

KING SAUD UNIVERSITY COLLEGE OF DENTISTRY



CLINICAL HANDBOOK

DEPARTMENT OF PERIODONTICS AND COMMUNITY DENTISTRY

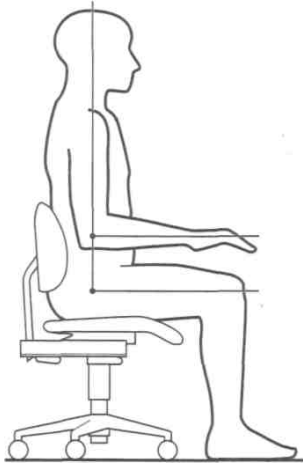
313 PCS - CLINICAL PERIODONTOLOGY I

Principles of Periodontal Instrumentation 1. Dental Operator and Chair Position

Neutral Position for the Clinician

Research indicates that over 80 percent of dental hygienists complain of pain in the upper body and back. This musculoskeletal pain often is the direct result of body positioning and movements made by dental healthcare professionals in their daily work.

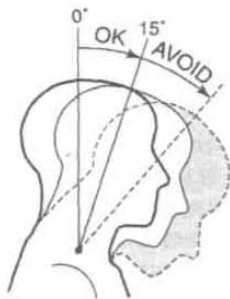
Neutral position is the ideal positioning of the body while performing work activities and is associated with decreased risk of musculoskeletal injury. It is generally believed that the more a joint deviates from the neutral position, the greater the risk of injury.



Neutral Seated Position

1. Forearms parallel to the floor.
2. Weight evenly balanced.
3. Thighs parallel to the floor.
4. Hip angle of 90°.
5. Seat height positioned low enough so that you are able to rest the heels of your feet on the floor.
6. When working from clock positions 9-12:00 (or 12-3:00), spread feet apart so that your legs and the chair base form a tripod, somewhat like the legs of a three-legged stool. This tripod formation creates a very stable position from which to work.

AVOID positioning your legs under the back of the patient chair. In this position the patient chair will be too high and you will need to raise your upper arms to reach the patient's mouth



Neutral Neck Position

- Head tilt of 0° to 15°
- The line from your eyes to the treatment area should be as near to vertical as possible

AVOID:

- Head tipped too far forward
- Head tilted to one side

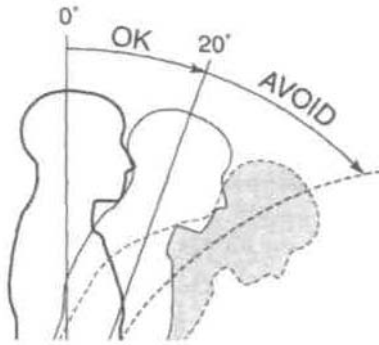


Neutral Shoulder Position

- Shoulders in horizontal line
- Weight evenly balanced when seated

AVOID:

- Shoulders lifted up toward ears
- Shoulders hunched forward
- Sitting with weight on one hip



Neutral Back Position

- Leaning forward slightly from the waist or hips
- Trunk flexion of 0° to 20°

AVOID:

- Over flexion of the spine (curved back)

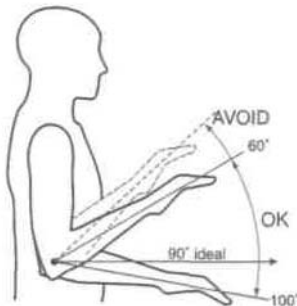


Neutral Upper Arm Position

- Upper arms hang in a vertical line parallel to long axis of torso
- Elbows at waist level held slightly away from body

AVOID:

- Greater than 20° of abduction of elbows away from the body
- Elbows held above waist level

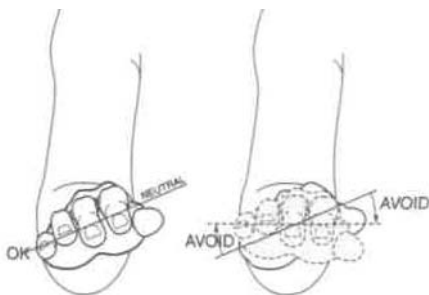


Neutral Forearm Position

- Held parallel to the floor
- Raised or lowered, if necessary, by pivoting at the elbow joint

AVOID:

