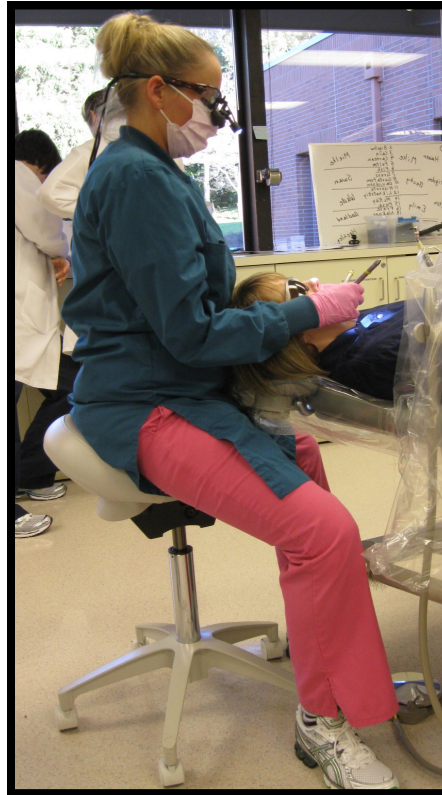


# ***Hygiene Shouldn't be a Pain in the Neck!***

## ***Essential Ergonomic Guidelines for a Long & Healthy Career***

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Presented by

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## The Problem

- Brief history of dental ergonomics
- Impact of CTDs on dental hygienists

## Cumulative Trauma Disorder (CTD) Definition

Work-related pain or injury to the musculoskeletal system resulting from microtrauma which accumulates at a rate faster than the body can repair it.

## Signs & Symptoms of Cumulative Trauma Disorders (CTDs)

- Decreased strength & Range of motion
- Pain, stiffness, swelling or inflammation
- Numbness or tingling in hands or feet
- Shooting or stabbing pain in arms/legs

## 5 Steps to Resolving Work-Related Pain in Dental Hygiene

1. Resolve ergonomic challenges in the operatory
2. Stress management (down-regulate ANS)
3. Myofascial therapy
4. Chairside stretching
5. Specific strengthening

## 9 Step Positioning Sequence

### 1. Operator Stool Adjustment

- Adjust backrest height so convex portion aligns with low back curve
- Move backrest away from the back
- Sit all the way back on the seat
- Perform 3-finger test
- Tilt seat slightly forward 5-15 degrees
- Adjust height till thighs slope slightly downward
- Adjust backrest forward to snugly nestle in low back curve

### Saddle Stool Adjustment

- Adjust backrest height so convex portion aligns with low back curve
- Do not tilt the seat unless hyper or hypo-lordotic
- Adjust height till thighs slope downward 45 degrees

### 2.Recline the patient (supine or semi-supine)

### 3.Adjust headrest to orient occlusal plane

#### UPPER ARCH:

Double articulating headrest: Angle steeply downward, and use smaller (Low Profile) neck cushion. The occlusal plane of the upper arch should be up to *10 degrees behind* the vertical plane.

Flat headrest: Ask the patient to scoot to end of headrest. Use larger (Original) neck cushion.

**LOWER ARCH:**

Double-articulating headrest: Adjust forward so chin tilts downward

Flat headrest: Raise backrest until occlusal plane of upper arch is about *10 degrees in front of vertical.*

**4.Adjust height of patient chair** – until forearms angle 10° upward.

**5.Head rotation (is it needed?)**

**6.Clock position (direct or indirect?)**

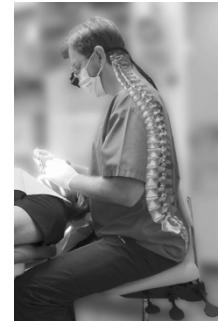
**7.Delivery nearby**

**8.Lighting** – paralleling your line of sight as closely as possible

**9.Fulcrums** (inter or extra-oral)

**CHRONIC LOW BACK PAIN**

**Risk Factors for Low Back Pain in Dentistry**



**Postural Awareness for Low Back Pain - *Maintain your low back curve***

**Strategies to Prevent Low Back Pain:**

- **Hip Angle**
- **Patient Positioning**
- **Movement (alternate standing/sitting)**
- **Leg Position**

**Operator Pivot Exercise**

- Scoot all the way back
- Lift chest up, stretch through abdomen
- Slight curve in low back
- Assume operator position of arms
- Exhale, pull navel to spine
- Slowly, pivot forward from the HIPS. Slowly return.



