

**INTRODUCTION** MSDs

# Management (relief) of Musculo-skeletal Pain Disorders (MSDs) without drugs or surgery

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MSDs

# MSDs

MUSCULO-skeletal DISORDERS

=

CTDs  
( CUMULATIVE TRAUMA DISORDERS )

+

RSIs / RSDs  
( REPETITIVE STRAIN INJURIES/ DISORDERS )

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MSDs

# MSDs

Parts of the Body Affected by MSDs

<b>ABOVE THE WAIST</b>	Head	<b>BELOW THE WAIST</b>	Mid Back
	Neck		Flank
	Upper Back		Abdomen
	Shoulders		Low Back
	Arms		Hips
	Hands		Legs
	Wrists		Knees
	Fingers		Ankles
			Feet

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MSDs

MSD ( MUSCULO-SKELETAL DISORDERS )

# Musculo-skeletal Pain

*Cumulative Traumas*

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MSDs

# MSD SYMPTOMS

- Pain (not discomfort)
- Numbness
- Tingling
- Burning
- Cramping, and
- Stiffness

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MSDs

# MSD SIGNS

- Decreased range of motion
- Deformity
- Decreased grip strength
- Loss of muscle function

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# “Pain”

is the **KEY**

# SYMPTOM

# SOURCE

**PAIN Symptoms**

are **95%**

**Musculo-skeletal – Myofascial  
in origin**

# MSD Pain

IS

## CHRONIC MUSCULAR SPASM

1° (muscle - motor unit - fatigue)

2<sup>nd</sup>ary (nerve entrapment)

## MUSCLE FATIGUE

## MUSCLE CONTRACTIONS

### Two types of Muscle Contractions

# 1

# DYNAMIC

(May be repetitive)

loading // unloading with REST cycle

# 2

# STATIC

high or low forced contractions – no movement

sustained \*absent\* REST cycle

# STATIC

CONTRACTION

## MUSCLE INJURY

occurs when

Normal signals of fatigue

are

suppressed or ignored

with

LOSS of REST cycle

# FATIGUED

## MOTOR UNIT

muscle, tendon and nerve

**REQUIRES**

# FULL RECOVERY

# FATIGUED MUSCLE

HELD

in a

SHORTENED or an EXTENDED  
posture

is

*Further Damaged –*

**PREVENTING RECOVERY**

REPEATED

# LOSS of REST cycle

damages

circulatory and metabolic mechanisms  
with

**DEATH OF MUSCLE CELLS**

REPEATED  
MUSCLE

# OVERLOAD and FATIGUE

causes

replacement of damaged muscle tissue  
with

**FIBROTIC or SCAR tissue**

# “Pain”

is the KEY

# SYMPTOM

# Pain Symptoms

Are relieved (*TREATED*) by:

- a. Increasing central tolerance (drugs)
- b. Central blocking of thalamic reception (drugs, etc.)
- c. Interference with spinal neural receptors, (drugs, etc)
- d. Severance of neural pathways, (lytic surgery)
- e. Silencing the site or origin, (injections)
- f. Removal of the causes.

# “TREATMENT” OF SYMPTOMS

## ROUTINE APPROACH TO MSDs

- Rest
- Immobilization
- Compression
- Analgesics
- NSAIDs
- Physical Therapy
- Radiographic studies
- Specialist

## Big business and growing quickly: a look at ancillary services

Ancillary services and procedures is on the rise, with strong growth in many areas. Subject—on December 11, based health care data and benchmarking firm—released a report listing the fastest growing outpatient procedures and services. (The report is online at [www.aedirect.com/files/outpatient\\_whitepaper.asp](http://www.aedirect.com/files/outpatient_whitepaper.asp).) The report ranked the growth of the following outpatient services and procedure between 1999 and 2001:

Service or procedure	Percentage change	# of procedures in 2001
Chiropractic	+91%	1.16 million treatments
Colonoscopy	+77%	8.1 million scopes
Physical therapy	+70%	400 million treatments
Bone densitometry	+64%	5.7 million tests
MRI	+51%	15.2 million images
Nuclear medicine	+49%	18.5 million images
CT	+40%	25.8 million images
Neurological testing	+35%	34.9 million tests
Chemotherapy	+35%	12.2 million treatments
PET	+26%	66 thousand images
Radiation oncology	+18%	36.3 million treatments
Flexible sigmoidoscopy	-42%	1.5 million scopes

