Text Neck Syndrome and SMS Thumb: A Comprehensive Physiotherapy Perspective Evidence-Based Assessment, Management, and Prevention Strategies

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ABSTRACT

Background: The widespread adoption of smartphones has introduced a new spectrum of musculoskeletal disorders among users of all age groups. Text neck syndrome — defined as sustained anterior cervical flexion posture during device use — and SMS thumb, a repetitive strain injury affecting the thumb and wrist, have emerged as clinically significant conditions requiring structured physiotherapy intervention.

Objective: This article synthesises current physiotherapy evidence relating to the biomechanics, clinical presentation, assessment, treatment, and prevention of text neck and SMS thumb, with practical guidance for clinicians and patients alike.

Conclusion: Early identification and a multimodal physiotherapy programme combining postural correction, manual therapy, therapeutic exercise, and ergonomic education can significantly reduce pain, disability, and recurrence in both conditions.

Keywords: Text neck syndrome, SMS thumb, cervical spine, repetitive strain injury, smartphone, physiotherapy, postural dysfunction, De Quervain's tenosynovitis

INTRODUCTION

Smartphones have become inseparable from modern daily life, with global average screen time exceeding four hours per day in adults. This prolonged engagement with handheld devices has precipitated a growing burden of musculoskeletal complaints that physiotherapists are increasingly called upon to manage. Among the most prevalent are text neck syndrome — a postural condition of the cervical spine — and SMS thumb, a repetitive strain injury of the thumb and wrist complex.

Both conditions share a common aetiology rooted in sustained, repetitive, and biomechanically disadvantageous postures. Left unaddressed, they progress from intermittent discomfort to chronic pain, functional limitation, and, in some cases, structural change. Physiotherapists occupy a central role in the assessment and rehabilitation of these conditions, drawing upon skills in manual therapy, therapeutic exercise, postural re-education, and patient education.

This article provides a detailed, clinically oriented review of both conditions, encompassing anatomy, biomechanics, epidemiology, clinical features, physiotherapy assessment, evidence-based treatment, and prevention strategies, supported by data tables to facilitate clinical decision-making.

Text Neck Syndrome

Definition and Nomenclature

Text neck — also referred to as 'text neck', 'smartphone neck', or cervical postural syndrome — describes a pattern of sustained forward head posture (FHP) adopted while viewing handheld digital devices. The condition

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is characterised by anterior translation of the head relative to the shoulders, increased lower cervical flexion, and compensatory upper cervical extension. It is not a single diagnosis but a clinical syndrome encompassing a range of cervical, periscapular, and upper limb symptoms.

Biomechanical Basis

The human head weighs approximately 4–5 kg in the neutral position. Biomechanical modelling demonstrates that the effective load on the cervical spine increases substantially with forward head displacement: at 15° of flexion the effective load approximates 12 kg, at 30° it rises to approximately 18 kg, at 45° to approximately 22 kg, and at 60° of flexion the effective load on the cervical musculature and intervertebral structures may approach 27 kg. This disproportionate loading results in sustained eccentric contraction of the posterior cervical musculature, anterior compression of intervertebral discs, and posterior ligamentous strain.

Cervical Angle (°)	Effective Spinal Load (kg)	Muscle Groups Most Affected	Cumulative Risk
0° (neutral)	~5	Balanced co-contraction	Minimal
15°	~12	Semispinalis, Splenius capitis	Low
30°	~18	Suboccipitals, Levator scapulae	Moderate
45°	~22	Upper trapezius, Rhomboids	High
60°	~27	All posterior cervical & periscapular	Very High

Table 1. Relationship between cervical flexion angle and effective spinal load during device use.

Epidemiology

Text neck is now considered a global musculoskeletal health concern. Prevalence estimates vary widely across studies owing to differing diagnostic criteria, but surveys suggest that between 45% and 70% of regular smartphone users experience neck or shoulder discomfort attributable to device use. Adolescents and young adults are disproportionately affected, though occupational exposure in remote-working adults has expanded the demographic significantly following shifts in working patterns from 2020 onwards. Studies from South Korea, India, the United States, and the United Kingdom all report rising consultation rates for cervicogenic complaints correlated with smartphone penetration.

