

# POSITION PAPER ON THE FULL SPINE RADIOGRAPH

The utility and effectiveness of the 14 x 36 radiograph has been well documented in chiropractic literature. It definitely has a place in the study of spinal curvature and many types of subluxation patterns. It has long been utilized by the chiropractic profession in evaluation of the spinal column. The Chiropractic College of Radiologists (Canada) Inc. has, in the past, and will continue in the future, to emphasize that 14 x 36 radiographs be performed only in the safe and necessary circumstances utilizing good clinical judgement in their administration. Adherence to Federal and Provincial regulations on the use of ionizing radiation are urged in the production of this radiograph as they are in any other procedure utilizing x-ray. The College stands ready to disseminate educational material on the safest procedure for the patient and the environment in producing this x-ray examination and will continue to educate the chiropractic profession in sound radiographic procedure.

The 14 x 36 radiograph represents a necessity and an effectiveness to the chiropractic profession in evaluating the spinal column. The College, as always, stresses the adherence to safe and necessary procedure.

## Guidelines for Full Spine Radiography

Adopted by The Chiropractic College of Radiologists (Canada) Inc. - June 1978, Revised June: 1989, 1992

Conventional radiographic spinal studies are a useful and often necessary part of the clinical examination and patient workup performed by a chiropractor. A single exposure A/P spinal radiograph with related views is desirable in assessing interdependent spinal disrelationships, scoliosis and multiple site symptom complexes.

Altered vertebral motion segment dynamics and spinal dysfunction may cause neurologic disturbances and eventual joint degeneration. Such morphological changes in the joint may lead to further biomechanical dysfunction, neurological disturbances, locomotor dysfunction, various syndromes and symptom complexes. Prior to the application of the appropriate spinal manipulation, it is necessary to formulate a working diagnosis based upon an in-depth appreciation of spinal statics and dynamics.

A single exposure full spine radiograph, in conjunction with local views, may be more useful than multiple sectional spinal radiographic studies in evaluating interdependent mechanical lesions, multiple presenting symptoms and scoliosis. The single exposure A/P spinal radiograph, along with the appropriate secondary views may reduce patient radiation exposure, when compared to sectional spinal radiography.

### **MINIMUM EQUIPMENT STANDARDS**

An x-ray generator capable of producing a minimum of 100 KVP at 200 MA with full wave

rectification and a rotating anode type tube (125 KV at 300 MA) is recommended. The intensifying screens must be either High speed or Ultra high speed (Rare Earth). The bucky should have a minimum of 60 lines to the inch. The minimum grid ratio should be 8:1, 10:1 grid is more appropriate for KV at 100.

#### **MINIMUM TECHNIQUE STANDARDS**

Accepted dark room procedures are to be followed.

The focal film distance should be a minimum of 72" (159 cm) and ideally should be 84" (210 cm).

Fixed, in-beam filtration must be a minimum of 2.5 mm. A1. equivalent, ideally 4-6 mm.

In-beam compensating filters must be used to reduce the amount of radiation that is received by the thinner body parts.

A properly centered and focused square-leaf collimator with light defining beam must be employed. Collimation must be used to exclude the eyes, and should not be any wider than is necessary. Ideally it should be no wider than the mamillary line, and should include not more than the lateral margins of the acetabuli.

Suitable gonadal shields should be employed whenever possible in children and in adults who have reproductive potential.

Radiosensitive tissues in or within 5 cm of the primary beam should be shielded when not compromising the study.

Radiographic factors consistent with minimum patient exposure should be employed (optimum KV, low MAS).

Foreign objects, (hairpins, earrings, false teeth, etc.) produce unacceptable artifacts and should be removed before the exposure is made.

#### **THE FULL SPINE FILM STUDY RECOMMENDED SERIES:**

A/P Full Spine, Neutral Laterals (Cervical, Thoracic and Lumbar).

#### **Indications:**

##### **0 - 10 Years**

With this age group, the overall justification is considered low. However, in developing or idiopathic scoliosis, developmental or congenital defects producing aberrant spinal curvatures, marked locomotor disturbances of the spine and pelvis, the justification may be high.

##### **10 - 18 Years**

Marked spinal pelvic locomotor defects, idiopathic or developmental scoliosis, marked inter-related spinal lesions or developmental defects are the criteria for justification. The justification is decreased without these criteria.

##### **18 - 40 Years**

The frequent incidence of inter-related biomechanical spinal/pelvic lesions, multiple symptom complexes, and altered spinal curvatures results in an increased justification. Due consideration must be given to females of reproductive capability.

##### **40 +**

Multiple site spinal articular degenerative states, multiple site symptom complexes related to the spine and pelvis, altered vertebral motion segment dynamics, inter-related mechanical lesions and spinal curvatures are indications for a higher justification and usefulness.

#### **CONTRA-INDICATIONS**

Pregnancy or possible pregnancy: There are few conditions that would warrant the use of spinal irradiation during the early months of pregnancy. To avoid irradiation of early pregnancy, elective radiographic examinations should not be done in the second half of the menstrual cycle of women who are capable of reproduction.

Obesity: Body type and/or size precludes good radiographic resolution.

Infants: Spinal radiograph is usually not justified in infants and small children due to the high radiosensitivity of many body tissues. The indication is also low because of the juvenile appearance of the ossification centers in the spine.

Radiation Exposure: In patients who have recently been exposed to high radiation doses, therapeutic or occupational.

In patients who, because of their physical state, cannot be properly immobilized or positioned for good radiographic detail.

### **SPLIT SCREENS**

The Chiropractic College of Radiologists (Canada) Inc. opposes the use of any device, such as split-screen or graded screen techniques used in the production of a 14 x 36 radiograph, which may improve the quality of the radiograph but does not reduce radiation to the patient. Because of the inherent difficulties in obtaining a lateral full spine single exposure of good quality, sectional lateral spinal studies are preferable.

The C.C.R. recommends and encourages all chiropractors to employ optimal screen-film combinations and filtering devices, such as variable compensation wedge, where it is considered to be within good clinical judgement.