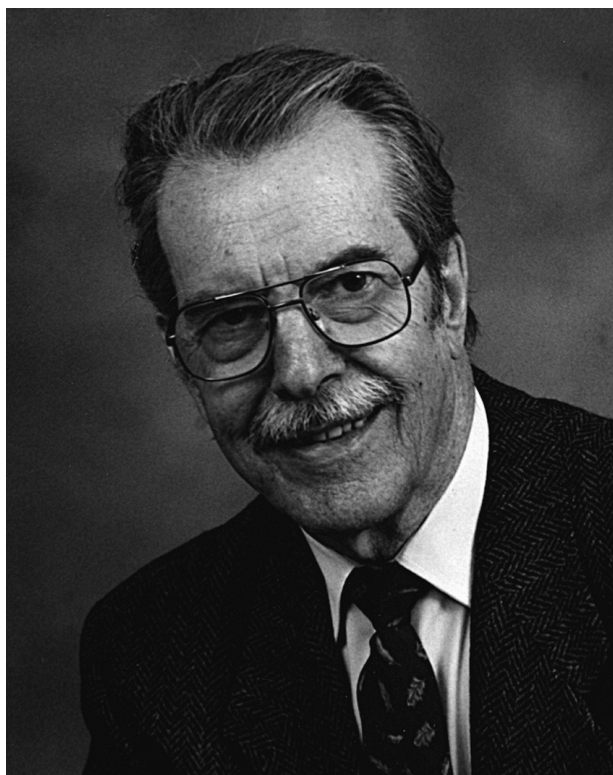


A need for the lateral full spine x-ray as a diagnostic complement to the A-P full spine view in chiropractic postural study



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A profession which specializes in spinal care and research might reasonably be expected, at some point, to strive for the expertise to image the lateral view of the entire spine as a single unit rather than in sections. This full-spine approach presents the best possible opportunity for its thorough postural evaluation, segment by segment, in an unbroken continuum from occiput to sacrum, such as is presently available with the A-P full-spine view. Since, in any spinal examination, the A-P view requires its lateral counterpart, it is logical that this lateral image should also depict the complete spine. Although needed diagnosti-

cally, just as much as those of the A-P view, images of the lateral full-spine seem at present to be out of favor, probably being considered impossible to produce, and therefore even the endeavor to do so is seen as less than legitimate. What is currently acceptable, because of its simplicity and ease of production, is the taking of the lateral cervical along with the lateral lumbar x-ray to complement the A-P full-spine. But they do not do that. The lateral thoracic, however needed, is still omitted, apparently considered dispensable, not because it is, but only because a procedure has not, till now, been found to produce the lateral full-spine image which would then include it.

So, what about the lateral full-spine view? While, in fact, I have been told that it is frowned upon, the fact is, it is still necessary. Why must we be expected to deprive ourselves of the value of its diagnostic potential, especially in dealing with postural problems, for no better reason than fear of a frown? I have pursued the development of this lateral (14 × 36) x-ray image, and by the use of specially designed and patented rare earth compensating filters have succeeded in its production. It is accomplished merely by overcoming with these filters, the technical problems caused by various differences in thickness and density of those parts of the anatomy traversed by the spine. The resulting lateral x-rays are now equal in quality to the A-P views, in both clarity and detail. Additional information that they provide, greatly enhances the diagnostic potential of the x-ray examination. It also gives maximum information with minimum exposure, and actually due to the unique filtration, just a fraction of the radiation exposure that is usually accepted as being inevitable by contemporary authorities.

Conversely, the segmented spinal images, commonly seen as a series of separate cervical, thoracic, lumbar or pelvic x-rays cannot, in reading them, enable the examiner to precisely relate one area of the spine to another, or to visualize it as the complete functional entity which it is.

Segmenting the whole spine into sectional x-rays will also require a vertebral overlapping at the border of each of the above spinal zones in order to get a semblance of spinal continuity. This results in both of the vertebrae at each zonal overlap being radiated twice, considerably increasing the total spinal radiation dosage. On the other hand, in viewing the spine as a unit, one can more critically evaluate its anatomical integrity and posture. One can also examine more precisely the minute variances in vertebral alignment at any point along its entire length. To omit even one disc of the whole spine in the x-ray examination may be to neglect an area much in need of attention.

When taking the lateral view of the spine, the x-ray exposure factors must first be set according to the requirements to penetrate the most dense part of the relevant anatomy, which in most cases is either the abdomen or pelvis, or both. The less dense areas are then partially shielded, according to their degree of radiolucency, with rare earth compensating filters. Usually one filter, with double the filtering capacity, is needed to shield the neck and head, then a single filter, covering the lung area from the diaphragm up to, but not including the shoulder, is put into place. This lateral full spine procedure delivers much less dosage to the patient than radiating three or four individual areas of the spine with as many separate exposures, as is common in conventional radiography.

A necessary consideration when taking the lateral full spine view is the x-ray beam itself. The rays that strike a particular intervertebral disc should, as much as possible, be parallel to its central axis so that it will appear on the x-ray image to be open, allowing more detailed viewing of the plates of the vertebral bodies adhered to it. Due to the height of the spinal column (standing position) and the required angle of the rays to accommodate the head, shoulders and pelvis it is necessary, in the interest of perspective

control, to use a long focal film distance, preferably one of approximately 90 inches. The spine should curve laterally with the head tilting toward the x-ray tube, the shoulder on that side inferior and anterior, and the arm elevated above the shoulder height anteriorly, in order to be out of the path of the x-ray beam. The knee on the opposite side must bend to allow a lowering of that hip. This maneuver allows the lower rays of the beam to penetrate each hip joint at its same anatomical points, appearing on the x-ray image as one femur head super-imposed on the other. The shoulder on the same side as the low hip is elevated posteriorly with the arm in a posterior position out of the range of the x-ray beam. The other shoulder being lowered anteriorly allows both scapulae to be seen on the x-ray film as being at the same level and one on each side of the spine, allowing the spine to be observed more clearly, and positioned in the space between them. The arc so formed by the spine will be concave on the side nearer the x-ray tube. Theoretically, a plane line through the centre of each disc should point directly to the x-ray source. Ideally, the same ray from the tube head should pass through identical points on similar structures (except the scapulae – swimmer's position) on each side of the head, spine and pelvis.

While this paper was not originally written for publication, it is written for serious consideration because it shows a way to produce x-rays with greatly reduced radiation. It also describes how to obtain lateral full-spine x-rays which have been of considerable diagnostic benefit in this writer's practice. Since it is true that established methods are solidly entrenched in current routines, this paper is not asking for change, but for what it is worth to open minds, it is discussing a way which works well for chiropractic spinal analytical work. If accepted and used it will greatly reduce radiation to the patient and give added effective diagnostic tools to the chiropractor.