Clinical Features

The presentation of text neck spans a spectrum from mild postural fatigue to severe cervical radiculopathy. Common features include:

•Neck pain and stiffness, typically bilateral and worse at end of day

•Upper trapezius and levator scapulae tenderness

•Suboccipital headache radiating from the base of the skull

•Interscapular aching secondary to rhomboid and middle trapezius strain

•Reduced cervical range of motion, particularly rotation and extension

•In advanced cases: tingling or numbness into the upper limbs (cervicogenic radiculopathy)

•Temporomandibular joint discomfort in patients with significant upper cervical dysfunction

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Clinical Feature	Mild	Moderate	Severe
Pain character	Dull ache, end-of-day	Persistent, daily	Constant, disabling
Headache	Occasional	Frequent (≥3×/week)	Daily, migrainous
ROM restriction	Mild (<10° loss)	Moderate (10–30° loss)	Marked (>30° loss)
Neurological signs	Absent	Paraesthesia, occasional	Radiculopathy, weakness
Work/ADL impact	Minimal	Moderate limitation	Significant disability
Muscle findings	Mild tenderness	Trigger points, spasm	Fibrosis, deconditioning

Table 2. Clinical severity classification of text neck syndrome.

Physiotherapy Assessment

A structured physiotherapy assessment of suspected text neck incorporates the following components:

Subjective History: Duration and behaviour of symptoms; device usage patterns (daily hours, type of device, screen height); occupational factors; previous cervical history; red flag screening (upper motor neuron signs, unexplained weight loss, fever, trauma).

Postural Analysis: Sagittal and coronal assessment of head-to-shoulder alignment; craniovertebral angle measurement (normal > 50°; reduced angle indicates FHP); scapular position and thoracic kyphosis assessment.

Range of Motion: Cervical flexion, extension, bilateral rotation, and lateral flexion using a goniometer or inclinometer; upper thoracic mobility assessment.

Neurological Screen: Upper limb dermatomal sensation; myotomal strength testing (C5–T1); reflexes (biceps, brachioradialis, triceps); Spurling's test; cervical distraction test.

Muscle Assessment: Palpation of upper trapezius, levator scapulae, sternocleidomastoid, suboccipitals, and periscapular musculature for trigger points and hypertonicity; deep neck flexor endurance test (craniocervical flexion test using pressure biofeedback).

SMS Thumb (Smartphone Thumb / De Quervain's Variant)

Definition and Aetiology

SMS thumb describes a constellation of overuse injuries affecting the thumb, thenar eminence, and wrist resulting from repetitive touchscreen interaction. The term encompasses several distinct but overlapping diagnoses: De Quervain's tenosynovitis of the first dorsal compartment (abductor pollicis longus and extensor pollicis brevis), flexor pollicis longus tendinopathy, first carpometacarpal (CMC) joint osteoarthritis in susceptible individuals, and trigger thumb. The repetitive pinching, tapping, and scrolling motions demanded by modern smartphone interaction impose high-cycle loading on relatively small musculotendinous structures, predisposing them to overuse pathology.

Biomechanics of Thumb Texting

During smartphone operation, the thumb executes a complex sequence of motions combining metacarpophalangeal flexion-extension, interphalangeal flexion-extension, and carpometacarpal abduction-adduction. Studies using electromyography have demonstrated that the thumb is responsible for over 70% of input actions during standard text messaging. The abductor pollicis longus and extensor pollicis brevis tendons

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traverse a fibro-osseous canal at the radial styloid under the first extensor retinaculum; repetitive loading causes microtrauma, inflammation, and subsequent stenosis of this canal — the hallmark of De Quervain's tenosynovitis.

Structure Affected	Mechanism	Resulting Condition	Prevalence in SMS Users
Extensor pollicis brevis / Abductor pollicis longus tendons	Repetitive friction at radial styloid	De Quervain's tenosynovitis	Most common; estimated 15–20%
Flexor pollicis longus tendon	Repetitive thumb flexion under load	FPL tendinopathy	Moderate; underdiagnosed
1st CMC joint	Axial loading and pinch forces	Thumb base osteoarthritis	Increasing in young adults
A1 pulley of thumb	Repetitive A1 pulley compression	Trigger thumb	Less common
Median nerve (carpal tunnel)	Sustained wrist flexion posture	Carpal tunnel syndrome	Associated, not direct cause

Table 3. Anatomical structures vulnerable to SMS thumb and associated pathology.

Clinical Features

SMS thumb typically presents with one or more of the following findings:

•Pain over the radial styloid, wrist, and base of the thumb, worse with pinching and gripping

•Swelling or thickening over the first dorsal compartment

•A positive Finkelstein's test (pain with ulnar deviation of the wrist while thumb is flexed into the palm)

•Reduced thumb opposition strength and pinch grip

•Crepitus over the tendon sheaths with movement

•In advanced cases, triggering or locking of the thumb

Physiotherapy Assessment

Objective assessment of SMS thumb includes: Finkelstein's test and Eichhoff's test for De Quervain's; resisted thumb extension and abduction; pinch grip dynamometry (lateral pinch, tripod pinch, tip pinch); palpation of the first dorsal compartment, thenar eminence, and CMC joint; wrist and thumb range of motion; and functional testing simulating device use. Ultrasound imaging, where available, provides valuable confirmation of tendon thickening, sheath effusion, and hypervascularisation.

