


Protect Your Hands – Protect Your Livelihood

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1




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2



Sponsorship for this continuing education program provided by:



3



Program Agenda

- Principles of ergonomics
- MSD's and ergonomic risk factors
- MSD's/injuries common in dentistry
- Prevention






4

Definition of ERGONOMICS

"Ergonomics is essentially fitting the workplace to the worker. The better the fit the higher the level of safety and worker efficiency."
Fitting the Task to the Human - Grandjean 1990

5

Ergonomic Injuries End Careers



				
29.5%	21.2%	16.5%	7.6%	6.1%

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4144062/pdf/ijcpd-07-030.pdf>

6

Ergonomic Principles



- Work in a neutral position – posture
- Decrease the need for excessive force – instrumentation
- Keep materials and instruments within easy reach
- Work at the proper height – patient position
- Reduce unnecessary motions - treatment room design

7

Ergonomic Principles

- Minimize fatigue caused by static load or posture
 - Standing or sitting in one position
- Minimize contact stress
- Move and stretch throughout the day
 - After each patient!
- Keep the environment comfortable
 - Temperature, air quality, lighting

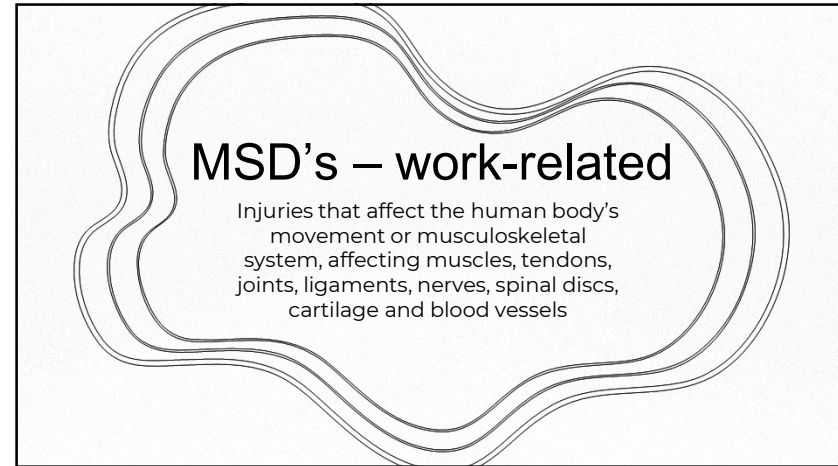



Wrist Flexor Stretch

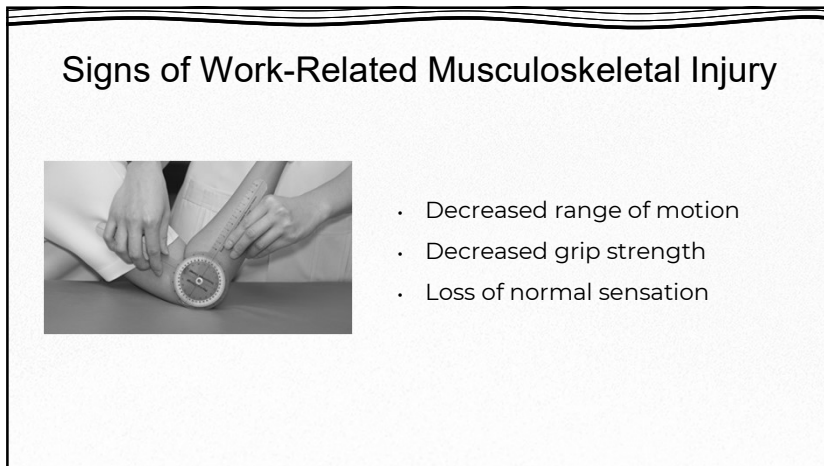
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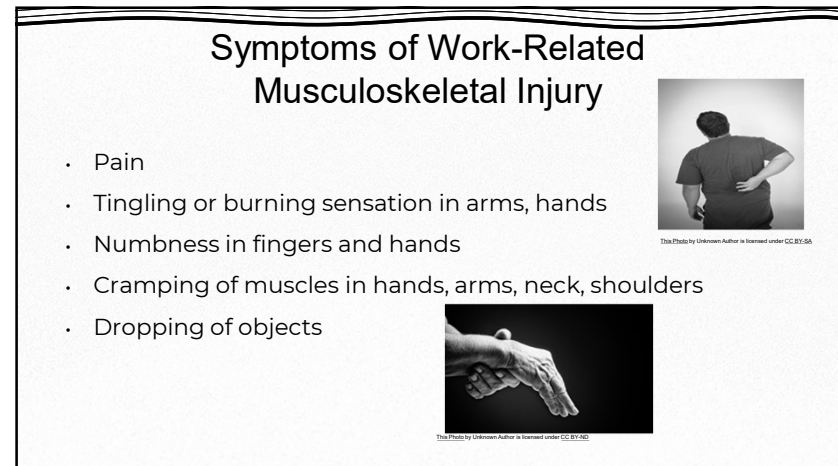
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10



