Treatment2Go
Exploring Hand Therapy
Manual

RSD
Tips, Tricks, Trends, and Trivia

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RSD/CRPS
Tips, Tricks, Trends, & Trivia

Ultimate Goal: Return to function
FUNCTIONAL Restoration

- Early return is critical to avoid:
  - Loss of self esteem
  - Loss of self confidence
  - Loss of ambition

Defining CRPS

- Pain in a portion of an extremity after a precipitating event due to SNS dysfunction
- Complex Regional Pain Syndrome
  - Type I – no specific nerve injury
  - Type II –nerve injury
    - demonstrates major nerve damage
    - objective evidence of disease due to neurological changes (numbness and weakness)

Manifestations

- **Abnormal function of the sympathetic nervous system**
  - **abnormal changes in skin blood flow, sweating or goose flesh.**
- **Swelling**
- **Movement disorder**
- **Changes in tissue growth**
  - **(dystrophy and atrophy)**

What's in a name?

- Historically the name implies a "reflex" involving the Sympathetic/autonomic system and a dystrophy
  - In fact only 15% of patients actually progress to dystrophy

Complex: expresses varied signs and symptoms

Incidence of CRPS/RSD

- The exact prevalence of RSD / CRPS is unknown;
- Both sexes are affected
  - higher in women
  - especially in the pediatric
  - adolescents & young adults
    - Clinical guidelines
      - (3rd ed)

RSD Awareness

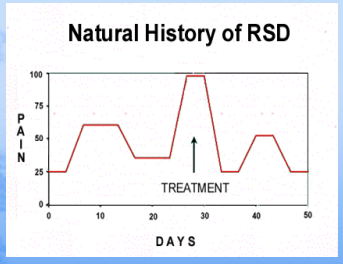
- Estimated 1.5 million have RSD in the U.S.
- Although could be as many as 6 million
- This syndrome occurs:
  - 1 to 2 % from various fractures
  - 2 to 5% from peripheral nerve injuries
  - 7 to 35% from prospective studies of distal radius fracture.

RSD AWARENESS

- Patients see an average of **4.8 physicians** before referral to a pain center
- If diagnosed within 6 months of onset it is easier to treat than after 6 months

Duration of RSD / CRPS

- mild cases
  - last for weeks followed by remission
- pain may continue for years
  - Sometimes, indefinitely
- remission and exacerbation



Interesting

- Study shows Vitamin C in patients with wrist fractures had a lower frequency of RSD
- Vitamin C useful in the prophylaxis of RSD for fractures
- Vitamin C
  - Natural antioxidant

- Study in "the Lancent" Vol 354 Dec 11, 1999; Paul E Zollinger: Department of Orthopedics, Netherlands

CRPS and Surgery

- VITAMIN C for prevention
- Regional Nerve Blocks that provide for a perioperative sympathectomy may be advantageous with or without general anesthesia
- May benefit from a perioperative stellate ganglion block or intravenous regional anesthesia with clonidine
- Therapy (OT/PT) after surgery

Clinical Findings

- **Pain & MOVMEMENT DISORDERS IS THE HALLMARK OF rsd/crps**
- (Allodynia/Hyperpathia)
  - Allodynia
    - Pain occurs (to a stimulus) that typically would **NOT** provoke pain
  - Hyperalgesia
    - Excessive sensitivity to pain

Light breeze

Tapping when stopped prolonged painful sensation occurs

Clinical Features

- Movement Disorders
  - Limited ROM
  - Dystonia
    - Abnormal movement characterized by involuntary muscle contractions that force the body into abnormal, sometimes painful, movements and positions (postures).

Clinical Findings

- Swelling (brawny or pitting edema)
- Skin Changes (vasomotor, atrophy)
  - Abnormal sweating

  - Skin temp
    - (greater than 1degrees C (asymmetry)
- Spreading
- Bone changes
  - Osteopenia/osteoprosis

Spreading Symptoms

- Maleki, et el describes three patterns
- Independent Type
  - Spread to a distant region of the body
- Continuity
  - spread upward from hand to shoulder
- Mirror image (spread to opposite side)
  - First described by Mitchell (Civil War)

Bizarre Nature of Pain

- Some report feeling bugs crawling all over their bodies
- Some describe “demons” moving around inside them
- Excruciating form of pain
  - Compared to cancer, arthritis, childbirth

Stages of CRPS/RSD

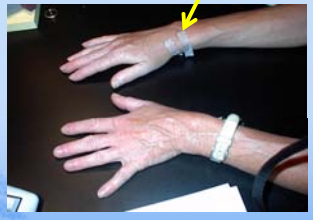
- Acute (stage I)
- Dystrophic (stage II)
- Atrophic (stage III)

ACUTE (STAGE 1)

- Stiffness and limited mobility
- Skin is usually warm, **red** and dry and then it may change to a **blue** (cyanotic) and become cold and sweaty.
- Increased sweating (hyperhydrosis).
- In mild cases this stage lasts a few weeks, then subsides spontaneously or responds rapidly to treatment

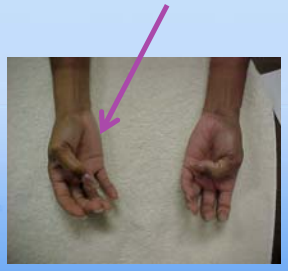
Acute (I)

- Mechanical Factors
- Loss of Range Of Motion
- Guarding
- Edema
- Early Contracture
- Disuse



Dystrophic (II)

- Maximal Intensity of **Pain**
- **Pain** becomes even more severe and more diffuse
- Swelling tends to spread and it may change from a soft to hard (brawny) type
- Hair coarse then scant,
- Nails may grow faster then grow slower and become brittle, cracked and heavily grooved