- Angle between forearm and upper arm of less than 60°



Neutral Hand Position

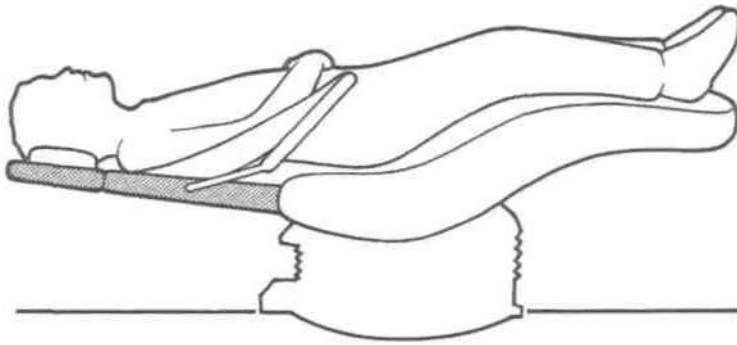
- Little finger-side of palm is slightly lower than thumb-side of palm
- Wrist aligned with forearm

AVOID:

- Thumb-side of palm rotated down so that palm is parallel to floor
- Hand and wrist bent up or down

Patient Position - Supine Patient Position

Supine position—the position of the patient during dental treatment, with the patient lying on his or her back in a horizontal position and the chair back nearly parallel to the floor.



The Supine Patient Position

Recommended Position

Body - The patient's heels should be slightly higher than the tip of his or her nose. This position maintains good blood flow to the head. An apprehensive patient is more likely to faint if positioned with the head **higher** than the heels.

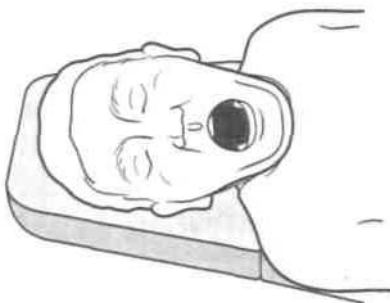
The chair back should be nearly parallel to the floor for maxillary treatment areas. The chair back may be raised slightly for mandibular treatment areas.

Head The top of the patient's head should be even with the upper edge of the headrest. If necessary, ask the patient to slide up in the chair to assume this position.

Headrest - If the headrest is adjustable, raise or lower it so that the patient's neck and head are aligned with the torso.

Patient Head Positions

The patient's head position is an important factor in determining whether the clinician can see and access the teeth in a treatment area. Unfortunately, many clinicians ignore this important aspect of patient positioning. A clinician may contort his or her body into an uncomfortable position instead of asking the patient to change head positions. Working in this manner not only causes stress on the clinician's musculoskeletal system, but also makes it difficult to see the treatment area. Remember that the patient is only in the chair for a limited period of time while the clinician spends hours at chairside day after day.



The patient should be asked to adjust his head position to provide the clinician with the best view of the treatment area.

Basic patient head positioning Recommended Position

Position on headrest

For you to be able to see and reach the patient's mouth comfortably the top of the patient's head must be even with the end of the headrest.

Mandibular areas

Ask your patient to open the mouth and tilt the head downward. The term for this patient head position is the *chin-down* position.

Maxillary areas Ask your patient to open the mouth and position the head in a neutral position. The term for this patient head position is the *chin-up* position.

Clinician Stool and Patient Chair The Adjustable Clinician Chair

Ergonomics is the science of adjusting the design of tools, equipment, tasks, and environments for safe, comfortable and effective human use. Manufacturers of dental equipment are constantly working to design seating for clinicians that is more ergonomic in design. Blood circulation to your legs, thighs, and feet is maintained by adjusting the stool to a proper height. Minimize stress on your spine by moving the chair back closer or farther away from the seat so that your upper arms and torso are aligned with the long axis of your body. Each individual who uses the chair should readjust it to fit his or her own body. A chair that is adjusted correctly for another person may be uncomfortable for you. Just as each driver of the family car must change the position of the driver's seat and mirrors, you should adjust the stool height and seat back to conform to your own body proportions and height.

The chair should have the following design characteristics :

1. Legs—five legs for stability; casters for easy movement
2. Height
 - Should allow clinician to sit with thighs parallel to the floor. A seat height range of 14 to 20 inches will accommodate both tall and short clinicians.
 - Should be easily adjustable from a seated position.
3. Seat
 - Fabric that breathes (ex: cloth rather than vinyl).
 - Front edge of seat should have a waterfall shape (rounded front edge).
 - Should not be too heavily padded; thick padding requires constant minor readjustments in order to maintain balance.
 - When seated with the back against the backrest, the seat length should not impinge on the back of the clinician's knees. A seat length of 15 to 16 inches will fit most clinicians.
4. Backrest
 - Should be adjustable in both vertical and horizontal directions so that it can be positioned to touch the lumbar region of the back when comfortably seated.
 - Angle between the seat and the chair back should be between 85- and 100-degrees.

