2017 Oregon Dental Conference®
Course Handout

Bethany Valachi, PT, DPT, MS, CEAS
Course 8127: “Hygiene Shouldn’t Be a Pain in the Neck: Ergonomic and Exercise Guidelines”
Thursday, April 6
1:30 pm - 4:30 pm
Hygiene Shouldn’t be a Pain in the Neck!
Ergonomic & Exercise Guidelines for a Long & Healthy Career

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Presented by

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Course Objectives
At the conclusion of the course, attendees will be able to:

- Describe how muscle imbalances can cause neck and shoulder pain among female hygienists & corrective interventions
- Implement self-treatment strategies for neck/shoulder pain
- Identify the 3 ergonomic criteria to select dental loupes that will improve their neck health…not make it worse!
- Properly position operator, patient, chair, headrest and lighting for treating different quadrants of the mouth
- Correctly use special positioning aids to treat difficult patients
- ‘Ergonomize’ their operatory with minimal expense
- Utilize ergonomic criteria for selecting and adjusting operator stools, instruments and delivery systems
- Understand why hygienists require specific exercise guidelines and how to incorporate an exercise program developed specifically for dental professionals.

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

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

DENTAL EQUIPMENT CONSIDERATIONS FOR HYGIENISTS

Delivery System Common Problems
- Rear delivery in 2-handed operatory ______________________________________________
- Over the patient delivery with short-torso operator ________________________________
- Height of side delivery _________________________________________________________

Patient Chair Common Problems
- Height_________________________________________________
- Wide upper backrest _________________________________________________
- Clearance at 12:00 _________________________________________________

Operator Stool Features & Modifications
  Cylinder height - Is yours too tall?
  Seat depth – do 3-finger test
  Tilting seat pan – tilted from 5-15 degrees forward
  Lumbar support – ________________________________________________
  Slippery seat surface- ____________________________________________
Armrests – Indicated for hygienists in 3 instances:
1) 
2) 
3) 

Saddle-style Stool Considerations
The most popular seating style for women in dentistry
Places pelvis in the most neutral position to optimize posture
Improved circulation in legs
Allows closest positioning to the patient
Great for hygienists with short torsos
Never tilt a saddle stool, unless advised by a doctor.

Instruments/Evacuation
- Suction mirror
- Blue Boa

TENSION NECK SYNDROME
The most common CTD among hygienists. 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

NECK PAIN: OPERATORY INTERVENTIONS

1) **Ergonomic flip-up loupes**. Flip-up loupes must be ________________ adjustable!

2) **Do you need armrests?** Perform test: ________________________________

3) **Close proximity to patient.** Strive to utilize the _______clock position 70% of the time.

4) **For Upper Arch:**
   - Recline the patient to __________ position.
   - Adjust the double-articulating headrest to angle up into the occiput. The occlusal plane of the upper jaw should be ________ backward in relation to the vertical plane.
   - If using a flat headrest, ask the patient to scoot to end of headrest and position with contoured dental cervical pillow.

5) **Properly adjust the light source** ________________________________

6) **MOVE.** Frequent stretch breaks, and most ergonomic clock position is __________________.
7) **Indirect vision.** Become comfortable with treating upper & lower arches with indirect vision for a majority of the treatment.

8) **Modesty issues.** Patient proximity should be ___________________ in 12:00 position.

NECK PAIN: HOME INTERVENTIONS

1) Schedule time for regular exercise.

2) Monitor emotional stress.

3) Support the cervical curve at night.

SHOULDER DISORDERS

- **Rotator Cuff Impingement**
  Symptoms include pain with overhead reaching, lifting, dressing or sleeping on the affected arm.

- **Trapezius Myalgia**
  Symptoms include pain, spasms, tenderness or trigger points in the upper trapezius muscles, frequently on the side of the operator’s mirror or retracting hand.

SHOULDER PAIN: OPERATORY INTERVENTIONS

1) **Proper height of patient & delivery system.** ________________________________

2) **Use finger fulcrums**

3) **Reach properly overhead: Thumbs pointing ____!**

SHOULDER PAIN: HOME INTERVENTIONS

1) **Aerobic exercises** for the upper trapezius muscles: ________________________________

2) **Proper endurance training** of the specific shoulder girdle stabilizing muscles & rotator cuff muscles

3) **Bra & purse** style modifications__________________________________________
4) Self-treat your problematic trigger points: ________________________________

5) **Hot moist** cervical pack or infrared heat

**POSTURAL AWARENESS EXERCISE**

**ENDURANCE STRENGTHENING:**
- Postural stabilization muscles
  - Transverse & oblique abdominals, quadratus lumborum, erector spinae and multifidus
- Scapular stabilizing musculature
  - Middle & lower trapezius, serratus anterior
- Specific rotator cuff muscles
  - Infraspinatus, subscapularis, teres minor

**STRENGTHENING GUIDELINES**
- *Never perform strengthening exercises if you have pain.*
- Strengthening should be done 3 times weekly. (Stretches can be performed daily)
- Always start out mildly and increase gradually.
- Exercise should not cause pain. Mild discomfort that lingers after you have stopped exercising is normal, but if you experience pain, stop the exercise.