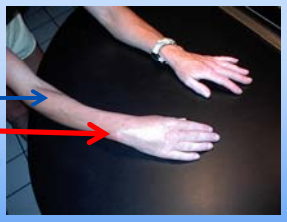


Dystrophic (II)

TYPE II CRPS from dequervain's release

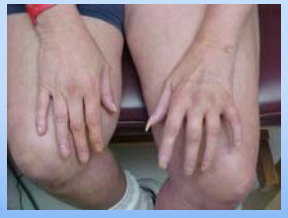
DYSTROPHIC

- Spotty wasting of bone (osteoporosis) occurs early but may become severe and diffuse
- Muscle wasting begins
- Contractures begin



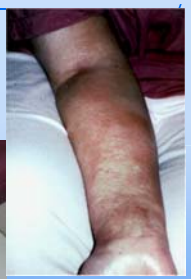
Atrophic (III)

- Articular Joint Thickening
- Fibrotic Flexor Tendon Sheaths
- (atrophic) eventually may become irreversible.
- A **small percentage** of patients have developed generalized RSD affecting the entire body.



Atrophic (III)

- Progressive Soft Tissue Atrophy
- Progressive Muscle Atrophy
- Skin lesions/changes

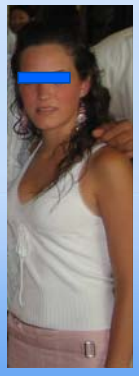


Is it irreversible ?

Ana Gutierrez at the age of 16 dev[redacted]ere dystonia of the left arm due to RSD / CRPS

At the age of 18, Ana was the first patient to undergo the ketamine coma procedure in Mexico. Her success led to the approval of the study by the Institutional Review Board (IRB) for San José Hospital and the Technological of Monterrey School of Medicine in Monterrey, México.

Rsdhealthcare.org



Diagnostic Tests

- **No true good test**
  - Anecdotal and dealing with clinical signs and symptoms
- Today the IASP is attempting to categorize into groups and subgroups
- Nail and hair growth and shiny skin are considered diagnostically irrelevant and omitted from the IASP/CRPS criteria

Controversy continues

Difficulty on agreeing on a set diagnostic criteria but the consensus is following the CLINICAL CRITERIA

Pain & Movement

- **Pain** is disproportionate to any inciting event
  - Controversy occurs over how many of the following must be present either 3 or all 4
    - Sensory (hypersthesia and/or allodynia)
    - Vasomotor (temp, skin color changes
    - Sudomotor/Edema (edema, sweating)
    - Motor/trophic (decreased ROM, weakness, tremors, dystonia and/or hair, nail skin

Must display at least 1 sign in 2 or more of the following categories:

- Sensory: hyperalgesia (pinprick)/allodynia (light touch or joint movement)
- Vasomotor: temp asymmetry or skin color changes
- Sudomotor/Edema
- Motor/trophic

- **NOTE: a sign is counted only if it is observed at time of diagnosis**

Determining if CRPS/RSD is Present

- **No single** laboratory test
- Physician must piece together the subjective complaints with objective (medical history) to determine RSD
- Physician must **rule out** other potential life threatening diseases
- Therapist must piece together symptoms and objective findings

Looking at the patient

- Always compare to the sound limb (control) for objective findings
- 80% of RSD patients have temperature difference compared to control limb
- Temperature changes are dynamic – changing in minutes or following exercise

Local drug store

Pain assessment based on

- Biologic
- Psychologic
- Sociologic

- Obviously the only treatment methodology that can treat all these aspects effectively is the **INTERDISCIPLINARY APPROACH**

HOMEOSTASIS

- Blood flow may be pumped to the muscles limiting superficial blood loss
- Blood flow is constricted causing vasoconstriction
- Blood flow increases –vasodilation

Abnormal Reaction

- Nervous system begins an abnormal, prolonged reflex in response to **trauma**
- The only common symptom is **PAIN**, usually **burning**

- Complaints of **pain** that is often described as deep, aching, cold, and/or burning and is frequently associated with increased skin sensitivity… **disproportionate** to any inciting event.

In Summary

- The reflex **does not shut** down
- Reflex continues in an **accelerated** pace
- **Produces an incredible** amount of sympathetic activity
- **Tenacious vasoconstriction** leads to
  - Tissue ischemia
  - Increased afferent pain and a vicious cycle

Not unusual with RSD

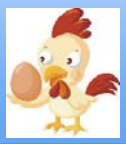
- Cycles of
  - vasodilation and vasoconstriction

Psychological Issues

- **Traits that may be present in RSD patients?**
  - Fearful
  - Suspicious
  - Emotionally labile
  - Chronic complainer
  - Dependent/insecure
  - Unstable personality
  - Low pain threshold

Psychological Issues

- **Food for thought**
  - Could the **maladaptive behavior** be brought on or intensified because of CHRONIC PAIN?
  - Physiological reasons for decreased memory, depression, pain
    - Then would the psychological manifestations disappear when the pain subsides?



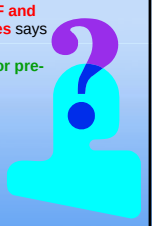
Psychological Issues

- Perhaps the CRPS/RSD patient may have and continue to exhibit maladaptive coping mechanisms; but that does not give us an excuse to invalidate their complaints

Is it all in their head?

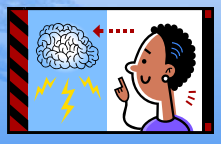
Pre-existing psychiatric condition or a pre-disposition for psychiatric disturbances has been thrown around in the literature

According to **Anthony Fl. Kirkpatrick, MD PhD, USF and editor of the RSD/CRPS clinical practice guidelines** says none of the studies have panned out and there is **NO evidence that the RSD patient has a pre-existing or pre-disposition for the disease**



Challenge

- Psychological issues are extremely **complex**
- **Read Read Read**
  - Psychological manifestations and chronic PAIN
- You must try to understand the psychological issues to deal with RSD



TREND – Bio psycho social approach

- **Bio or biological**
  - Treating the physical or underlying pathology and if possible the root cause
- **Psycho or psychological**
  - Addresses depression, fear, and anxiety that can accompany and even exacerbate the experience of chronic pain
- **Social**
  - Patient's ability to function, work, sustain friendships, maintain status in society

It may become a struggle to successfully treat patients if any of the three areas are ignored.

