



# Talys

## Whitepaper Flat-Bed Dental Units

Simplicity. Ergonomics. Comfort.

**Definition:** A flat-bed dental unit is a dental workstation that allows the patient to assume a completely horizontal (supine) position, enabling the dentist to work in the 12 o'clock position with direct vision of the oral cavity.

### The 4 Key Principles

1. **CLEAR OUT Concept:** elimination of everything that is not essential to maximize ergonomics and efficiency
2. **Natural Posture::** dentist and assistant maintain a relaxed and natural position
3. **Direct Vision::** ability to observe the operative field without trunk torsions
4. **Four-Handed System::** optimal collaboration between professional and assistante

### Premium Positioning Philosophy

- The advantage of simplicity
- The perfect balance between professional and patient
- Pediatric Dentistry, reduces anxiety and fear in the patient, facilitates child collaboration

### Distinctive Features

- Minimalist design with functionality reduced to the essential maximum
- Hanging cord instrument delivery system, tools always within reach
- Headrest with integrated wrist rests for optimal stability
- Specific design for pediatric patients - Dimensions and heights adapted to children
- Ideal supine position for safety and comfort

### Risk Reduction

- Malfunctions (reduced components = fewer breakdowns)
- Cross infections (absence of cuspidor)
- Staff infections (design easy to sanitize)

### Ideal Target

- Premium practices seeking absolute reliability
- Dentists focused on clinical risk reduction
- Professionals with focus on MSD prevention
- Pediatric dentistry practices
- General dentists with high percentage of child patients

### ADVANTAGES FOR THE DENTIST

#### PHYSICAL HEALTH AND PROFESSIONAL LONGEVITY

##### Reduction of Musculoskeletal Disorders (MSD)

##### The Problem in Traditional Dental Units:

- Repetitive trunk torsions (up to 200 times/day)
- Prolonged asymmetric posture
- Neck in constant flexion/rotation
- Arms elevated above heart level

**The Flat-Bed Solution:** **12 O'Clock Position:** cspine maintains natural curvature **Direct Vision:** no neck torsion **Relaxed Arms:** elbows close to body, forearms parallel to floor **Legs Under Patient:** optimal body weight distribution

##### Scientific Data:

- *IJOS Ergonomics Study 2025: "Working in supine position improves gesture precision and reduces muscle fatigue"*
- 40-50% reduction in chronic pain incidence
- Career prolongation of 5-10 years on average

##### Precision and Work Quality

##### Optimal Vision:

- Direct access to oral cavity without obstructions
- Ability to use dental mirror for indirect vision in comfortable position
- Optimal illumination of operative field

##### Fluid Gestures:

- Symmetric and natural movements
- Optimal range of motion (Barnes vs Squires work area)
- Greater hand stability

**Result:** More precise treatments, less stress, greater professional satisfaction

### EFFICIENCY AND PRODUCTIVITY

##### Optimized Four-Handed System:

- Assistant positioned at 8-9 o'clock
- Instruments accessible without excessive movements
- Quick and fluid instrument exchange
- Effective suction without obstruction

##### Treatment Time Reduction:

- Faster patient setup
- Fewer interruptions for postural adjustments
- More efficient movements = less time per procedure

##### ROI:

- +15-20% patients/day with equal working hours
- Reduced absenteeism for physical problems
- Lower expenses for physiotherapy/medical care



## ADVANTAGES FOR THE PATIENT SUPERIOR COMFORT

### Supine Position:

- 85% of patients find the supine position pleasant and natural
- Reduced muscle tension (neck, back, legs)
- Easier breathing
- No abdominal compression

### Advanced Padding:

- Multi-layer memory foam (Talys)
- Uniform body support
- Comfort even in prolonged treatments (2+ hours)
- Knee support option for lumbar area relaxation

## ANXIETY AND STRESS REDUCTION

### Psychology of Position:

- Feeling of safety and control
- View of ceiling instead of instruments
- Ability to relax completely
- Particularly effective for:
  - Children (familiar position like in bed)
  - Anxious patients
  - Elderly with mobility problems

## SAFETY AND HYGIENE

### Infection Risk Reduction:

- Absence of cuspidor = zero cross contamination
- Automatic water disinfection systems IGN-Calbénium®
- Smooth surfaces easy to sanitize
- Less aerosol in supine position

## WHY SUPINE POSITION IS IDEAL IN PEDIATRIC DENTISTRY

### 1. REDUCTION OF ANXIETY AND FEAR

#### Less Threatening Perception

##### Familiar Position:

- Child is lying down as "in the bed at home" or "when sleeping"
- Position associated with safety and relaxation
- Reduces perception of "being in danger"

##### Instruments Not Visible:

- Child looks at ceiling, does NOT see:
  - Handpieces (most frightening element)
  - Needles for anesthesia
  - Surgical instruments
  - Dentist's movements

##### Empirical Data:

- Reduction in non-collaborative behaviors: 45%
- Reduction in anxiolytic premedication requests: 60%
- Greater first visit acceptance: 78% vs 52% with traditional units

##### Facilitated Distraction:

##### Con el niño supino:

- Stickers/decorations can be applied on ceiling TV/tablet positioned above head (direct vision)
- More effective storytelling (dentist speaks "from above" like a narrator)

### 2. SUPERIOR CLINICAL SAFETY

#### Airway Control

##### In young children (3-8 years):

- Less developed protective reflexes
- Greater risk of inhalation/aspiration

Supine position: ☒ Immediate airway access in emergency  
☒ Optimal position for modified Heimlich maneuver ☒ Liquids flow laterally (not toward pharynx) ☒ Better suction control

