



# **Positioning and technique handbook for radiologic technologists**

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*with 218 illustrations*

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**Positioning and technique handbook for  
radiologic technologists**

*To all*

**Student Radiologic Technologists**

# Preface

Technical procedures and equipment in radiology are subject to seemingly constant change. Not only students but also accomplished technologists and residents in radiology rely on a variety of resources. Basic textbooks serve to introduce the essential knowledge required for quality performance, but more definitive reference works must be accessible to provide the detailed information that exceeds the purpose of the textbook. Professional journals are an excellent source for current knowledge of the most recent developments in radiologic science and practice. All of these sources have an important function to contribute in the quest for safe and competent practice. Besides these resources, it is often advantageous to have a handy pocket positioning manual to serve as a reminder of critical information, especially for students in clinical training situations and for technologists anticipating procedures not frequently encountered.

By providing a structured format and illustrations of positions and radiographs derived from those positions, this handbook goes beyond the notebooks that students frequently prepare for themselves. Under no circumstances should this book be considered an alternative to the comprehensive positioning atlases; it is intended to complement them. Portability and compactness being primary considerations, it was necessary to limit coverage of positioning procedures to those most frequently employed in general diagnostic situations.

This handbook should encourage the technologist to record data that will be advantageous for future reference. In this way, it becomes a very personal reference. At the same time, the technologist should continually compare his or her own specific performance information regarding any procedure with the authoritative sources previously mentioned.

This book has been designed for convenient use in the clinical setting. Should the reader desire to use only portions of the volume or to add notebook pages, it has been perforated and punched. After removal from the binding, these pages can be inserted in any standard  $5\frac{1}{2} \times 8\frac{1}{2}$  inch three-ring binder using rings of  $1\frac{1}{8}$  inch.

It is of the utmost importance that the following precautions and assumptions be noted:

Radiation safety procedures should be implemented to protect both the technologist and the patient.

State and federal sanitary codes should be followed as directed by the local health department.

Gonadal shielding is to be used whenever possible. For official reference pertaining to gonadal shielding use U.S. Department of Health, Education, and Welfare booklet (FDA) 74-8028, available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C.

All relevant portions of the patient's body should be adequately immobilized to eliminate motion whenever possible.

The following assumptions should be kept in mind when this book is used:

Positioning described demonstrates the ideal patient situation. Because of limitations of space, not all immobilization procedures are included.

The system used is selected to give the best possible resolution with minimum exposure to the patient and technologist.

Collimation and coning are utilized on all views to minimize secondary radiation and to enhance the image.

Anatomical parts being radiographed above the diaphragm are exposed with the patient holding the breath on inspiration and those below the diaphragm with the patient holding the breath on expiration.

Departmental discretion must be employed on the following:

The particular grid ratios, intensifying screens, and cassettes to be used for the examination, although fast-film screen combinations are recommended to reduce patient exposure.

The method of patient preparation.

The choice of contrast medium and film supplier.

This handbook would not have been written without the encouragement and inspiration of colleagues, students, and friends. We are grateful to the administrators of the

Department of Radiology, Upstate Medical Center, Syracuse, New York, for their encouragement and permission to use the facilities of their department.

We would like to thank Mary Kay Ralston, Marcia Costello, and the other models for their patience and understanding even when photographic difficulties were encountered.

Many thanks to Mrs. Debra Porpiglio, our typist, manuscript reader, and good humor lady, for all of her patience.

**Sylvester B. Conte**  
**Douglas H. Kemme**



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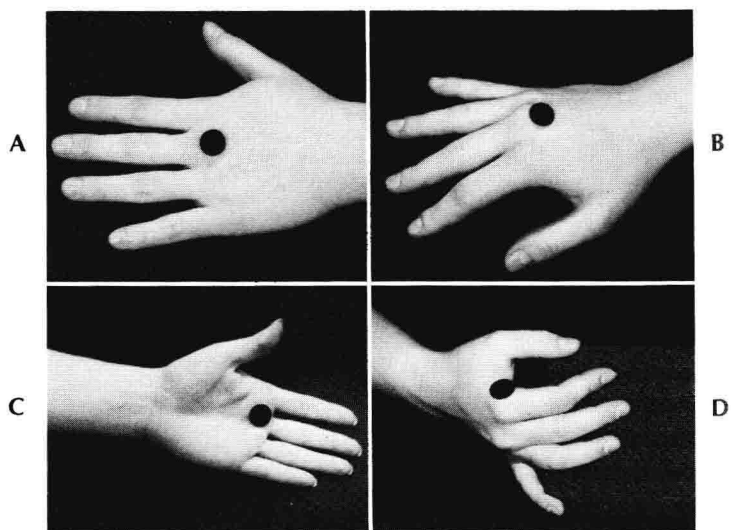
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**POSITIONING OF**

# **Upper extremity**



Hand. **A**, PA; **B**, internal oblique; **C**, external oblique; **D**, lateral.

**HAND**

**Views:** PA, internal oblique, external oblique, and lateral

**Positioning:** *The central ray is directed to the third metacarpophalangeal joint.*

**PA.** The hand is placed with the palmar surface flat on the cassette and the fingers slightly spread.

**INTERNAL OBLIQUE.** The hand is placed in PA position with the fingers slightly flexed and relaxed.

**EXTERNAL OBLIQUE.** The hand is placed with the palmar surface up. The posterior portion of the hand should make a 45 degree angle with the film.