Cognitive Behavioral Therapy (CBT)

- CBT therapists often serve as a coach to help patients identify suitable activities and overcome any barriers to those activities resulting from CRPS.
- Once CBT pain management skills are learned, they can be applied any time and in any situation.
- Thus, the patient always has effective pain **management tools.**
- In many people, CBT can effectively reduce the reliance on medications and other medical interventions and live a fulfilling life despite CRPS.

Frustration

- Frustrated doctors, health care workers, employers, case managers, friends, and family members may not understand RSD which greatly contributes to the vicious cycle of psychological issues and **PAIN**

Treatment

- Intervention
- Early is the key to success
- Goal is to educate educate educate
- Goal:
  - **Become independent of the health system**

RSD/CRPS Treatment Center and Research Institute

RSDhealthcare.org

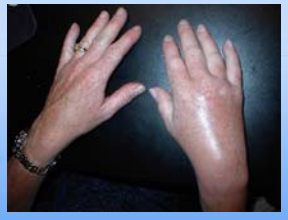
Factors leading to Long-Term Disability

- Delayed diagnosis greater than 2 years
- Additional trauma due to surgical procedures
- Ineffective medical management
- Surgical treatment of the affected area
- Prolonged litigation
- Emotional aggravation
- Type of causalgic RSD

You can't treat CRPS/RSD unless you understand it! Or at least try

Atrophic

Acute or dystrophic



Primary GOAL of THERAPY
(from Guidelines)

- Is to **teach** the patient how to use their affected body part through activities of daily living
- To **create independence** from the health care system in the shortest period.
- Learning that
  - **"to hurt is not to harmful"**

Goals

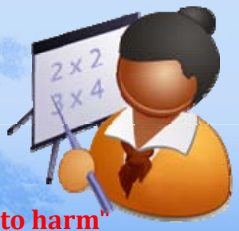
- Must know patient's **expectation**
- Must have **clear and concise** goals
  - **Evolving**, continuing reassessing, dynamic
- Must have a **clear and concise plan of care**

GAIN TRUST

- Try to relate to the patient
- **Therapist must be in control/charge of the clinic**

Education– Primary

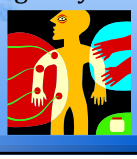
- Educate
- Educate
- Educate



- **"to hurt is not to harm"**

Occupational Therapy

- According to the Orlando IASP/CRPS
  - **OT is the therapeutic leader in the functional restoration process**
- Assess pain/sensation, skin/vasomotor changes, coordination/dexterity and functional use during daily living (ADLs)

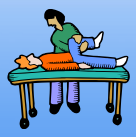


GAOL

- **Goal:** Try to normalize sensation, promote normal positioning, decrease muscle guarding, minimize edema, and increase functional use to increase independence in all areas
  - Work
  - Leisure
  - ADLs

Physical Therapy

- Critical role in functional restoration
- PT activities/goals are designed to complement OT, recreational and vocational therapy
- **PT can be the cornerstone to the first line treatment of CRPS**



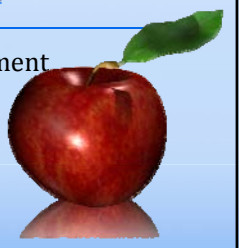
All therapies

- All therapies (increasing ROM, coordination, flexibility, gait training) must be **executed within the patients' tolerance**
  - Not to OVER PUSH when limb is insensate
    - After a block

Inappropriate or aggressive PT/OT can trigger extreme pain, edema, distress, fatigue and may exacerbate the inflammation and sympathetic symptoms of CRPS

OT & PT

- Invaluable adjunct to treatment
- Education
- ADL
- Modalities
- Pain management
- Patient advocate



THERAPY EVALUATON

- Highlights… obviously you will always perform a thorough evaluation

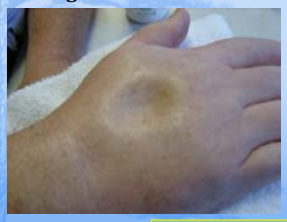
Sympathetic Nerve Activity Premorbid (history)

- History of sweaty palms
- Pallor
- Excessive coolness of fingers & toes when exposed to colder temperatures
- Peripheral Vasoconstriction and poor capillary refill of uninvolved extremity
- Fainting spells, excessive flushing, Migraine headaches

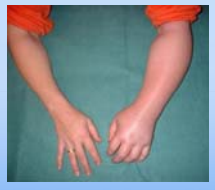
Edema Assessment

Classify the Edema

Pitting



Hard (brawny) edema



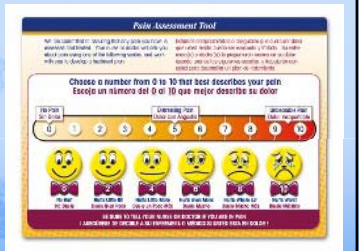
PHOTOS
Great for showing progress
Works good for reimbursement

Pain

- It is important to evaluate the pain **but not focus solely on it.**

Pain Evaluation

- Pain diagram
- Pain scales
- Questionnaires
- Inventories



Questions to ask about patient's PAIN

- Is your pain constant or intermittent?
- If constant, does is vary in intensity?
- If intermittent, when do you have pain?
- How long does your pain last?
- What is the frequency? (occasional….)
- How long have you had the pain
- What is your pain like now, at rest, worst

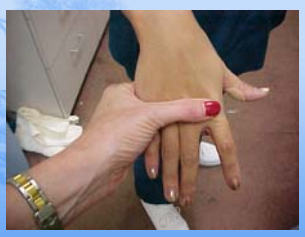
Questions about the behavior of the pain

- Describe pain (stabbing, aching, sharp…)
- Does the pain move or spread?
- Is pain aggravated by movement? Light touch? Putting on your cloths?
- Is pain aggravated by certain postures?
- Do you have stiffness associated with pain?
- Does the pain make you wake? If yes, of often in the last 10 days.
- How DO YOU EASE your Pain?