## Behavior Management

### Gentle Restraint (if necessary):

- In supine position, restraint is easier and less traumatic
- Parent can be close to child (8-9 o'clock position)
- "Tell-Show-Do" more effective (child sees toy/demonstration first)

### Safe Immobilization:

#### For very young children or with disabilities:

- Restraint systems (when necessary) safer and more effective
- Head/body supports prevent unexpected movements
- Lower risk of trauma from unexpected movement

## 3. SPECIFIC PSYCHOLOGICAL ADVANTAGES

### "Non-Threatening" Position

#### Height Psychology:

- Adult looking down from above = threatening for child
- In traditional position: seated child, dentist towers over them
- In supine position: lying child, dentist "bends down" = less intimidating

### Sense of Control

#### Lying child:

- Can move legs (motor relaxation)
- Can squeeze a stuffed animal
- Can signal discomfort by raising hand (visible to dentist)

### Behavioral data:

- Frankl scales (cooperation): improvement of 1-2 points
- CFSS-DS (dental fear): 35% reduction

## 4. OPERATIONAL EFFICIENCY

### Optimal Access to Oral Cavity

#### Children have small mouths:

- Need for direct vision even more important
- Reduced working space requires maximum precision
- Supine position 12 o'clock: superior access compared to all other positions

### Reduced Times (Fundamental for Children)

#### Limited child attention:

- 4-6 year old child: maximum attention 20-30 minutes
- Supine position: faster procedures (~20% average duration)
- Fewer interruptions = less stress for child

#### Practical example:

Traditional child filling: 35-45 minutes

Supine position filling: 28-36 minutes

Difference: 7-9 minutes = critical threshold to maintain collaboration

## 5. PARENT INVOLVEMENT

### Parent Present

#### Ideal setup with supine position:

- Parent sits at 8-9 o'clock (close to child)
- Can hold child's hand
- Child sees parent in lateral visual field
- Parent does NOT see "frightening" instruments

#### Vs Traditional Unit:

- Parent behind chair
- Child doesn't see parent (increases anxiety)
- Parent sees all instruments (may unconsciously transmit anxiety)

## 6. ADVANTAGES FOR THE PEDIATRIC DENTIST

### Even More Critical Ergonomics

**Pediatric dentistry = high percentage of non-collaborative children:**

- Unexpected child movements
- Need for forced postures to "follow" the mouth
- In traditional position: high biomechanical stress



#### Supine position:

- Stabilized child's head
- Optimal control even with moving child
- Less fatigue = more patients/day

#### Precision in Reduced Spaces

##### Deciduous elements (baby teeth):

- Smaller and more delicate
- Require maximum precision
- Direct vision from above = better depth of field
- Reduction of procedural errors

#### 7. PEDIATRIC SCIENTIFIC EVIDENCE

##### Study 1: Child Behavior

Source: Pediatric Dentistry Journal (2023)

##### Results:

- Collaborative behavior: supine position 82% vs traditional 57%
- Crying during procedure: supine 18% vs traditional 41%
- Acceptance of subsequent visit: supine 91% vs traditional 68%

##### Study 2: Neonatal/Child Postural Safety

Source: American Academy of Pediatrics Recommendations

##### Important note:

The supine position is recommended for newborns and young children also during sleep (SIDS prevention). Children associate this position with safety.

#### SPECIFIC PEDIATRIC APPLICATIONS

##### Interceptive Orthodontics

Children 6-10 years:

- Appliance placement
- Frequent controls (every 4-6 weeks)
- Supine position = less anxiety-inducing routine

#### Sealants

##### Preventive procedure on young permanent molars:

- Children 6-8 years (first molars)
- Quick procedure but requires collaboration
- Supine position: 95% vs 78% success rate

#### Anesthesia

##### Injection = most critical moment:

- In supine position, child does NOT see needle
- Dentist has optimal control
- Unexpected movement risk: reduced 60%

#### Emergencies (dental traumas)

##### Scared child after fall:

- Supine position = reassuring
- Facilitates evaluation and urgent treatment
- Parent can be close and console

#### FINAL RECOMMENDATION

For a pediatric dentistry practice or for a general dentist with high percentage of children (>30-40%), the supine position dental unit is not an option, but should be considered essential equipment.

#### The 3 Killer Advantages for Pediatric Dentistry

1. Less frightened children = More collaborative = Easier procedures
2. More satisfied parents = More referrals = Practice growth
3. Less stressed dentist = Greater professional quality of life

#### ADVANTAGES FOR THE ASSISTANT ERGONOMICS ALSO FOR THE TEAM

##### 8-9 O'Clock Position:

- Symmetric and balanced posture
- Clear vision of operative field
- Comfortable access to instruments
- Facilitated four-handed collaboration

##### Fatigue Reduction:

- Fewer repetitive movements
- Instrumentation within reach
- Ergonomic suction (e.g. Flex Support Talys)

Result: More efficient, satisfied and long-lasting team

#### WORK POSITION ANALYSIS

##### SILLÓN TRADICIONAL

DENTIST	PATIENT
9 o'clock	(45-60°) Semi-seated

##### PROBLEMS:

- Neck/trunk torsion
- Elevated arms
- Oblique vision
- Early fatigue

##### FLAT-BED DENTAL UNIT

DENTIST	PATIENT
12 o'clock	(0-10°) Supine

##### ADVANTAGES:

- Straight spine
- Relaxed arms
- Direct vision
- Prolonged work

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