## Registered Health Care Professionals BUREAU OF LABOR STATISTICS Estimated for year 2000 in the US

NUMBER	# SCHOOLS	TRAINING / LICENSE	YRS TRAIN	HRS/WK	GROSS INCOME
560,000	125	Allopathic MD's	4+7	60	160k
40,000	19	Osteopathic MDs	4+6	60	150k
50,000	16	Chiropractic DC s	4+4	40	70k
132,000		Physical Therapists	4	40	60k
35,000		Occupational Thera	4+1	40	50k
xxx,000		Nurse Practitioners	4+1½	40	70k
41,000	129	Physician Assist	2+2	40-	65k

## Gimmicks

- Magnetic soles for foot pain:
- 35% better in 8 weeks =
  - same result as with the placebo
- 500 million dollars yearly spent on magnets in US

■ JAMA, Sept 2003

????????????????  
????????????????

~~TREATMENT~~

~~OF~~

~~"Pain"~~

MSDs

**"Pain"**  
is a  
**SYMPTOM**  
not a  
**DIAGNOSIS**

MSDs

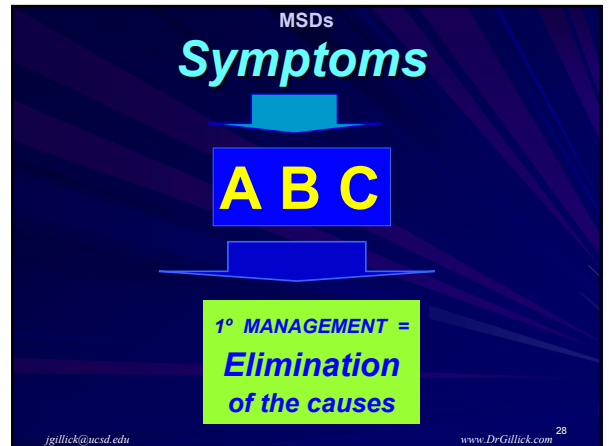
**Pain Symptoms**  
**SHOULD be REMOVED (TREATED) by:**  
**Elimination of the causes**  
**Make the DIAGNOSIS (DON'T FLY BLIND)**

# ABC MANAGEMENT OF MSDs by ELIMINATION of Cumulative Traumas

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- ## ABC Management of MSDs by Elimination of Cumulative Traumas
- **A** - *Anatomical Diagnosis*
    - Catalogue all symptoms as a guide to
    - Subjective anatomical pain areas of pain – local and remote
    - Objective anatomical diagnoses by Physical Exam
  - **B** - *Beginning, Bolsterers, Batters*
    - Identify time - beginning symptoms, activities for each
    - Identify locations – work, home, travel, recreation
    - Identify basic ADL relationships – breathe, sleep, stand, sit, drive
  - **C** – *Circumstances and Conditions = Cumulative Trauma*
    - Identify basic behaviors → B → A
    - basic postures - anatomy, quirk, costume → B → A
    - Identify environments, work, play, leisure and details of B → A
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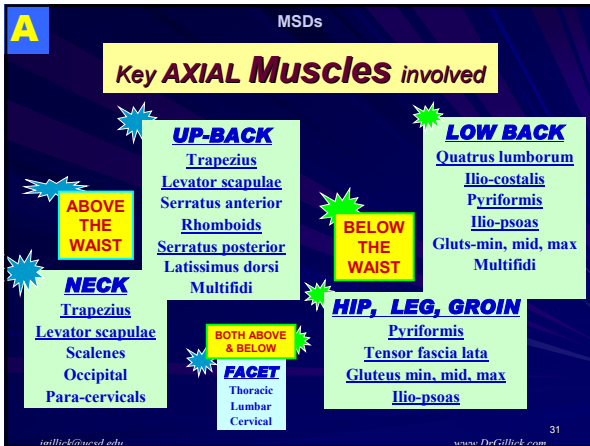
- SYMPTOMS → DIAGNOSIS
- ## ABC
- A** The Anatomical Diagnosis: *should* be specific anatomy.
  - B** The Beginning Precipitant(s): *may be* a specific or recurring
  - C** The underlying Causes- Contributors: *are* rarely singular
- Causes are usually multiple*
- (& Commonly **TRANSPARENT**)*
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# **A** ANATOMICAL DIAGNOSIS

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- ## **A** ANATOMICAL DIAGNOSIS
- **SYMPTOMS** – identify and detail
  - **SUBJECTIVE ANATOMICAL LOCATION** – identify effected areas, both direct, related and remote
  - **OBJECTIVE PHYSICAL FINDINGS - ANATOMY** – where and how the anatomy relays the symptoms
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**B BEGINNING**  
 Bolstering,  
 Bothering

- TIME** – and details of beginning symptoms
- LOCATIONS** – related to ongoing symptoms  
 Occupation, 2<sup>nd</sup> Occupation, Hobbies, Recreation, Exercise hobbies.
- ADLs** – related to beginning, worsening  
 Sleeping, standing, sitting, driving, etc.