Patient Position Relative to the Clinician

Once comfortably seated, several other factors influence the clinician's ability to maintain correct neutral positioning. While working, the clinician must be able to gain access to the patient's mouth and the dental unit without bending, stretching, or holding his or her elbows above waist level. To maintain neutral position, the patient and the dental unit must be positioned correctly in relation to the clinician.



Establishing neutral position:

1. First, adjust the height of the clinician chair to establish a hip angle of 90° .
2. Next, lower the patient chair until the tip of the patient's nose is below waist level. Your elbow angle should be at 90° when your fingers are touching the teeth in the treatment area.

An Easy Technique for Establishing Neutral Position in Relation to the Patient

The most common ergonomic hazard during instrumentation is positioning the patient too high in relation to the clinician.



Determining the proper placement of the patient.

Sit alongside of the patient with your arms against your sides and crossed at your waist. The patient's open mouth should be *below* the point of your elbow.

With the patient in this position, the clinician will be able to reach the mouth without placing stress on the muscles of her shoulders or arms.

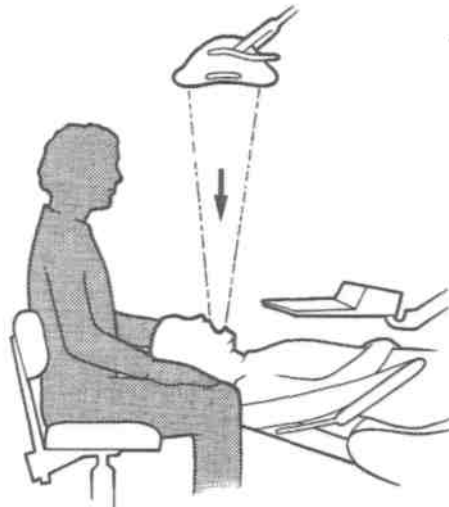
Summary Sheet: Relationship to Patient and Dental Unit

Description

Clinician chair	Your thighs should be parallel to the floor and you should be able to rest your heels on the floor. When working from clock positions 9-12:00 (or 12-3:00), your legs and the stool base should form a tripod, somewhat like the legs of a three-legged stool. This tripod formation creates a very stable position from which to work.
Height of patient chair	TEST FOR PROPER NEUTRAL POSITION: Fold your arms across your waist. The tip of the patient's nose should be lower than your elbows.
Clinician's body position	You should not have to raise your elbows above waist level when working in the patient's mouth. Your <i>lower arms</i> should be in a horizontal position or raised slightly so that the angle formed between your lower and upper arms is slightly less than 90 degrees. In this position, your muscles are well positioned to control fine wrist and finger movements. Your shoulders should be level and should not be hunched up toward your ears.
Bracket table	Position it slightly above the patient's body. The lower the tray level, the easier it will be for you to see the periodontal instruments resting on it.
Dental light	Position the light as far away from the patient's face as possible while still keeping it within easy reach.

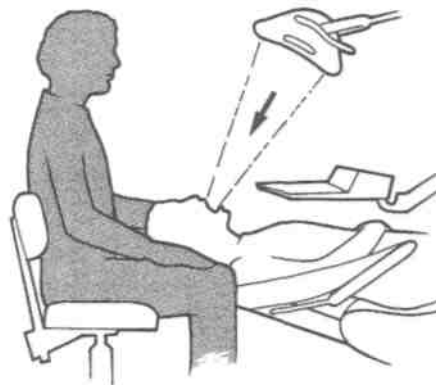
Dental Light Position

Mandibular Treatment Areas



For the mandibular treatment areas, position the dental light directly above the patient's head, so that the light beam shines directly down into the patient's mouth. Remember to keep the light at arm's length.