**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.
- Do NOT stretch in a painful range!
REFERENCES
We are keeping the handout as ‘green’ as possible! Bethany will gladly send you her lecture references upon request. Please e-mail her at bvalachi@posturedontics.com for the lecture references.

RESOURCES
Books, DVDs and Articles
Dr. Valachi’s books, DVDs and articles - available at www.posturedontics.com

Operator Stools
RGP – www.surgitel.com (select stools only)
BQ Ergonomics – www.bqe-usa.com
Crown Seating – www.crownseating.com (select stools only)

Ergonomic Flip-up Loupes
Surgitel - www.surgitel.com (800) 959-0153
Q-Optics - www.q-optics.com

Patient Positioning Aids
Crescent Dental Neck Cushions: www.posturedontics.com (with free DVD and positioning chart)

Hot/Cold Packs
MediBeads Moist Heat Wraps www.amazon.com
Apollo Paks (hot or cold) www.painreliever.com

Trigger Point Tools
Backnobber self-massage tool www.posturedontics.com
Davies, C. The Trigger Point Therapy Workbook www.posturedontics.com

FREE Ergonomic Product Reviews
Unbiased reviews of operator stools, loupes, patient chairs, etc… at www.posturedontics.com

LECTURE SUPPLEMENT
YES! I would like to receive Dr. Valachi’s Hygiene lecture supplement & monthly e-zine!
Visit the URL page - http://tinyurl.com/ztpeqf2
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 700 lectures worldwide and provided expertise on dental ergonomics to faculty and students at numerous dental universities. Dr. Valachi has published over 50 articles in peer-reviewed dental journals and has developed patient positioning and exercise DVDs specifically for dental professionals. She lives in Portland, Oregon with her husband, Dr. Keith Valachi, who operates a private dental practice. She offers free newsletters, articles and product reviews on her website at www.posturedontics.com
**Excerpts from the DVD, “Smart Moves for Dental Professionals On the Ball”**
*All 3 workouts (24 exercises) available at [www.posturedontics.com](http://www.posturedontics.com)*

**Downward Squeeze**
Anchor band at top of door. Roll shoulders back and squeeze shoulder blades downward and together. Pause briefly and slowly return. Repeat 10-20 times.

**Lower Abdominals**
Lie with both knees bent. Lift one leg until the hip is at 90°, then slowly straighten, lightly touch the floor, hold, then return the leg to 90° position. Repeat with the same leg 5-10 times. Do not let your back arch off the floor.

**Extensor Lifts**
Position your feet against a wall. Kneel in front of the ball, so the ball is under your pelvis. Cross your arms across your chest or behind your head and slowly raise the head, neck and torso until your back is straight. Slowly lower and repeat 10-20 times.

**Rowing**
Position the door anchor at waist level. Slowly pull both hands back towards your waist, keeping thumbs up and forearms parallel to the floor. Pause briefly, and return to start position. Repeat 10-20 times.

**External Rotation**
Slowly rotate the arm outward, then return. Keep elbow pressed firmly against your side throughout the exercise. Perform 10-20 repetitions with each arm.

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**Excerpts from the DVD, “Chairside Stretching’ & Trigger Point Therapy”**
*All 20 Chairside Stretches available at [www.posturedontics.com](http://www.posturedontics.com)*

**NECK & SHOULDER COMBO**
Gently pull arm across front of body with opposite arm. Hold 2-4 breath cycles.

**SCALENE STRETCH**
Anchor hand behind back or chair. Slowly bring opposite ear toward shoulder. Hold 2-4 breath cycles.

**PECTORALIS STRETCH**

**CHIN NOD**
Lift chest upward, nod the head, dipping the chin slightly downward. Hold 1 slow breath cycle. Repeat 5X.

**TRAPEZIUS STRETCH**
Anchor hand behind back or chair. Slowly bring opposite ear toward armpit. Hold 2-4 breath cycles.

**SHOULDER CIRCLES**
Slowly exhale, roll shoulders forward, up and backward returning to the relaxed starting position. Repeat 5 times.

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Hygiene Shouldn’t be a Pain
Test Questions

1) Which of the below would not be a consideration for selecting armrests to prevent neck pain?
   a) Short forearms
   b) Tall hygienist
   c) Large chest
   d) Pregnancy

2) Which of the following seating options does research show creates the most optimal posture & muscle activity?
   a) Saddle-style stool
   b) Inflatable ball chair
   c) Saddle-style stool with backrest
   d) Non-tilting operator stool
   e) None of the above

3) How should the occlusal plane of the upper arch be positioned when treating the upper arch?
   a) Angled 10-20 degrees in front of the vertical plane.
   b) Angled vertically.
   c) Angled 10 degrees behind the vertical plane.
   d) It doesn’t matter, the occlusal plane has no impact on operator posture.

4) The double articulating headrest be adjusted forward so chin is tilting down when treating the upper arch.
   a) True
   b) False

5) Most through-the-lens loupes do not offer a steep enough declination angle to keep the hygienist within a safe head posture.
   a) True
   b) False

6) What type of exercise should hygienists NOT perform on the upper trapezius, and can lead to increased pain?
   a) Shoulder shrugs
   b) Walking while swinging the arms
   c) Rowing
   d) Elliptical machine
   e) Resistance training with heavy weight.

Answer key:
1) B
2) C
3) C
4) B
5) A
6) E