Physiotherapy Management: Evidence-Based Approaches

Text Neck: Treatment Framework

Management of text neck follows a multimodal approach addressing pain relief, posture restoration, muscular rebalancing, and behavioural modification. The treatment pyramid progresses from passive to active interventions as the patient improves.

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Treatment Category	Specific Techniques	Evidence Level	Typical Duration
Manual Therapy	Cervical joint mobilisation (Maitland Grades I–IV); Mulligan SNAGs; Soft tissue release; Trigger point therapy	Level A (strong)	4–8 sessions
Therapeutic Exercise	Deep cervical flexor retraining (craniocervical flexion); Scapular stabilisation; Chin tucks; Thoracic extension mobility	Level A (strong)	Ongoing, 6–12 weeks
Postural Re-education	Mirror biofeedback; Postural taping (McConnell); Kinesio taping; Proprioceptive neuromuscular facilitation	Level B (moderate)	4–6 weeks
Electrophysical Agents	Transcutaneous electrical nerve stimulation (TENS); Interferential therapy; Low-level laser therapy (LLLT)	Level B (moderate)	Adjunct as needed
Patient Education	Device ergonomics; Break scheduling (20-20-20 rule); Workstation setup; Sleep posture	Level B (moderate)	Ongoing
Stretching Programme	Upper trapezius; Levator scapulae; Pectoralis minor; Suboccipital release	Level B (moderate)	Daily, lifelong

Table 4. Evidence-based physiotherapy interventions for text neck syndrome.

SMS Thumb: Treatment Framework

Management depends on the stage of pathology. Acute and subacute De Quervain's-type presentations respond well to a combination of load modification, splinting, manual therapy, and progressive exercise, whereas chronic or structurally complicated cases may require interdisciplinary input.

Phase	Goals	Physiotherapy Interventions	Timeframe
Acute (0–2 weeks)	Pain and inflammation control	Rest and activity modification; Thumb spica splint; Ice/TENS; Gentle ROM; Taping	Weeks 1–2
Subacute (2–6 weeks)	Tendon loading, grip restoration	Progressive tendon loading; Eccentric exercises; Soft tissue mobilisation; Wrist stabilisation	Weeks 2–6
Rehabilitative (6–12 weeks)	Functional strength and return to activity	Pinch and grip strengthening; Proprioception; Task-specific training; Ergonomic reintegration	Weeks 6–12

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Phase	Goals	Physiotherapy Interventions	Timeframe
Prevention / Maintenance	Prevent recurrence	Home exercise programme; Device use hygiene; Periodic review; Workplace modifications	Ongoing

Table 5. Phased physiotherapy rehabilitation programme for SMS thumb.

Specific Therapeutic Exercise Protocols

Deep Cervical Flexor (DCF) Retraining

The deep cervical flexors — longus colli and longus capitis — serve as the primary stabilisers of the cervical spine. In text neck, these muscles demonstrate inhibition and delayed activation, while the superficial flexors (sternocleidomastoid and anterior scalene) are overactivated. DCF retraining using pressure biofeedback (craniocervical flexion test target: 22–26 mmHg over 10 seconds, building to 28–30 mmHg) is the most rigorously validated rehabilitation strategy for cervical postural dysfunction.

Scapular Stabilisation Programme

Weakness of the lower trapezius and serratus anterior perpetuates the forward head posture by allowing protraction and anterior tipping of the scapulae. A progressive programme commencing with prone lower trapezius activation, progressing to wall slides, and culminating in loaded overhead movements over six to eight weeks effectively restores scapular control and reduces upper trapezius dominance.

Thumb Tendon Loading Programme

Progressive tendon loading for De Quervain's and related thumb tendinopathies follows the principles of tendinopathy rehabilitation: isometric loading in the early phase (thumb abduction against resistance held for 45 seconds, five repetitions), progressing to isotonic and then eccentric exercise. Use of a resistance band looped around the thumb for eccentric thumb extension (3 sets of 15 repetitions, 3 times per day) has demonstrated significant reductions in pain and improvements in function in clinical trials.

Prevention: Digital Ergonomics and Behavioural Strategies

Device Ergonomics

Optimal smartphone ergonomics requires that the device be elevated to near-eye level to minimise cervical flexion. Seated users should maintain a supported lumbar posture with elbows at 90° flexion and hold the device at approximately 30–45 cm from the eyes. Hands-free alternatives (voice input, stands, and headsets) should be recommended for users exceeding two hours of daily device use.