11

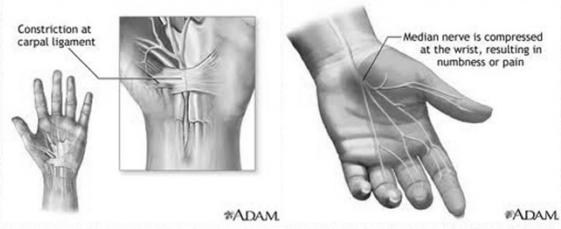


12

MSD's Common In Dentistry

13

Carpal Tunnel Syndrome



Constriction at carpal ligament

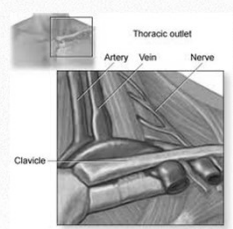
Median nerve is compressed at the wrist, resulting in numbness or pain

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14

Thoracic Outlet Syndrome (TOS)

Posture



Thoracic outlet

Artery Vein Nerve

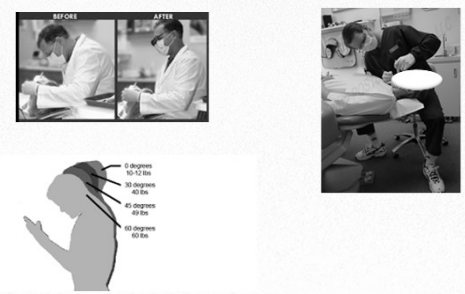
Clavicle

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15

Cervical/Neck Pain and Disc Injuries

- Related to posture and patient position positioning



BEFORE AFTER

0 degrees 10 lbs
30 degrees 40 lbs
45 degrees 60 lbs
60 degrees 80 lbs
90 degrees 100 lbs

16

Low Back Pain and Disc Injuries

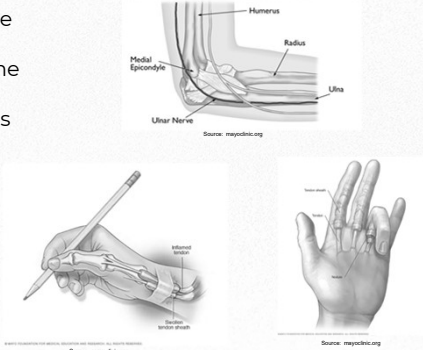
- Poor posture
- Core weakness and instability
- Static postures
- 70% of patient caseload in PT



