

Scaling images in OrthoView

X-ray image magnification

Think of the x-ray image produced of a bone, as the shadow cast by that bone onto the x-ray film or plate. It is then easy to understand that the further the bone is away from the plate, the larger the image of the bone becomes.

In orthopaedic imaging, the size of the patient, how they have been positioned and the thickness of the table or mattress, all dictate how far the bone or joint in question is from the plate, and therefore the magnification factor of the image.

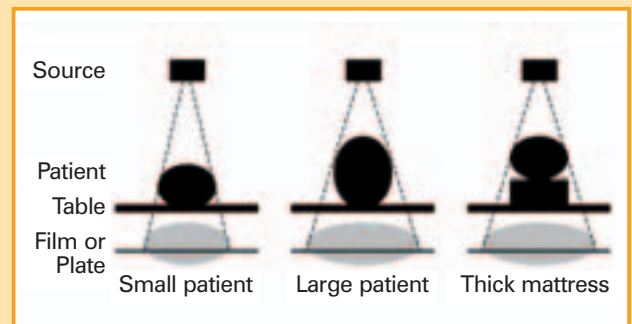
Templating and magnification

It is critical to take magnification into account when templating, to ensure that the size of the prosthesis matches the bone it is being implanted into.

When templating with x-ray film, the acetate templates supplied by the orthopaedic companies are produced at a standard magnification percentage. This percentage is based on the average magnification for the particular bone or joint.

Using OrthoView with digital x-ray images, it is possible to achieve greater accuracy when scaling the image. This is done by measuring an object of known size which has been placed on the patient at the vertical level of the bone or joint in question.

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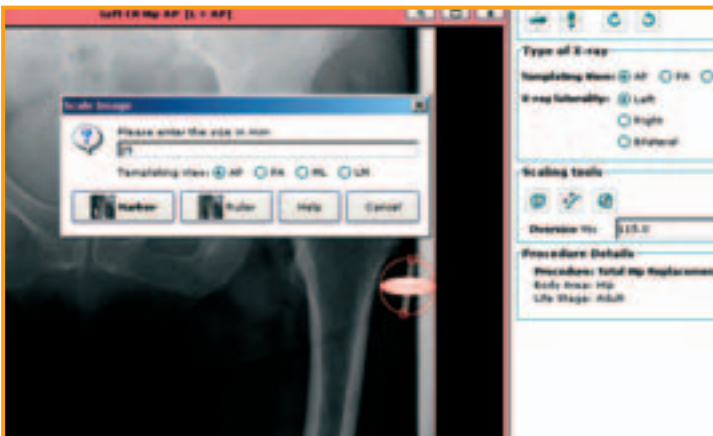
Scaling options with OrthoView

1. Scaling by estimated oversize



An estimated value to take account of magnification oversize can be entered. This is the equivalent of current practice, using acetates and film.

2. Scaling by marker



Measuring a radiographic marker which has been placed on the patient in the plane of the bone or joint in question is the most accurate way to scale the image. It is vital however, that the marker is positioned correctly and care should be taken to ensure that it is placed at the same distance from the film or plate as the bone or joint.

There are various markers available which use a sphere or a disc shaped object. Either of these shapes can be measured accurately using special tools within OrthoView. Assessment of different markers by the radiology department may be necessary to find the ideal solution.

Radiographic Markers

Xemarc*
www.xemarc.com



25mm spheres which can be attached to the patient using specially designed stickers. Stand version also available.

Akucal™ calibration stand*
www.j2medical.com



A suction base with a flexible, extending arm holding a 25mm sphere. Suitable for vertical and horizontal use.

HipScaler*
www.hipscaler.com



This transparent acrylic device uses 25mm discs at 4 set heights. Ideal for scaling pelvis, hip and femur. (Not available in the US)

* *OrthoView does not endorse any particular radiographic marker device. The examples illustrated here are all widely available. Please refer to websites for more information on how to place the markers.*