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**B BEGINNING**  
 Bolstering,  
 Bothering

- TIME** – WHEN ?
- LOCATIONS** – WHERE ?
- ADLs** – WHAT ACTIVITY ?

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**B** There are 168 hours in a week (7 x 24) **ergo ADL**

**In each 168 hour week:**

- 168 hours are spent **breathing**
- 48 ± 10 hours are spent **sleeping**: in bed or down
- 120 ± 10 hours are spent **up**, out of bed
- 45 ± 15 hours are spent **standing/ walking**
- 45 ± 15 hours are spent **sitting**
- 10 ± 5 hours are spent **driving/ riding** In transport
- 5 ± 5 hours are spent **grooming**
- 5 ± 5 hours are spent **exercising, fitness/ sports**

**BASIC ACTIVITIES OF DAILY LIVING**

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**C CAUSES:** **SPECIFICS**  
 CONDITIONS  
 CIRCUMSTANCES  
 CUMULATIVE TRAUMAS

- BEHAVIORS** – and relation to BBB
  - 1- Sleep Position; 2- Arch-foot support
  - 3- Back pocket wallet; 4- Auto -stick-shift, postures
- POSTURES** – related to BBB
  - 1- Leg-length symmetry; 2- Hemi-pelvis symmetry;
  - 3- Arm length, and body habitus
- ENVIRONMENT** – related to BBB
  - Psychological, meteorological
  - Personal expectations, developmental
  - Legal, expectations, litigious climate

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**C CAUSES:** **SPECIFICS**  
 CONDITIONS  
 CIRCUMSTANCES  
 CUMULATIVE TRAUMAS

- BEHAVIORS**
- POSTURES**
- ENVIRONMENT**

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**C**

## MSD Risk Factors

- Force
- Repetition
- Awkward postures \*\* ←
- Static postures \*\* ←
- Quick motions
- Compression or contact stress
- Vibration
- Cold temperatures

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**C**

## ERGONOMICS

*the science of Human Engineering*

**Work necessarily includes:**

All activities related to occupation

as well as

All activities of daily living

- 24 hours a day - 7 days a week...

breathing, sleeping, walking, sitting, driving, recreation, etc.

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**C**

## Ergonomics -- Work Place

Computer	Lift angles	Temperature
Keyboard	Platforms	Vibration
Office	Shoes	Air Quality
Desk	Robots	Dust
Chair	Standing surface	Noise
Monitor	Psychological – environment	Traffic
Mouse		Sunlight
Tools		Moisture
		Break time

ADL  
Activities of Daily Living

**Breathing  
Sleeping  
Standing  
Sitting  
Driving**

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**C**

Most Common **CAUSES & CONTINUERS**

**8** **TRANSPARENT** - Causes - Maintainers

- Airway**
  - Allergy, Obstruction
- Behavior / mechanics**
  - Sleep position
  - Loss of arch height
  - Wallet in the back pocket
  - Stick-shift vehicle
- Anatomical shape**
  - Short upper-arm length
  - Leg length difference
  - Short hemi-pelvis

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**A**

**ABOVE THE WAIST**

# ANATOMICAL DIAGNOSIS

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**A**

Key **Muscles** involved

**Axial + Extremity :**

- ABOVE THE WAIST**
  - NECK (Axial)**  
Trapezius  
Levator scapulae  
Scalenes  
Occipital  
Para-cervicals
  - UP-BACK (Axial)**  
Trapezius  
Levator scapulae  
Serratus anterior  
Rhomboids  
Serratus posterior  
Latissimus dorsi  
Multifidi
  - Extremity (non-Axial)**  
Shoulder  
Arm  
Elbow  
Forearm  
Wrist
  - FACET**  
Thoracic  
Lumbar  
Cervical

