vertebra) of several vertebral bodies. The patient was then referred to a spine specialist.

MRI showed no sign of spinal canal stenosis, however, bone density tests revealed a prominent decrease of bone mineral content. Patient was diagnosed with osteoporosis and began injection treatments.

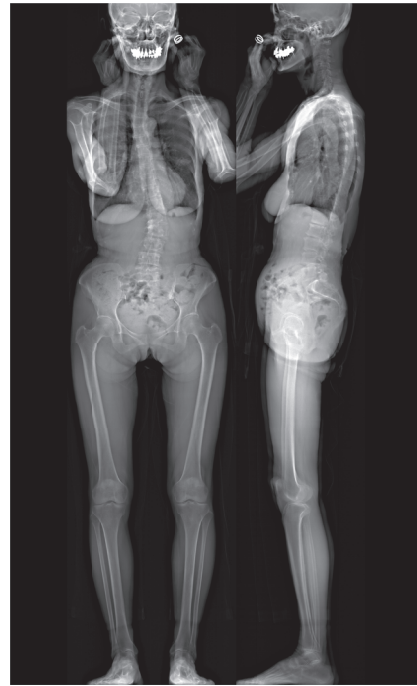
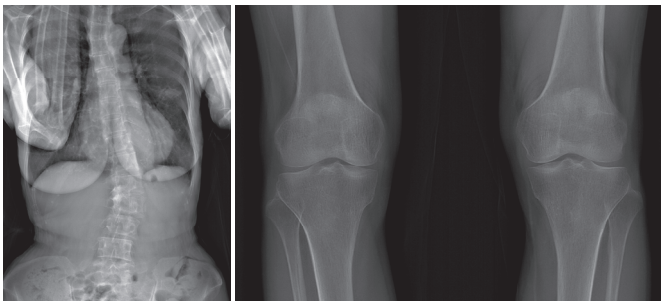


SCOLIOSIS AND ARTHRITIS

71 year-old female

Patient selected to have an EOS exam during her city annual health examination because of chronic back pain and bilateral knee pain.

EOS examination revealed a moderate degenerative scoliosis as well as bilateral knee osteoarthritis. Follow-up MRI showed no signs of spinal canal stenosis. Patient underwent a conservative treatment for her bilateral knee osteoarthritis during the follow-up, and symptoms decreased progressively.



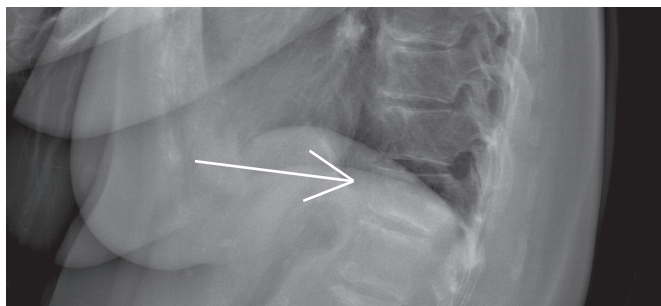
COMPRESSION FRACTURE

75 year-old female

Patient had an EOS exam during her city annual health examination though no symptoms were present.

Anamnestic signs of T12 compression fracture were observed thanks to the EOS images. As the patient did not experience a fall, nor complain of back pain, a compression fracture due to osteoporosis was diagnosed.

Bone density examination confirmed a slight loss in bone density to be treated by a prescription after being evaluated at an orthopedic clinic.





Health check-up with EOS

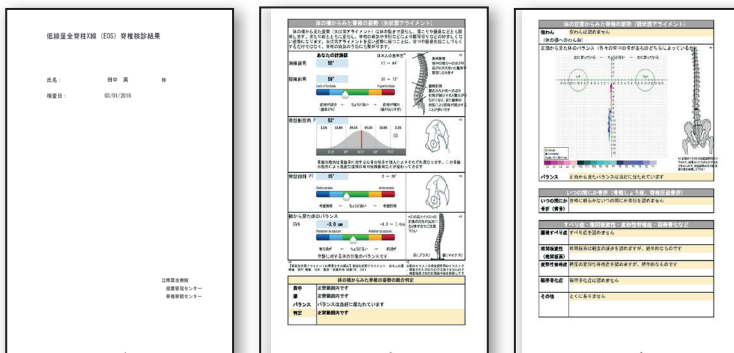
A spine health check-up includes the following items:

- EOS full-body frontal and lateral X-ray images
- sterEOS full spine 3D report
- sterEOS postural assessment report
- comments from a certified spine and spinal nerves specialist

Following the launch of their unique spine check-up program and distribution of the leaflet (figure 4), Konan Kosei Hospital already had more than 100 new patients during the first week alone.



Figure 4: EOS health check-up program leaflet (above)
EOS health check-up patient report (below)



Konan Kosei Hospital
Dr. Tokumi Kanemura,
Vice-Director and Spine
Centre Director

Why choose EOS?

Why did Konan Kosei Hospital choose EOS?

Not only spine surgeons, but also other orthopedic specialists, recognize the importance of a head-to-toe assessment of the skeletal condition and alignment. The possibility to perform this assessment with a low-dose acquisition provided by EOS is of great value for our patients and the entire orthopaedics department.

Do you use EOS for daily routine?

Yes. We use EOS extensively for the spine, but also for lower limb assessment as well as bone and joint conditions. Recently, the paediatric and obstetric and gynecology departments learned about low dose EOS exams and are investigating ways their patients can benefit as well.

How is EOS different from a conventional X-ray system?

EOS provides sharp images of the entire skeleton. In addition, it is possible to use EOS images to measure precise 3D parameters as they have no distortion nor magnification. Finally, as EOS examinations are low-dose, it is possible to monitor and follow patients more frequently without the risk of over-exposure.

What is the merit of using EOS for a health check-up?

The possibility of imaging the whole skeleton in one quick low-dose acquisition is the biggest advantage of EOS for health check-ups. In one 15-20 second scan, it is possible to get a lot of information for the assessment of conditions highly correlated with quality of life such as posture or spinal degenerative pathologies.

CONCLUSION

Sagittal alignment is an important factor in surgical outcomes and quality of life for patients with a spinal deformity or degenerative spine. Moreover, this assessment is taken into consideration, not only for spine patients, but also for diagnosing and treating a wide range of orthopedic conditions. Konan Kosei Hospital is pleased to offer its patients the ability to have a skeletal condition assessment, a spine evaluation and a lower limb alignment analysis in one efficient, low dose exam thanks to the EOS technology. The ability to offer patients more choices for preventative care makes the Konan Kosei Hospital a destination for health check-ups and the early detection of musculoskeletal diseases.