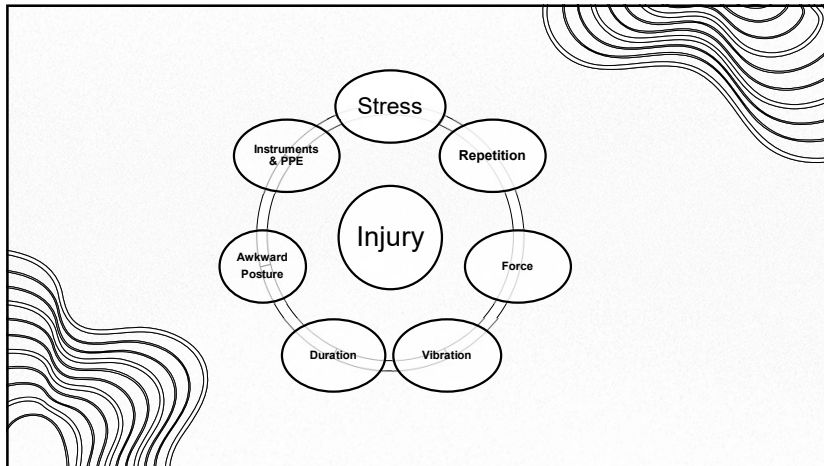
17

Hand/Wrist/Arm Injuries

- Carpal Tunnel Syndrome
 - Median nerve
- Cubital Tunnel Syndrome
 - Ulnar nerve
- Tendonitis/Tenosynovitis
 - DeQuervain's syndrome
 - Tendons and sheath
- Trigger Finger
 - Flexor tendon




18



19

Prevention Strategies for Hands/Wrists/Arm Injuries


- **Posture**
 - Wrists straight
 - Elbows at sides
 - Shoulders not raised
- **Instruments**
 - Handle diameter and weight
 - Cordless handpieces when possible
 - Powered scalers



20


Prevention Strategies for Hands/Wrists/Arm Injuries

- **Equipment**
 - Patient chair that allows 12:00 positioning
 - Operator or assistant's stools with adjustable backrests
 - Flexibility for instrumentation
- **PPE**
 - Magnification
 - Gloves
 - ambidextrous vs. right/left
 - ergonomically certified




21

Gloves make a critical difference!