Clinical therapy tests

MCP Squeeze Test

Grasp MCP and assess for pain



Response to Cold

- If you touch the patient with something **cool** they will often have a **noxious response** and this is a hallmark sign to neuropathic pain
- **Drop and Swipe**
  - test is a quick assessment & easy

Drop and Swipe Test (part 1)

- Designed by the Mensana clinic in Maryland
- Simple and easy to perform
- An alcohol swab is opened and squeezed so the alcohol drops to the affected limb
- In 10-60 secs ask the patient what he feels
- If **pain is dramatically increased** the patient is experiencing **thermal hyperalgesia**
- If cold/cool it is a normal response and not thermal hyperalgesia

Drop and Swipe Test (Part 2)

- Swipe alcohol pad lightly over the affected area
- If patient responds with increased pain or withdraws the limb or tells you to stop
- The patient is experiencing mechanical hyperalgesia
- **Most CPRS/RSD patients experience**
  - **thermal and mechanical hyperalgesia**

Document Skin/Trophic Changes

- Dry, scaly, or shiny
- Hair grows in course and then thin
- Nails are more brittle
- Nails grow faster

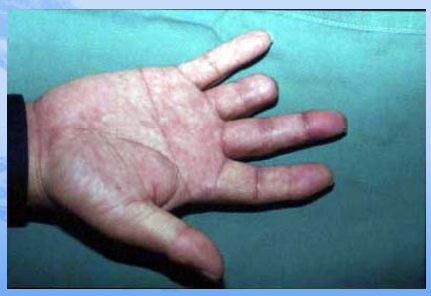
Document vasomotor changes

- Warm or cool skin
- **Hyper**hidrosis or **hypo**hidrosis
  - Increased sweating
- Increased pilomotor
  - goose flesh
- Mottled, red or blue appearance
- fluctuates

Info

- Sensations of warmth or coolness in the affected limb without even touching it (**vasomotor changes**).
- Changes in skin color can range from a white mottled appearance to a red or blue appearance
- Changes in skin color (and pain) can be **triggered by changes in the room temperature**

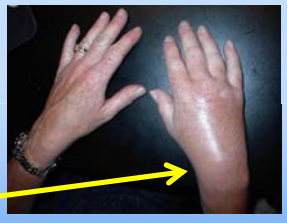
Vasomotor instability – mottled and blue



- Initially, RSD / CRPS symptoms are generally localized to the site of injury
- As time progresses, the pain and symptoms tend to become more diffuse and can **spread**

Evaluate movement pattern

- Difficulty with initiating movement
  - Mind tells hand to move but it won't
- Reports feeling of stiffness
- Tremors
- Dystonia
  - Abnormal posturing
  - Involuntary jerking
  - Painful posturing
- Cramps/muscle spasms
- Weakness



Movement Disorder

- Lack of movement will lead to **muscle wasting** (disuse atrophy)
- Weakness

- Tremors and involuntary **severe jerking**
- Sudden onset of **spasms** (cramps)
- Increased tone (**dystonia**)
  - This phenomena of stiffness is most noticeable to some patients after a sympathetic nerve block when the stiffness may disappear

Feldenkrais Method

- It is intended for those who wish to improve their movement repertoire (dancers, musicians, artists), as well as those wishing to **reduce pain** or limitations in movement

Feldenkrais Method

- The **Feldenkrais** Method holds that there is no separation between mind and body, and thus learning to move better can improve one's overall well-being on many levels

"Awareness Through Movement"

- The teacher verbally directs students through movement sequences and various foci of attention.
- Guided imagery
- Deep relaxation method

- **What is the Feldenkrais Method®?**
  - **Youtube.com**

Guided Therapy

- **Imagine** yourself in a calming place
- Like going to the beach or the mountains, hobbies (dance)
- **Therapist gives verbal cues to** the patient until patient is **seeing it in their head**
- **REPEATED** thoughts and emotions create nerve pathways in the brain.
- **IMAGINATION**
  - **Neuroscience** shed light on the process
    - (Rossman md)

Motor Imagery

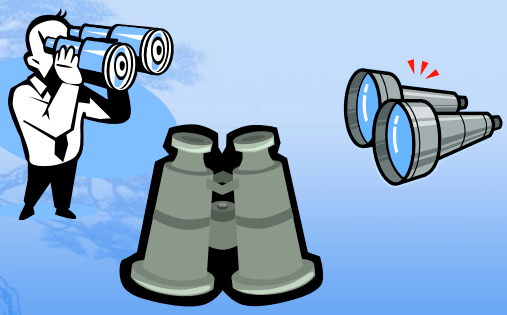
Motor Imagery

Visual illusion is created to solve the mismatched theory:

Pain may be due to a **mismatch** between motor intention, proprioceptive and visual feedback; similar to the way nausea can be the result of the mismatch between vestibular and visual information.