**LATERAL.** The wrist and palmar surface should be at a 90 degree angle to the film, the fingers slightly flexed to separate each finger from the others.

**Anatomy best shown:** Carpals, phalanges, metacarpals, distal radius, and ulna

**Procedure best done for:** Fractures, dislocations, foreign bodies, arthritis, neoplasms, bone age, and infections

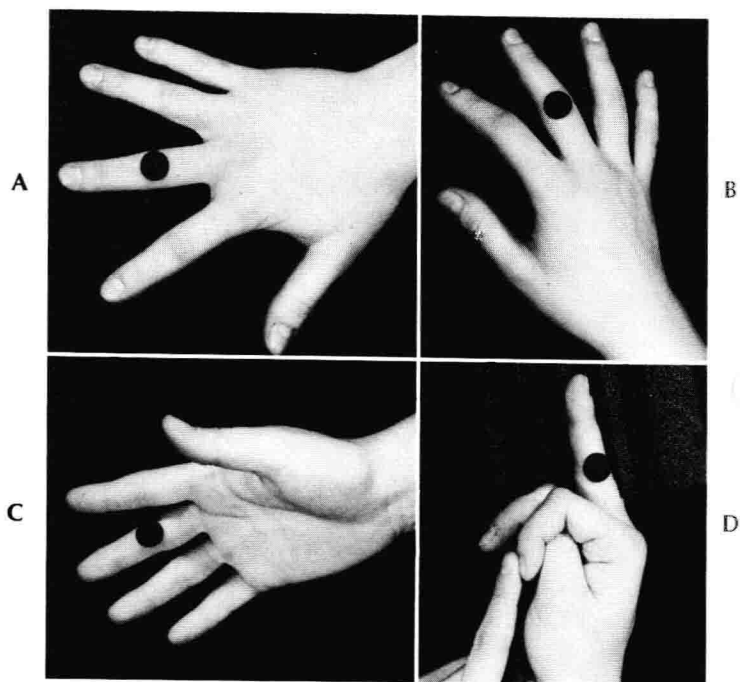
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**Technologist's personal notes**
*Photo timing*

FFD	_____	Tube angle	_____	Ma	_____
MAS	_____	Grid	_____	Fields	_____
Kvp	_____	Screens	_____	Density	_____
Focal spot	_____	CH	_____	Kvp	_____

Notes:

Portable notes and technique:



Finger. **A**, PA; **B**, internal oblique; **C**, external oblique; **D**, lateral.

**FINGERS** (second to fifth)

**Views:** PA, internal oblique, external oblique, and lateral

**Positioning:** *The central ray on all views is directed to the proximal interphalangeal joint.*

**PA.** The hand is placed flat on the cassette.

**INTERNAL OBLIQUE.** The hand is placed on the cassette in its natural arched position with the palm down.

**EXTERNAL OBLIQUE.** The hand is externally rotated so that the dorsal aspect of the hand makes a 45 degree angle with the cassette.

**LATERAL.** The finger being examined is extended, and the other fingers are held in a clenched fist position. The finger being examined should be positioned so that it is as close to the film as it can be.

**Anatomy best shown:** Phalanges and metacarpophalangeal joint

**Procedure best done for:** Fractures, foreign bodies, neoplasms, and dislocations

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**Technologist's personal notes**

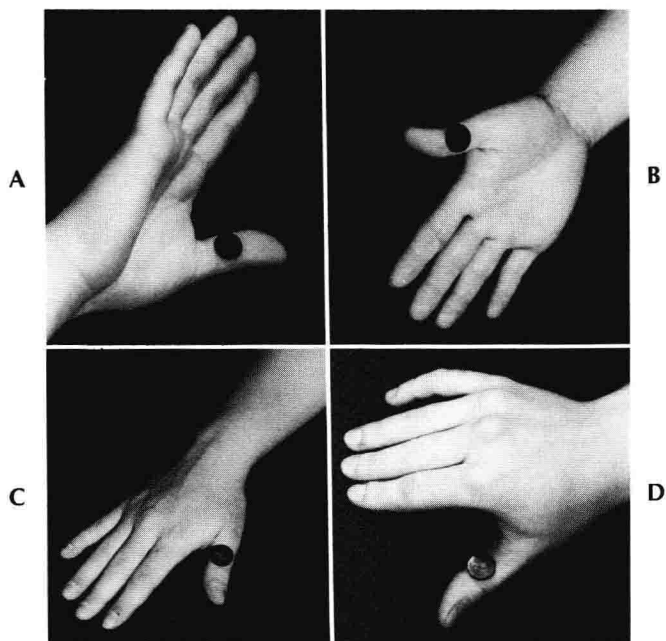
*Photo timing*

FFD	_____	Tube angle	_____	Ma	_____
MAS	_____	Grid	_____	Fields	_____
Kvp	_____	Screens	_____	Density	_____
Focal spot	_____	CH	_____	Kvp	_____

Notes:

Portable notes and technique:





Thumb. **A**, AP; **B**, lateral; **C**, internal oblique; **D**, external oblique.