PHYSIOTHERAPY AND SCLERODERMA: HOW PHYSIOTHERAPY CAN HELP

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WHAT IS PHYSIOTHERAPY?

• Physiotherapy helps restore movement and function to as near normal as possible when someone is affected by injury, illness or by developmental or other disability
• Referred to physiotherapy for the treatment of a variety problems.

• Approximately 90% of patients complain of musculoskeletal problems at some stage of the disease (Alpiner et al. 1995).
Although physiotherapy techniques may not change the underlying pathological changes, or prevent all disability, observations imply [physiotherapy] may improve function by minimizing

– contracture,
– loss of strength and
– decreased skin compliance.

Askew et al 1983, Br J Rheum 22, 224-32
RESEARCH PERFORMED TO DATE

Hand stretches

Mouth opening stretches

Heat treatment – wax bath

General fitness work
FINGER STRETCHES: EXERCISE SHEET

EVIDENCE-BASED SELF-ADMINISTERED HOME PROGRAMME FOR FINGER STRETCHING

Individual fingers maintained in a stretch position using the opposite hand for 10 seconds. Repeated 3-10 times. Performing the stretches once daily. Exercises to be performed carefully especially if aches, local inflammation or ulcers occur. Since self-exercise is difficult for patients with severe contracture restrictions to perform, you may need to ask a family member or friend to assist.


CASE STUDY 1

• 79 year old female

• Limited Systemic Sclerosis diagnosed March 2011

• Raynaud's phenomenon, mild sclerodactyly, probable upper gastrointestinal involvement, telangiectasias

• Weight loss

• Aware that her mouth had become smaller
CASE STUDY 1

• Physiotherapy Assessment

Maximal mouth opening
40mm

Tragus to wall
18cm
CASE STUDY 1

• Treatment plans:

(1) Postural neck retractions

(2) Self-assisted stretches

(3) Oral augmentation exercise
CASE STUDY 1

• 2 month review:
Progressed to 12 sticks, 10 minute hold
MMO = 42mm, T2W = 16cm

• 3 month review:
10-15 minute hold, MMO = 45mm, T2W = 15cm

• 5 month review:
Now up to 17 sticks, MMO = 46mm, T2W 15cm
CASE STUDY 2

- 64 year old male

- 1998 he developed Raynaud's phenomenon with skin tightening and muscle weakness

- Diagnosed with limited cutaneous systemic sclerosis/ polymyositis overlap.

- He has sclerodactyly with digital pitting and telangiectasias
CASE STUDY 2

• **Wrist fracture**
  December 2009

• Presented at OT department in SRFT 9th Dec. 2010

• OT asked from physiotherapy assessment. Had been having physiotherapy at hospital where wrist operation was performed

Heat treatment – wax bath
CASE STUDY 2

Heat treatment – wax bath

30°
(70°) Extension

40°
(90°) Flexion
CASE STUDY 2

Physiotherapy Treatment

(1) Wax treatment to heat the area

(2) Stretches and mobilisations

Heat treatment – wax bath
CASE STUDY 2

Outcome

Heat treatment – wax bath

60°

(70°) Extension

Plus quality of life / return to function

70°

(90°) Flexion
WAX BATH TREATMENT

History

• Used to diminish the symptoms of Rheumatology conditions since the early 1900s

• Hot paraffin can be safely applied to the skin at temperatures greater than other therapeutic modalities …or with less heat transfer than other modalities applied at the same temperature

Harris and Millard 1955, Rheum Dis Clin N Am 17, 1001-14, Zeiter 1939, Arch Phys Therapy 20, 469-72
WAX BATH TREATMENT

Proposed Benefits

• Increases pain threshold
• Reduces joint stiffness and assists in mobilisation
• Helps prepare the body part for therapeutic treatment
• Reduces swelling and the consequences of swelling
56 year old female

Diffuse cutaneous systemic sclerosis with inflammatory arthritis

Diagnosed March 2009

Pulmonary function satisfactory (FVC of 2.7 L, TLCO 86% predicted)
CASE STUDY 3

- Physiotherapy assessment Jan 2010
  - Slightly limited ankle ROM
  - Limited elbow and shoulder ROM
  - Particularly limited wrist ROM (flex 25, ext 15)
  - Poor hand movement and strength
CASE STUDY 3

Physiotherapy / Home treatment

(1) Regular stretching

(2) Heat

(3) Pacing

(4) “Keep Moving”

(5) Tennis coach encouragement, modified equipment (lighter racquet, smaller handle size), altered grip position, swing and foot positioning training
CASE STUDY 3

Outcome

Improved mobility
Improved grip strength
Improved fitness is a realistic goal for all:

**Oliviera et al. 2009:**
21 Scleroderma patients
8 week, 2 x weekly exercise session
monitored treadmill
improved cardiovascular fitness levels / aerobic capacity.

**Antonioli et al. 2009**
16 participants
daily 30 minute exercise programme for 2 weeks.
better scored quality of life and found they were less exerted doing the same exercises.

**Shoemaker et al. (2009)**
6 weeks of 3 x times per week
monitored exercise bike work (>50% of peak workload)
two subjects improved at very similar rates and levels
TAKE HOME MESSAGES

Stretch
- Movements can improve
- Regular, and hopefully self-performed

Strength
- Can return / be improved
- Ensure combined with stretches

Fitness
- Many options, find a passion
- Breathing issues not a true limit
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QUESTIONS?
REFERENCES


EXTRA INFO ON FOLLOWING SLIDES
WAX BATH TREATMENT

Askew et al (1983) single treatment session of wax (20 minutes), friction massage and range of movement exercises. Compared to control significant improvement in ROM, skin compliance and function.

Pils et al. (1991) 12 sessions of wax treatment then discontinued by half the group, on re-assessment there was no difference between groups.

Sandqvist et al (2004) other hand as control. Finger, thumb and wrist movement improved perceived stiffness and elasticity also improved.

Mancuso and Poole (2009) 8 weeks of daily wax and hand exercises for 3 patients found improvements in grip, pinch and joint motion. Only minimal detectable changes for the timed scores from the hand function items
Naylor et al (1984) for 3 months, six facial exercises for two sets of five stretches daily and the intervention group performed some auto-assisted mouth stretches and a new oral augmentation exercise. Control group improved maximal mouth opening by 3.0mm, intervention group by 5.6mm.

Pizzo et al (2003), essentially a repeat of Naylor study, found significantly improved mouth opening.

Poole et al (2010) again repeated benefits of Naylor study seen.

NB. MMO -> ^ speaking and eating ability and oral hygiene
Oliviera et al 2009 Twenty-one Scleroderma patients completed an eight week, twice weekly exercise session on a monitored treadmill. Lead to improved cardiovascular fitness levels / aerobic capacity.

Antonioli et al 2009 A daily 30 minute exercise programme for two weeks. The exercise programme included a warm up, respiratory exercises, treadmill and free walking, finger stretches, a cool down and something the authors called training of motor functions. The 16 participants had increased hand movement, better scored quality of life and found they were less exerted doing the same exercises.
Shoemaker et al. (2009) six weeks of three times weekly monitored exercise bike work. (50% of peak workload)

The two subjects improved at very similar rates and levels in stark contrast to drug studies which have shown SSc patients with PAH respond suboptimally to treatments that have been shown to be effective for PAH where the individual does not have SSc (Le Pavec et al. 2010).

6-10% of SSc patients go on to develop PAH (Villela et al. 2008, Hachulla et al. 2009, Le Pavec et al. 2010).