[redacted]

Using Binoculars motor imagery



Exercise the Opposite side will help

Exercise the UNINJURED side – research has shown this will help the injured side

Both hands need to grab a weight and exercise

Posture

- **Important** component when treating
- **Minimize** protective guarding of the extremity
- **Promote balanced** use of muscles
- **Facilitates** improved functional use of the affected extremity

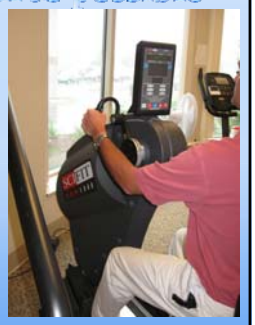
Exercise

- Too much or too little can increase pain
  - Therapy must find the happy balance and educate the patient

What works for each Patient

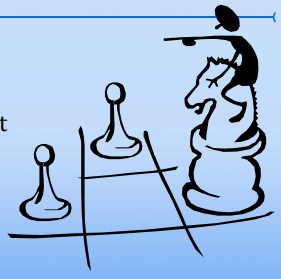
Using limb as normal as possible

- The cornerstone in the treatment of RSD / CRPS **is normal use of the affected part** as much as possible
- **Facilitate movement** of the affected limb



Flexibility and ROM

- Movement disorder
  - Slow to initiate
  - Appears stiff but is not
  - Encourage movement



TAI CHI or YOGA

- Tai Chi can work on posture, balance, and self esteems
- TAI CHI: FLOW INTO FUNCTION
  - Tai chi
  - Qi gong

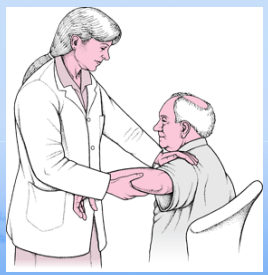
Active Assisted ROM

- Can use in conjunction with massage
- Gentle joint distraction
- Stretching (gentle)
- Machines
- Therapists assist

PASSIVE ROM

DO NOT OVER DO

- **CAUTION**
- Used primarily when **pain is controlled** and diminished greatly
- Used in conjunction with sympathetic blocks
  - Falling out of popularity due to over aggressive therapists
  - **DO NOT OVER DO**



General Exercise/Conditioning

- Excellent for increasing blood flow
- Great coping mechanism
- Excellent for health
- Encourage to incorporate into daily life
- Aerobic

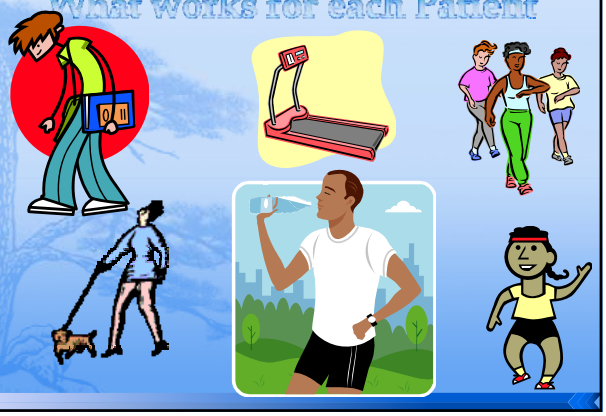
Exercises

- Pool therapy with CRPS
  - Temp usually warmer 78 – 82 degrees
  - Soothing
  - Try new exercises
  - Gain strength
  - Gain confidence
  - Caution not to over do in water

If patient presents with:

- Disuse atrophy
  - Functional Exercises
  - Change limb position
  - Prevent immobilization

What works for each Patient



Functional Exercises

Push up

- Wall push up
- Kitchen counter push up
  - Do a few while waiting for the microwave to finish

Tips to incorporate into every day life

Functional Exercises

Squats or lunges

- Knees should not go further than toes
- Most of our reaching, lifting and/or bending requires lunges or squats
  - kneesStrengthens
  - Quads
  - Hips

Functional Exercises

Shopping

Strengthen arms

- Lift bag 3 rep
  - front
  - Side
  - Back
    - Grocery bag
    - Clothing bag

Encourage using painful limb

Functional Exercises

Chair lifts

Equipment you can use around the house

- Dumb bells
- **Body weight**
  - like in chair push up, kitchen counter push ups, wall push ups
  - Lunges and squats
- Resistance band and loops
- Balls (weighted)
  - Soup cans
  - Socks filled with rick and sand and tied

hyperhidrosis

- **Iontophoresis.**
  - Painless procedure uses water to conduct an electrical current through the skin.
- iontophoresis machines
  - Home
  - Doctor's office.
- Iontophoresis can be effective hands or feet
  - Repeat two or three times a week.

BOTOX is an option as well

Desensitization– normalizing sensation to the affected area

- Hypersenensitivity:
  - Unpleasant stimuli to the hypersensitive area
- Objects/stimuli that the body is routinely exposed to and do not elicit a painful response to the unaffected side.
  - Textures/fabrics
  - Touch (deep vs light)
  - Vibration
  - Hot or cold

  - Typically you want a progressive approach
    - Soft to hard
    - Touch to tap to vibrate
    - Consistent to intermittent stimulation with each material

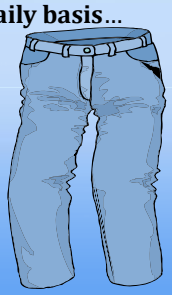
Desensitization

- Gradually introduce stimuli that elicits the least amount of pain or response
- Goal is to **inhibit or interrupt** the body's interpretation of **routine stimuli**, as being **painful**

  - Goal is to minimize pain
    - Residual discomfort or uncomfortable feeling but pain is minimized

Desensitization

- Try to use **everyday objects** so the patient can **reproduce and continue on a daily basis**…
  - Using car steering wheel
  - Upholstery (furniture)
  - Jeans
  - Wash cloths
  - Cotton balls
  - Paper
  - 5 – 20 minutes a few times a day



Hypersensitivity and ADL's

- Adapt the situation by protecting certain areas that are hypersensitive to encourage ADL's
  - Adapt by using gloves, splints, elastomer inserts, taping……..

