Ergomotor Intervention: An innovative approach in managing work-related neck-shoulder disorders

A study to compare the “Ergomotor” Intervention Program to conventional physiotherapy treatment in managing work-related neck-shoulder disorders:
A randomised controlled trial

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Common postural problems in workers contribute to work-related musculoskeletal disorders (WMSD)

- Work-related neck and upper limb musculoskeletal disorders (WRNULD) are a common occurrence in Hong Kong.
- Conventional physiotherapy tends to aim at symptom relief and improving mobility.
- Ergonomics interventions aim at improving workplace factors.
- Combining the 2 will help to provide long-term solutions for these problems.
Patients with Work-related Neck–shoulder disorders

- Recruit and check for eligibility

Randomised into 2 groups: Baseline Assessment
1. Musculoskeletal: pain, ROM, strength, function
2. EMG assessment of neck and upper limb muscles
3. Detailed analysis of work nature and task demands

Ergomotor Intervention: (n=50)
1. Ergonomic training – to correct work environment and work habits (as much as possible)
2. Biofeedback to overactive muscles
3. Motor control training exercises
4. symptomatic treatment with TENS and US

Conventional physiotherapy: (n=50)
1. symptomatic treatment with TENS and US only
2. Manual therapy
3. Standard exercises

Re-assessment at 3 months (post-intervention):
1. Pain,
2. functional outcomes (NDI, DASH)
3. EMG assessment of neck and upper limb muscles during functional movements
4. work status and disability claim
5. healthcare costs

1-year followup assessment:
1. Pain,
2. functional outcomes (NDI, DASH)
3. work status and disability claim
4. healthcare costs (if any)
Functional outcome measures

- Pain score
- Neck Disability Index (NDI)
- Disabilities of the Arm, Shoulder & Hand (DASH)
- Job-related Physical Demand
- Workstyle
- Pain self-efficacy
- Global recovery score
Total number of subjects recruited = 45, Ergomotor Group= 21, Control Group= 24
Surface EMG on 14 muscles
- Bilateral Sterno-cleidomastoid,
- Bilateral Cervical erector spinae,
- Upper trapezius, lower trapezius,
- anterior & posterior deltoid,
- biceps & triceps,
- ECR & FCR

3D Kinematics: Neck, scapular, shoulder joint and elbow joint movements