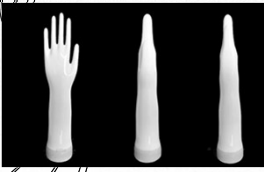


22




- Material
- Textured – full or fingers
- Thickness and weight
- Manufacturing

Glove formers

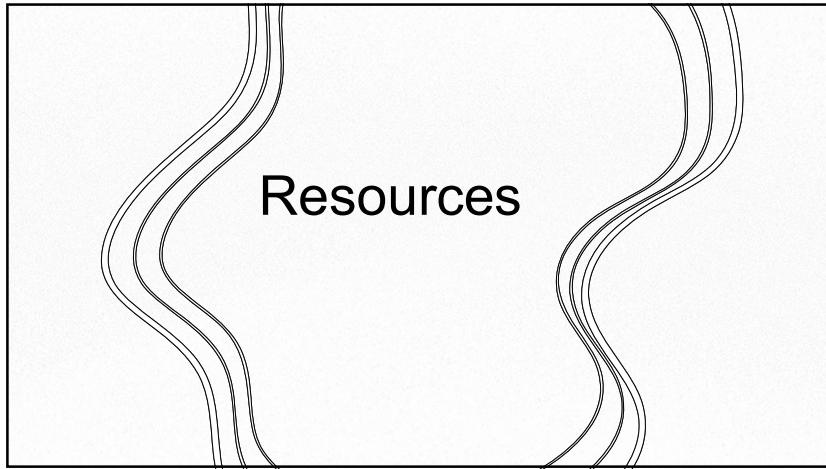


23

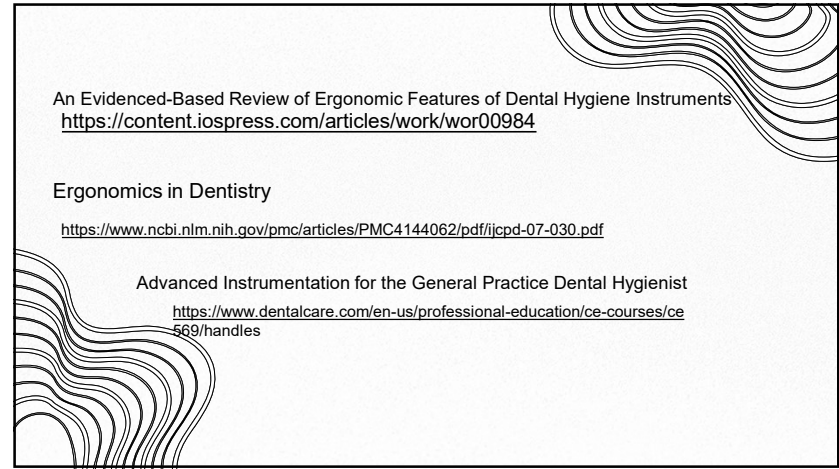
Glove Design and Manufacturing



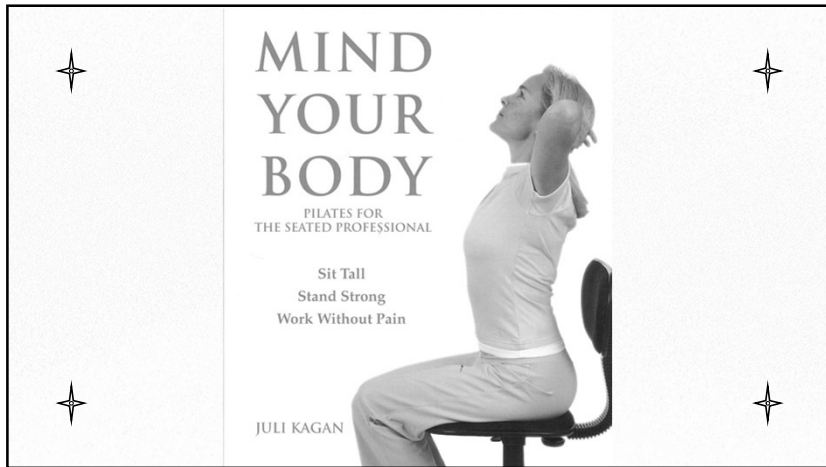
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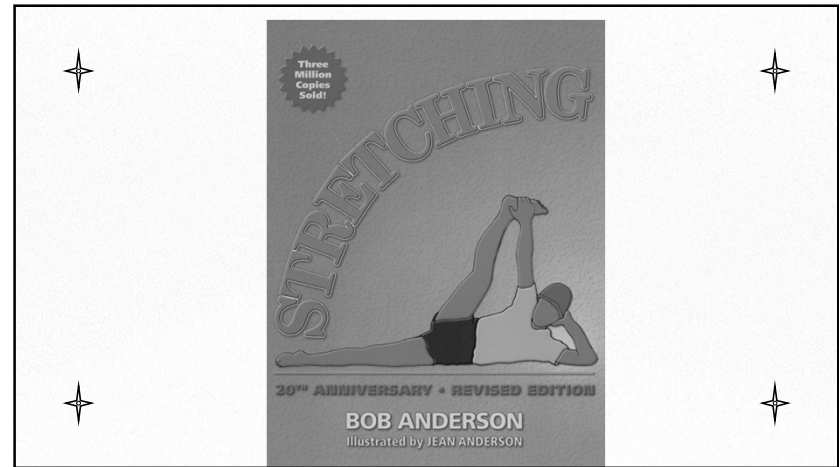