Over the counter liniments

- According to the 3rd Clinical Guidelines
  - Over the counter or prescription pain relieving creams may be beneficial
    - Capsaisin
    - Heat patches (caution)
    - Oils
    - Lotions

Chili Pepper Seeds - CAPSAICIN

- A long-time arthritis pain reliever, capsaicin rids your cells of a pain messenger called substance P.

Substance P is kind of like taking away a computer's Internet connection - no messages get sent.

Caution

Counterirritants

Contain ingredients that irritate the skin

Menthol, oil wintergreen or eucalyptus oil

Rub on area creating a hot/cold sensation giving Temporary pain relief

Glycerin and Rosewater Hand

(this is the most basic and easiest

- 1-1/2 cups distilled water
  3 teaspoons of rose oil (soluble)
  1/3 cup of glycerin
  - Vegetable Glycerine Oil from NOW has a rich, lubricating texture that is easily soluble in water. And because it is derived entirely from vegetable oil, it is hypoallergenic
- Blend all ingredients until smooth and clear and place in a clean bottle with a top.
- Alternative:
  - rose water and just substitute 1-2/3 cups rose water for the rose oil and distilled water)

http://www.helium.com/items/375579-homemade-hand-cream-recipes

Cramps

- Heat
  - Gloves/covers
- Massage
  - Therapist
  - Instrument assisted
- Relaxation techniques
- Splinting
- Nutrition

Cramps and edema

- **Massage and MEM**
  - Careful of temporal summation and maintain constant contact if possible…
    - **Goal is to tolerate uneven stimulation**

Instrument Assisted

- Steel tools
- Plastic tools
- Vibration

- "Gently getting kinks out of your muscles can really help you feel better! I sometimes use vibrating massagers, but watch out for those! I have days when my skin almost seems to crawl and my nerves are really jumpy. On those days, the vibration does far more harm than good"

Gaining function

- **HEAT**
  - Moist heat, paraffin (caution) has shown to increase blood flow to the treated area

Dry heat (fludio) has shown to increase tissue temperature…… Careful… the stimulation maybe over stimulating… assess each tx

Heating Mitt or glove

- Microwavable products are nice and convenient
  - For home use
- Easy to use
- Inexpensive

Keep a pair in the car, purse, or handy for immediate use

Gloves with GEL

Can purchase at local merchants

•Great for night use to help reduce pain and increase comfort

Cotton Gloves

Great to help decrease pain, increase blood flow, decrease stiffness, decrease cramps

?? Whirlpools ??

- Literature supports w/p to be contraindicated because of the increased edema hence may increase the pain (assess daily)
  - about 10 minutes of optimal treatment time to benefit from the effects of heat

CONTRAST BATHS

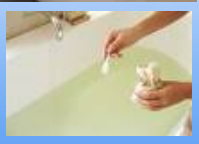
- It is advocated to avoid the extremes of temperatures

GRADUALLY broaden the temperature difference between hot and cold

This can assist with building a **TOLERANCE** to the heat , cool water or cold!

May be helpful

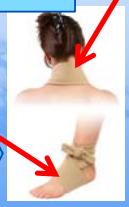
- **Warm** soaks with **Epson Salts**.
  - Epson Salt has **Magnesium** and that is soothing, helps with **pain management and edema.**



HEAT

- Increases flexibility
- Increase blood flow
- Increases ROM
- Decreases stiffness
- Decreases pain
- Decreases spasms
- Increases relaxation

Microwavable heat is nice & convenient. This HOTMITT can heat the hand evenly. **Plus** you can walk around while it is on.



Wraps can be heated and applied for 15 to 20 minutes

Heat and Stretch

Clinic or home units

GENTLE
Do not cause pain

Paraffin:
Pre-treat with 7-10 dips for 10 minutes.
Apply Gentle stretch and re-dip.
Maintain stretch for 10 additional minutes or as tolerated

Heat

Warm towels by using a towel heater

Bath and showers are great ways to warm cold "stiff" or painful joints/muscles/limbs

Try electric or fleece blankets

May help get a good night's sleep & decrease pain

RECOMMEND NEW designs and THROW AWAY OLD electric heating pads and blankets

Heat may be good to help…

Heat is best used when inflammation is not severe

Warm muscles and affected area before an activity, hobby, exercise, or work may increase ease of the task

Clothes to help keep warm & keeping people active

Sporting specialty stores (REI) have athletic gear cycling under armor, outdoor warming sleeves and more

Stylish ARM WARMERS

- Excellent to keep joints warm and flexible
- Can wear when exercising
- Or just wear casual
- Under clothing

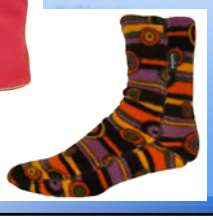
HeatBANDS

Thin strips wrap around wrists

Terry Cloth or Cotton Wrist wraps

Warm, super soft socks or slippers gloves, mittens

try to keep handy for when the chill is on.



Hoodies on mittens

Hand Warmers

Good Night's Sleep

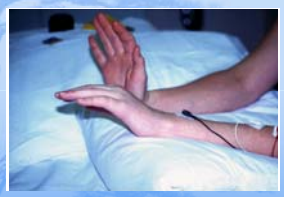
Regular sleep-and-wake schedule

Minimize light and noise

UltraSound

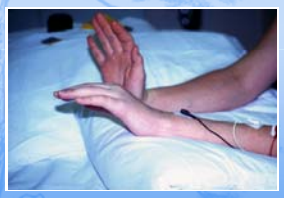
- Pulsed
  - 1.0 to 1.5 W/cm2
- Continuous
  - .8 to 1.2 W/CM2
    - Affected areas

BIOFEEDBACK



- Excellent adjunct to treatment
- **Great for immediate** feedback on
  - Muscle contraction
  - Muscle relaxation
  - Muscle activity
  - Temperature regulation

Biofeedback



TENS

- Sensations sent to the myelinated efferent fibers to bypass C fibers through:
  - Light Touch
  - Pressure
  - Proprioception

TENS

- High intensity Pulse (BURST)
  - Vasodilatory effect
  - Low frequency with short durations
    - Five pulses at 2 to 5 Hz for 45 to 60 minutes
      - Some advocate 1 hz and 25 to 30 minutes
    - Thought to believe the serotonin level is altered increasing the vasodilation
    - intestianl peptides respond to vasodilation via low level burst TENs

Electromesh Glove

- High Volt
- Entire glove is conductive
- Effective for generalized pain

RSD

Purpose of E-Stim

- Mask the pain to allow for joint R.O.M.
- Decrease edema
- Assist initiation of voluntary movement (NMES)

Patient's limb may "pink up". That's a good thing!