**Stretching** – Addresses EVERY microtrauma caused by prolonged, static postures

- Move into and out of stretch SLOWLY
- Assume the starting position.
- Breathe in and exhale as you increase the stretch up to point of mild tension.
- Hold stretches 2-4 breathing cycles. Repeat.
- Perform stretches for symptomatic areas 3-5 times per day
- Do NOT stretch in a painful range!

## EQUIPMENT

**Patient Chair –‘MUST HAVE’ Features**

- Small, thin upper back & headrest
- Narrow upper backrest

**Delivery Systems**

- Rear Delivery \_\_\_\_\_
- Side Delivery \_\_\_\_\_
- Over-the-patient (Continental) Delivery \_\_\_\_\_

**Instruments/Evacuation**

- Suction mirror
- Blue Boa
- CordEze

**Operator Chair Features\***

- Cylinder height (short, med or tall)
- Lumbar support
- Adjustable backrest
- Tilting seat pan
- Textured seat material
- Appropriate width and depth of seat pan
- Armrests (opt.)

**Saddle Style Stool Features**



Cylinder height (available in short, med or tall)

Places pelvis in the most neutral position to optimize posture, which minimizes the need for backrest support

Seat tilt to accommodate different spinal anatomies

Improved circulation in legs

Allows closest positioning to the patient

## **TENSION NECK SYNDROME**

Symptoms include pain and tenderness in the neck and trapezius muscles, between the shoulder blades, and often accompanied by painful muscle spasms or trigger points.

### **Risk Factors for Neck Pain in Dentistry**

#### **Dental Loupes**

- Prismatic Deflection Loupes
- Through-the-lens (TTL) loupes (look for pantoscopic tilt frame)
- Flip-up loupes (look for vertical adjustability of scopes)

#### **Ergonomic criteria for selecting loupes**

##### 1) Declination Angle

The angle at which the scope is inclined downward toward the work area. \

##### 2) Working Distance

Distance from eye to working surface.

##### 3) Frame Size

Affects where scope is placed in relation to pupil.

## **ROTATOR CUFF IMPINGEMENT**

Symptoms include pain with overhead reaching, lifting, dressing or sleeping on the affected arm.

### **Risk factors for Rotator Cuff Impingement in Dentistry**

## **TRAPEZIUS MYALGIA**

Symptoms: pain, spasms, tenderness or trigger points in the upper trapezius muscles, frequently on the side of the operator's mirror or retracting hand.

### **Risk factors for Trapezius Myalgia in Dentistry**

#### **Postural Awareness for Shoulder Pain**

Neutral shoulder posture: Arms relaxed, elbows close to body and at the occlusal plane.

#### **Strategies to prevent Shoulder Pain**

## **CARPAL TUNNEL SYNDROME**

Symptoms include pain, numbness, weakness and/or tingling into the hands and first 3 ½ fingers.

### **Primary risk factors for CTS**

- High repetition
- Flexed wrist
- Force
- Duration

### **Maintaining Neutral Wrist Posture for CTS**

- Reposition yourself
- Reposition the instrument in your hand
- Use instruments with long shanks & exaggerated angles

### **Scaling Technique**

Avoid flexing wrist up/down! Rather lock wrist in neutral position and rock the hand/forearm side-to-side as a unit.

### **Selecting Ergonomic Instruments**

- Sharpness \_\_\_\_\_
- Diameter \_\_\_\_\_
- Weight \_\_\_\_\_
- Texture \_\_\_\_\_
- Handle shape \_\_\_\_\_

### **Patient scheduling**

Coordinate with front office so heavy calculus patients are not scheduled back-to-back.

### **Ergonomic products to reduce upper extremity pain**

- Hu Friedy Harmony Scaler
- Cord-eze
- 360 degree swivel
- Hands-free suction: ReLeaf and Blue Boa
- HVA Evacuation Mirror System: Nu-Bird
- All-in-one Isolation Systems: DryShield or Isolite
- Stretching - Shown to be most helpful intervention in one study. Never stretch in a painful range.