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**A** **ABOVE THE WAIST**

COMMON MSD DIAGNOSES

# SYMPTOMS

ANATOMICAL DIAGNOSIS  
**B**EGINNING – PRESENTATION  
**C**AUSE – CONTINUATION  
**D**IAGNOSTICS  
**E**LIMINATION

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**A** **ABOVE THE WAIST**

COMMON MSD DIAGNOSES

- Scaleneus anticus sd. (TOS)*
- Costo-clavicular sd. (TOS)*
- Facets - Cervico-thoracic*
- Infraspinatus strain*
- Double, multiple crush*
- Epicondylitis*
- Nerve entrapments*
- Arm-forearm strain-sprains*
- Cervical, myofascial strain, CTS- DEFAULTS*

**Commonly Missed Specifics**

**Concepts & Structure Relationships**

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**A** **BELOW THE WAIST**

# ANATOMICAL DIAGNOSIS

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MSDs

Key **Muscles** involved  
**Axial + Extremity**

**BELOW THE WAIST**

**HIP, LEG, GROIN**  
 Piriformis  
 Tensor fascia lata  
 Gluteus min, mid, max  
 Ilio-psoas

**LOW BACK**  
 Quadrus lumborum  
 Ilio-costalis  
 Piriformis  
 Ilio-psoas  
 Gluts-min, mid, max  
 Multifidi

**FACET**  
 Thoracic  
 Lumbar  
 Cervical

**Extremity (non-Axial)**  
 Thigh - Adductors  
 Sartorius - Hamstring  
 Tensor fascia lata  
 Popliteal  
 Tibial - tunnel  
 Achilles

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**A** **BELOW THE WAIST**

COMMON MSD DIAGNOSES

# SYMPTOMS

ANATOMICAL DIAGNOSIS  
**B**EGINNING – PRESENTATION  
**C**AUSE – CONTINUATION  
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**A** **BELOW THE WAIST**

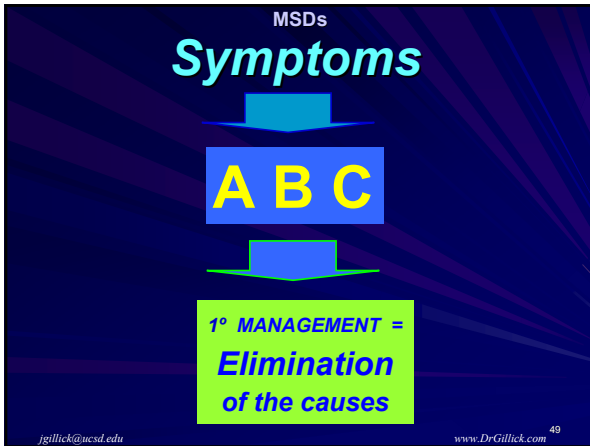
COMMON MSD DIAGNOSES

- Specific nerve-cord pressure*
- Structural instability/damage*
- Ilio-psoas muscle strain*
- Facet Dysfunction*
- SI joint strain/ dysfunction*
- Postural muscle strains - DEFAULT*

**Structure pathology**

**Jolting - episodic - traumas**

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**A**

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– where and how the anatomy relays the symptoms

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**B**

# BEGINNING

Bolstering,  
Bothering

**B**

- **TIME** – WHEN ?
- **LOCATIONS** – WHERE ?
- **ADLs** – WHAT ACTIVITY ?

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**C**

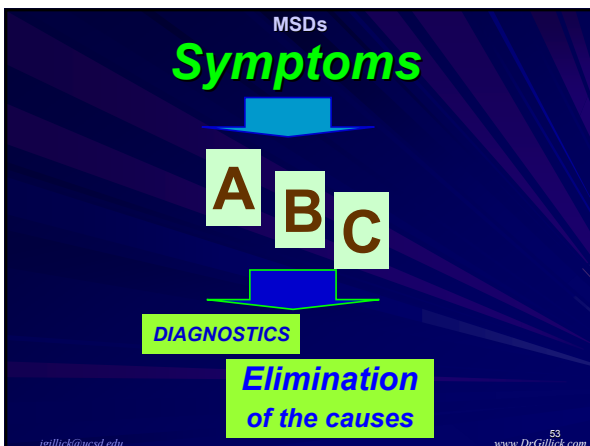
# CUMULATIVE TRAUMAS

**ADLs**  
Breathing - Disturbances  
Sleeping - Disturbances  
Standing - Balance  
Sitting - Balance  
Driving - Balance

**BEHAVIORS**  
Back Pocket Wallet  
Foot / Arch\* Loss  
Sleep Position  
Stick\*shift Vehicle

**Anatomy Proportion**  
Leg length\* symmetry  
Hemi pelvis symmetry  
Short Arm length/ Long Waist

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**INTRODUCTION**

MSDs

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