Warnings

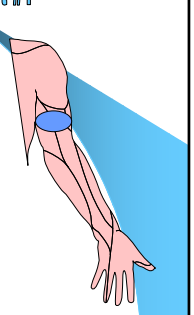
- Keep intensity ***minimal*** so as not to create vasoconstriction.
- Too much intensity will actually cause vasoconstriction.
- If pain or coldness increases, STOP the E-Stim

Remember, vasoconstriction is the problem in the 1st place!

RSD

Masking Pain - Electrode Placement #1

- Mono or Bipolar
- Over or Proximal to the Painful Area
- Along Peripheral Nerves Where They are Superficial



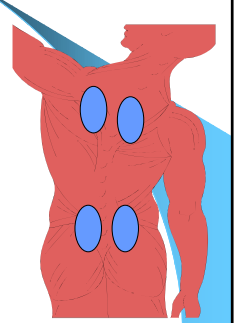
RSD

Masking Pain - Electrode Placement #2

Paravertebrally

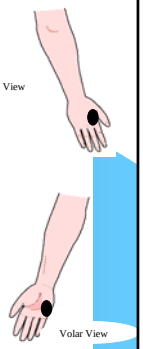
For Arm: Paraspinals from T1 to T4

For Leg: Paraspinals from L1 to S1



RSD
VIP - Electrode Placement

- Bipolar
- Contra lateral (opposite) hand from the affected hand
  - One electrode over the Web Space of the hand
  - Second electrode over the Hypothenar Eminence of the SAME hand



If you can't put the modality at the site of PAIN then...

- Proximal to the pain
- Contralateral to the pain
- Total body immersion
  - bath
  - pools
  - Warm tub

Low level Laser

- Research is underway to determine the effects of neurological pain relief
- Preliminary studies are encouraging
- Laser is effective for treating PAIN at present

Laser

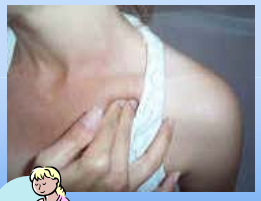
- Supports the natural functions of the human body
- Stimulates healing and relieves pain without the side effects
  - Increases nerve conduction & nerve regeneration
  - Increases vasodilation

Thor Laser using Cluster

How hard or deep do I work wit CRPS

- Patient specific.
- Typically Myofascial massage technique include a light to firm and even deep touch
  - The light does not imply skimming it only is to distinguish from deep TrP release therapy.
  - deep TRIGGER POINT release is typically not recommended with CRPS

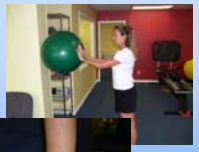
Self massage with TrP release



Encourage Functional Exercises

- Try electrical modalities in the clinic
- Encourage using limb for activities
  - Pinch
  - Grasp
  - Reach

Exercises



- **Closed chain exercises are good for tissue stressing, weight bearing, proprioceptive feedback**
  - Also can use the stress loading (dystrophile) program
  - The stress loading component of closed chain may increase pain with some patients

Dystrophile

- SCRUB: Advocates to begin with 3 minute sessions and work up to 10 minute sessions
  - Home use a scrub brush
- Carrying start with ½ pound to 1 pound increasing weight as tolerated up to a 10 minute session

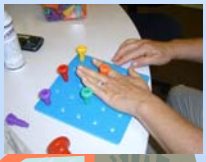
Scrub

- Quadruped on the floor
- Lean on arm and "scrub" motion
- Shoulder should be directly over the hand
- Begin with 3 minute sessions
- 10 minute sessions within 2 weeks
- Perform to patient's tolerance

Carry

- Load extremity
- Arm, elbow, wrist extension
- Beginning weight usually between 1 to 5 pounds
- Carry weight throughout the day especially when standing
- Record daily weight and time carried
  - 30 seconds carried rolled coins around house
  - 3 minutes carried ½ pound weight

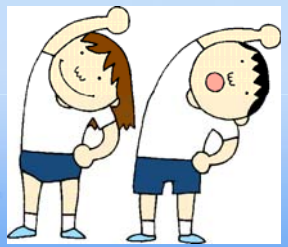
Therapeutic Activities to encourage FUNCTION



- Rolling BALL
- PEGS
- Picking up objects
- Making something
- **Successful completion of exercises**

Conditioning In GENERAL

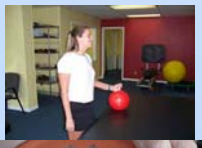
- Incorporate the entire UE and body
  - prevent stiffness
  - try to minimize spreading
- Try to encourage **"normal"** movement



Using the whole upper extremity

- UBE
- Pulleys
- BTE
- Ball on mat table
- Wall walking
- Cone stacking
- Cane exercises
- Skate-board for shoulder and elbow

- Rolling the ball & weigth bearing
- Wand/stick exercises
- Powerweb and other modalities
  - Finger exercises
  - Sand



Splinting

- General rule – Do not immobilize unless ABSOLUTELY necessary

Reasons for Static Splinting

- Protection
- Positional
- Pain maintenance
  - **CAUTION** must be employed when including static splinting in plan of care
  - **Extensive education** must be conveyed to the patient in regards to wasting and becoming dependent on device