Maxillary Treatment Areas

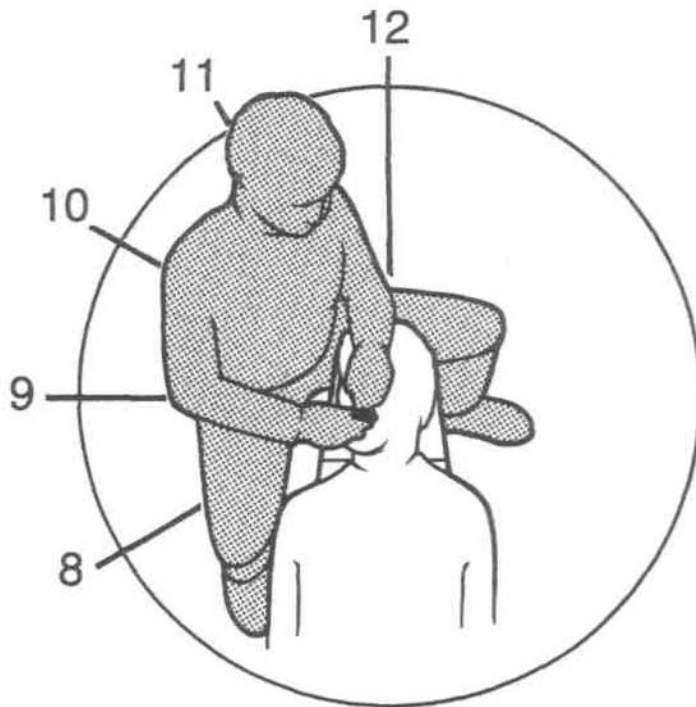


Position the dental light above the patient's chest area for maxillary treatment areas. Tilt the dental light so the light beam shines into the patient's mouth at an angle. Remember to keep the light at arm's length.

Dental Clinicians Chair Positions – (Clock Positions)

Instrumentation of the various treatment areas may be accomplished from one of four basic clinician positions. The four basic clinician positions are usually identified in relation to a 12-hour clock face:

1. the 8 o'clock position, to the front of the patient's head,
2. the 9 o'clock position, to the side of the patient's head,
3. the 10 to 11 o'clock position, to the back of the patient's head, or
4. the 12 o'clock position, directly behind the patient's head.



The 8 o'clock Position (Front Position)



- Sit facing the patient with your hips in line with the patient's elbows.
- To reach the patient's mouth, hold your arms slightly away from your sides. Hold your lower right arm over the patient's chest. The side of your left hand rests in the area of the patient's right cheekbone and upper lip. NOTE: Do not rest your arm on the patient's head or chest.
- Your line of vision is straight ahead, into the patient's mouth.

The 9 o'clock Position (Side Position)



- Sit facing the side of the patient's head. The midline of your torso is even with the patient's mouth.
- To reach the patient's mouth, hold the lower half of your right arm in approximate alignment with the patient's shoulder. Hold your left hand and wrist over the region of patient's right eye.
- Your line of vision is straight down into the mouth.

The 10 to 11 o'clock Position (Back Position)



- Sit at the top right corner of the headrest; the midline of your torso is even with the temple region of the patient's head.
- To reach the patient's mouth, hold your right hand directly across the corner of the patient's mouth. Hold your left hand and wrist above the patient's nose and forehead.
- Your line of vision is straight down into the mouth.

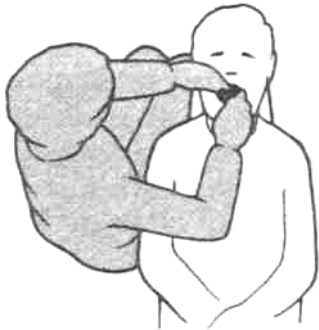
The 12 o'clock Position (Directly behind Patient)



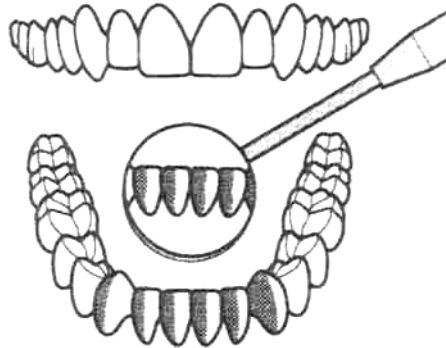
- Sit directly behind the patient's head.
- To reach the patient's mouth, hold your wrists and hands above the region of the patient's ears and cheeks.
- Your line of vision is straight down into the patient's mouth.