## **CONDITIONS THAT MIMIC CTS**

### **Cervical Radiculopathy**

- Compression of nerve roots as they exit vertebral foramen

### **Thoracic Outlet Syndrome**

- Neurovascular disorder
- Pain, paresthesias, numbness in shoulder, arm, hand and ring & little finger
- Symptoms worse with arms elevated or outstretched
- Easily prevented and treated conservatively with 3 specific exercises and proper ergonomics

### **Median Nerve Entrapment (MNF)**

- Pronator Teres Syndrome
- Anterior Interosseous Nerve Syndrome (AIN)
- Both syndromes are due to inflammation of the nerve from compression

### **Trigger Points (trigger thumb)**

#### **Poorly Fitting Gloves**

Ambidextrous gloves can cause pain at the base of the thumb. Consider replacing ambidextrous gloves with fitted gloves.

### **OA of the CMC THUMB JOINT**

*Arthritis of the carpo-metacarpal joint.*

Symptoms: Pain at the base of the thumb and side of wrist.

Treatment: Similar to CTS. Do thumb flexion and abduction exercise.

### **DeQuervain's Syndrome**

*Inflammation of the thumb tendon.*

Symptoms: Pain on the thumb side of the wrist (similar to OA of the CMC Thumb Joint)

Treatment: Treat as a tendonitis with ice, rest, NSAIDs, night splint, etc.

## **About the Speaker**



**Dr. Bethany Valachi, PT, DPT, MS, CEAS** is a doctor of physical therapy, certified ergonomic assessment specialist and author of the book, *“Practice Dentistry Pain-Free”*. She is CEO of Posturedontics®, a company that provides research-based dental ergonomic education and is clinical instructor of ergonomics at OHSU School of Dentistry in Portland, Oregon. Recognized internationally as an expert in dental ergonomics, she has delivered over 1,000 lectures worldwide and provided expertise on dental ergonomics to faculty and students at numerous dental universities. Dr. Valachi has published over 80 articles in peer-reviewed dental journals and has developed patient positioning and exercise DVDs specifically for dental professionals. She lives in Cornelius, Oregon with her husband, Dr. Keith Valachi, who operates a private dental practice. She offers all her education (12 hours) in the form of online CE courses at [www.posturedontics.com](http://www.posturedontics.com)

## **REFERENCES**

We are keeping the handout as 'green' as possible! Bethany will gladly send you her lecture references upon request. Please e-mail [info@posturedontics.com](mailto:info@posturedontics.com) for the lecture references.

## **RESOURCES**

All of Dr. Valachi's education is available via online CE Video Courses at [www.posturedontics.com](http://www.posturedontics.com)

Seminar attendees may receive a discount by entering the Coupon Code **ValSemDisc** within *3 days after lecture*.

### **LECTURE SUPPLEMENT**

**YES! I would like to receive Dr. Valachi's hygiene lecture supplement**

**Text message---TO: '55444'**

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# Sample Chairside Stretches

from "Chairside Stretching" Online CE Course

All 20 Chairside Stretches available at [www.posturedontics.com](http://www.posturedontics.com)



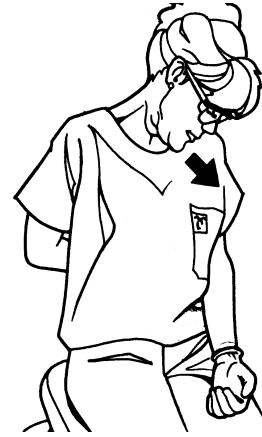
## Scalene Stretch (Ear-to-Shoulder)

Anchor right hand behind your back or chair. Slowly bring left ear toward left shoulder. Hold 2-4 breath cycles.



## Trapezius Stretch (Ear-to-Armpit)

Anchor right hand behind your back or chair. Slowly bring left ear toward left armpit. Hold 2-4 breath cycles.



## Levator Stretch (Chin-to-Armpit)

Anchor right hand behind your back or chair. Bring chin toward left armpit. Hold 2-4 breath cycles.



## Shoulder Circles

Sit tall, shoulders relaxed. Breathe in deeply. As you slowly exhale, roll shoulders forward, up and backward in a complete circle, returning to the relaxed starting position. Repeat 5 times.



## Carpal Tunnel Stretch

Turn the palm upward and hold the palm as you slowly extend the elbow until straight. Hold 2-4 breath cycles.