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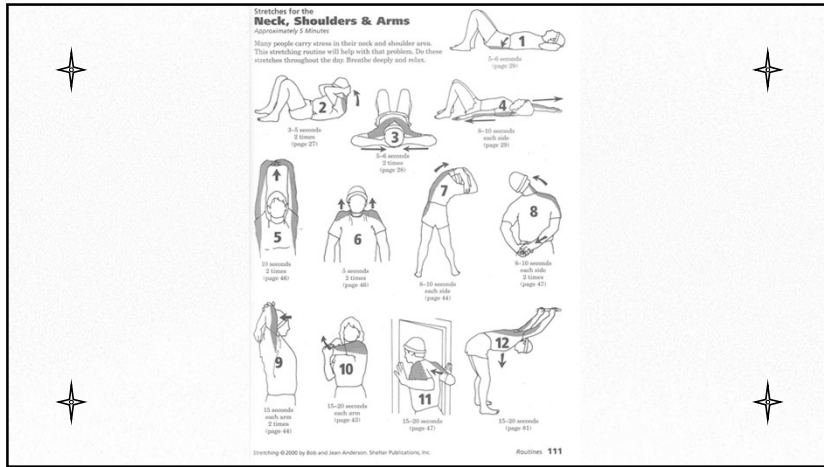
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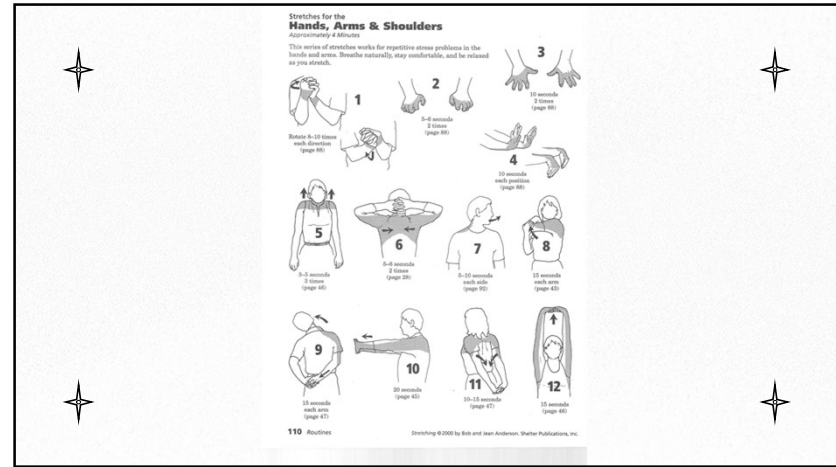
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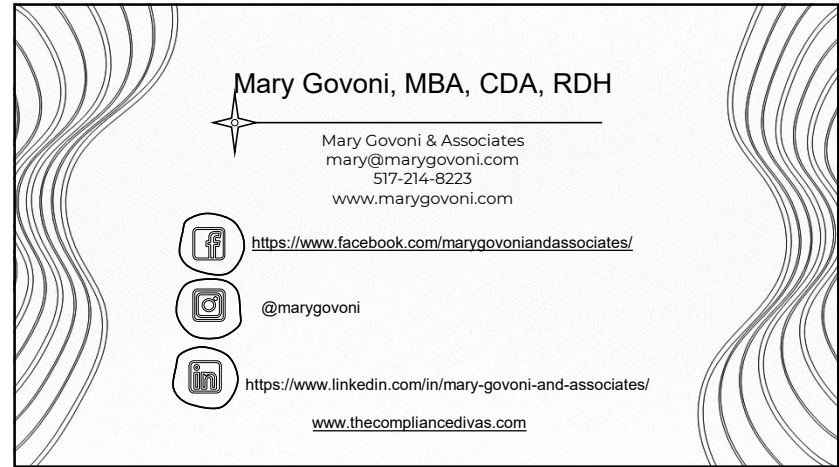
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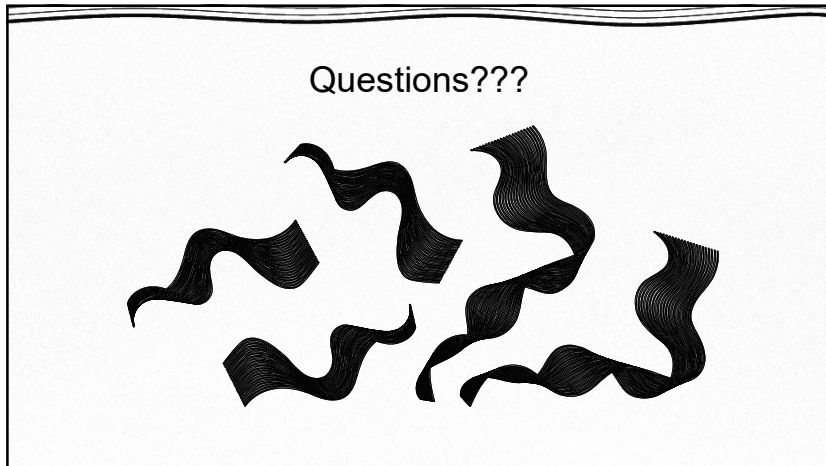
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33



34



35