Positioning for the Anterior Sextants

Anterior Surfaces toward the Clinician



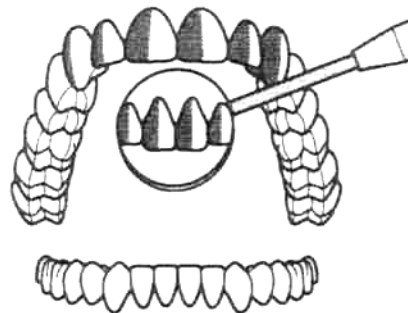
8 to 9 o'clock position



1. Head turned slightly toward the clinician
2. Chin-down position

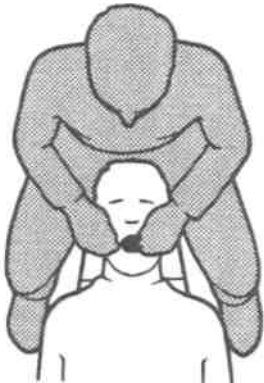


8 to 9 o'clock position

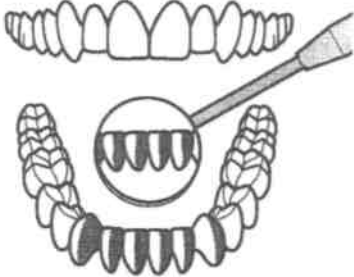


1. Head turned slightly toward the clinician
2. Chin-up position

Anterior Surfaces Away From the Clinician



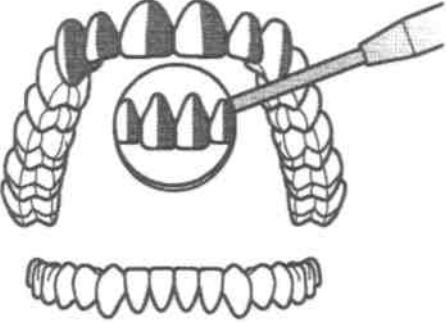
12 o'clock position



- 1. Head turned slightly toward the clinician
- 2. Chin-down position



12 o'clock position



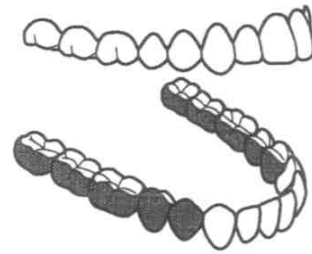
- 1. Head turned slightly toward the clinician
- 2. Chin-up position

Positioning for the Posterior Sextants

Posterior aspects toward the Clinician



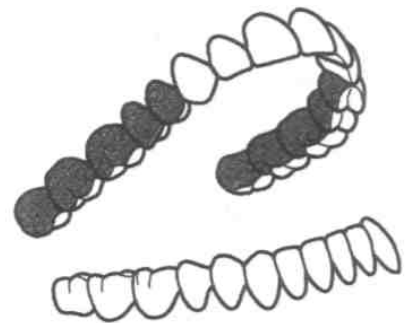
9 o'clock position



1. Head turned slightly away from the clinician
2. Chin-down position

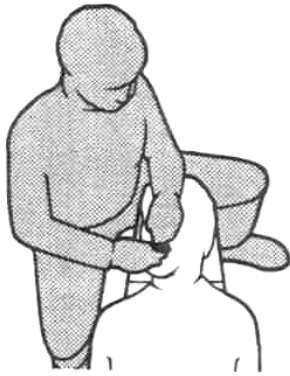


9 o'clock position

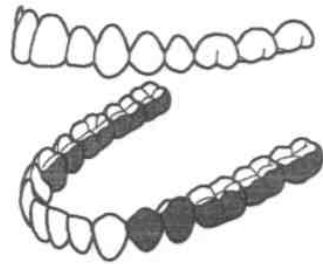


- Head turned slightly the
- away from clinician
- Chin-up position

Posterior Aspects Away From the Clinician



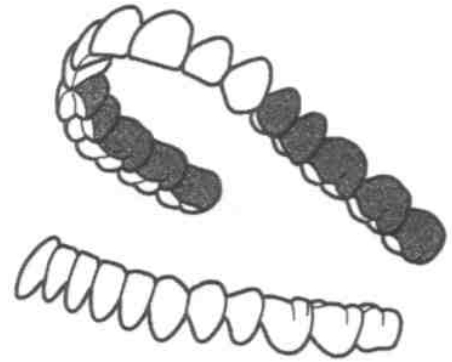
10 to 11 o'clock position



1. Head turned toward the clinician
2. Chin-down position



10 to 11 o'clock position



1. Head turned toward the clinician
2. Chin-up position

Reference Sheet: Positioning for the RIGHT-Handed Clinician

Positioning Summary		
Treatment Area	Clock Position	Patient Head Position
Anterior surfaces, toward Mandibular arch	8 - 9:00	Slightly toward Chin-down
Anterior surfaces, toward Maxillary arch	8 - 9:00	Slightly toward Chin-up
Anterior surfaces, away Mandibular arch	12:00	Slightly toward Chin-down
Anterior surfaces, away Maxillary arch	12:00	Slightly toward Chin-up
Posterior aspects, toward Mandibular arch (right facial and left lingual)	9:00	Slightly away Chin-down
Posterior aspects, toward Maxillary arch (right facial and left lingual)	9:00	Slightly away Chin-up
Posterior aspects, away Mandibular arch (right lingual and left facial)	10-11:00	Toward Chin-down
Posterior aspects, away Maxillary arch (right lingual and left facial)	10-11:00	Toward Chin-up

Reference:

Nield-Gehrig JS. Fundamentals of Periodontal Instrumentation – Fourth Edition 200
Lippincott Williams and Wilkins, Philadelphia.