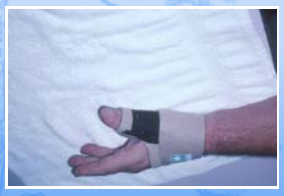
Safe position at night may be helpful- if person is showing signs of contractures

To decrease pain

Neoprene Splinting

- **Excellent** adjunct for treatment
- Provides **warmth**
- **Increases** blood flow
- **Provides** minimal support/compression
- Ability to move while wearing splint
- Provide **psychological benefits**
- **Decreases** chance of wasting vs. hard splint

NEOPRENE



Static Progressive Splinting – goals

- Mobilization
  - Reversal of contracture
  - MAYBE but usually not tolerated

Static Progressive

- Pros
  - Short Duration
  - Patient Control
  - Positional control
- Cons
  - Cumbersome
  - Patient's may get too aggressive with increasing tension
  - Patient's may not increase according to recommendations

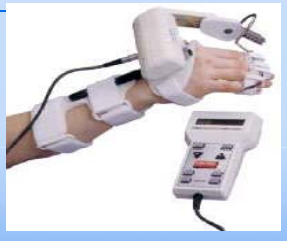
Dynamic Splinting
Again usually not tolerated

- Goal
  - Increase ROM
  - Decrease contractures
  - Increase Function
  - Improve positional use

Wearing time too long
Try decreasing to 30 minute session

CPM

- Decreases stiffness
- Aligns Scar tissue
- Can be used in conjunction with TENS
- Use with Caution – PROM concerns



CPM

- Can be used intermittent throughout the day to limit interference with active use of extremity
- night use
- Pain Free range of motion
- Contribute to pain relief via the gate theory and will also improve peri-articular and cartilage nutrition

ADL's

- Focus on function
- Use of adaptive equipment if needed
  - Usually not well received
  - But adapting the environment and implementing energy conservation and joint protection principles is highly recommended
- Avoid using a sling
- Promote socialization
- Encourage leisure tasks or pick up new leisure skills

Hobbies

- Will increase the patient's confidence
- Patient is made aware that the hand is functional
- Reincorporates the spontaneous use of the injured hand

Community re-entry

DIET

- Mediterranean diets
  - Anti-inflammatory diet
  - Whole grains, fresh fruits, leafy vegetables
  - Fish and Olive Oil

Omega 3 Fatty acids: reduces inflammation
Fish oil
Flaxseed

Ginger:
Inhibits pain causing molecules

Thank You

Good Reference Websites

- Rsdhealthcare.org
- rsdfoundation.org
- rsds.org
- ampainsoc.org
- britishpainsociety.org

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Source: *Pain.* 2003;104:1-13.

Author: Horowitz SH
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Source: *Clin J Pain.* 1996;12:90-93.

Website resources:

Feldenkris method **http://www.youtube.com/watch?v=e_i5QuIqcQo**

RSDhealthcare.org

http://rsdfoundation.org/StreamingVideoFilesWMV/VideoIndex.html

- Rsdhealthcare.org
- rsdfoundation.org
- rsds.org
- ampainsoc.org
- britishpainsociety.org

Tips and TRICKS

1. **Capsaicin**
   A long-time arthritis pain reliever, capsaicin rids your cells of a pain messenger called substance P. That's kind of like taking away a computer's Internet connection - no messages get sent. I prefer the bottle that looks like a Bingo dauber so I don't have to touch the medicine. (Learn more about capsaicin before using it.)
2. **Muscle creams**
   While muscle creams (like Tiger Balm and Aspercreme) don't do much against FMS pain, they can provide relief from muscles aches that can contribute to your overall pain level and make it hard to get comfortable or sleep.
3. **Massage tools**
   Gently getting kinks out of your muscles can really help you feel better! I sometimes use vibrating massagers, but watch out for those! I have days when my skin almost seems to crawl and my nerves are really jumpy. On those days, the vibration does far more harm than good.
4. **Rice bag**
   A rice bag is uncooked rice inside a little pillow, usually made of flannel or some fabric that feels nice against your skin. You heat it in the microwave for a couple minutes and it releases a soothing, slightly moist heat. It's a great alternative to a heating pad because it gradually cools off and won't start a fire, so you can use it to help you sleep. (Mine also has a flannel pillow case so I have more control over how much heat is against my skin.)
5. **Warm, super soft socks or slippers**
   Why is it that our feet are always cold? I can't answer that, but I know they are! I try to keep something close by for when the chill is on.
6. **Cooling products**
   My temperature is all over the place, and some days I get too hot and just can't cool down. I've used one that you just put in cold water for awhile and then wrap around your neck. It feels heavenly and will eventually cool your whole body. I also keep ice packs in the freezer, either for cooling off or for muscle inflammation.
7. **Dark chocolate**
   It may sound strange, but dark chocolate is proven to boost your serotonin levels, which means it can make you feel more awake and give you a mood lift. To get the full effect, get the *really* dark stuff -- like 85% cocoa.

8. **Lotion**
   Dry, itchy skin aggravates my FMS, and every time I scratch it can cause a lot of pain in the area. If the lotion has a soothing scent, it can do double duty by helping you relax.
9. **Nail clippers**
   This might sound like an odd one, but I've been kept awake more than once by too-long toe nails scratching against a sheet or blanket. Might as well be a chalkboard!
10. **Blankets, pillows and bedding**
    The more sedentary you are, the more important it is to have a comfortable place that's ready for you at a moment's notice. Even in the summer, I have a luxuriously soft blanket handy in my family room as well as a variety of cozy-feeling pillows. Also, course sheets are like sleeping on sandpaper! I prefer flannel or jersey, or a high thread count. Feel before you buy!