Ergonomic Recommendation	Rationale	Target Users
Raise device to eye level	Reduces cervical flexion angle to <15°	All smartphone users
20-20-20 break rule	Every 20 minutes, look 20 feet away for 20 seconds; add neck rolls	All users; mandatory for >2 hrs/day
Voice input use	Eliminates repetitive thumb motion for extended messaging	SMS thumb sufferers; heavy texters
Thumb-sparing typing style	Use index finger for typing where possible	Users with thumb pain
Device stand or holder	Offloads upper extremity, corrects device height	Desktop/tablet users

Ergonomic Recommendation	Rationale	Target Users
Screen brightness and font size optimisation	Reduces propensity to lean towards screen	All users
Night posture guidance	Avoid device use supine; promotes neutral cervical position	Evening/bedtime users

Table 6. Recommended digital ergonomic practices for text neck and SMS thumb prevention.

Workplace and School-Based Strategies

Given the crossover between device use and occupational screen time, physiotherapists should address workstation ergonomics in parallel with personal device habits. Desks set to elbow height, monitors positioned at eye level, and regular standing breaks using timer-based nudge systems have all demonstrated efficacy in reducing neck pain prevalence in office and remote-working populations. For paediatric and adolescent patients, school physiotherapy liaison to address classroom device policies represents an emerging preventive frontier.

Outcome Measures and Clinical Benchmarks

Standardised outcome measures facilitate consistent tracking of progress and allow meaningful comparison across clinicians and settings. The following instruments are recommended:

Outcome Measure	Condition	Domain Assessed	Minimum Clinically Important Difference
Neck Disability Index (NDI)	Text neck	Pain and function	≥7-point change
Numerical Pain Rating Scale (NPRS)	Both	Pain intensity	≥2-point change
Craniocervical Flexion Test (CCFT)	Text neck	DCF endurance	Improvement ≥2 pressure levels
Cervical ROM (inclinometry)	Text neck	Joint mobility	≥5° clinically meaningful
Quick-DASH	SMS thumb	Upper limb disability	≥15-point change
Jamar pinch dynamometry	SMS thumb	Thumb/grip strength	≥10% increase from baseline
Patient-Rated Wrist/Hand Evaluation (PRWHE)	SMS thumb	Pain and function	≥14-point change
Global Rating of Change Scale (GRCS)	Both	Patient-perceived change	Score ≥+3 (much improved)

Table 7. Recommended outcome measures for text neck and SMS thumb in physiotherapy practice.

Special Populations and Considerations

Paediatric and Adolescent Patients

Adolescents represent one of the highest-risk groups for text neck owing to greater daily screen time, lower postural awareness, and musculoskeletal immaturity. Physiotherapy management in this cohort should emphasise education of both patient and caregiver, school posture programmes, and developmentally appropriate exercise prescription. Parental guidance on screen time limits consistent with World Health Organization recommendations forms an important adjunct to direct treatment.

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Pregnancy

Pregnant women are at heightened risk of both text neck and thumb pathology owing to generalised ligamentous laxity mediated by relaxin, altered centre of gravity, and increased device use during periods of reduced mobility. Manual therapy to the cervical spine requires modification in the third trimester, and splinting for SMS thumb may be preferred over corticosteroid injection during pregnancy.

Occupational Athletes

Content creators, coders, gamers, and financial analysts represent occupational groups whose device usage far exceeds population averages. These patients require bespoke ergonomic assessments, higher-dose exercise prescriptions, and, in many cases, collaborative management with occupational health physicians. Graded return-to-work programmes and adaptive technology recommendations are central to successful rehabilitation in this group.

When to Refer: Red Flags and Onward Pathways

While most presentations of text neck and SMS thumb are managed effectively within primary-care physiotherapy, certain features warrant onward referral:

•Signs of cervical myelopathy (upper motor neuron signs, gait disturbance, bilateral upper limb symptoms)

•Progressive neurological deficit unresponsive to physiotherapy over 6 weeks

•Suspected fracture, infection, or neoplastic pathology (red flag history)

•De Quervain's or CMC arthritis unresponsive to 6 weeks of physiotherapy (consider corticosteroid injection or surgical opinion)

•Trigger thumb with locked flexion not resolving with conservative management

DISCUSSION

Text neck syndrome and SMS thumb represent arguably the defining musculoskeletal challenges of the digital era. Their rise mirrors smartphone penetration rates, and all indicators suggest prevalence will continue to increase as device interaction becomes more immersive, particularly with the advent of augmented and virtual reality headsets that impose novel postural demands on the cervical spine and upper limbs.

Physiotherapy is uniquely positioned to address these conditions holistically. The profession's dual emphasis on addressing impairment (through manual therapy and exercise) and modifying behaviour (through ergonomic education and patient empowerment) aligns precisely with the biopsychosocial model that best explains chronic musculoskeletal pain. Moreover, physiotherapists working in schools, occupational health settings, and community clinics are ideally placed to deliver preventive interventions before symptoms become entrenched.

There remain important research gaps. Long-term prospective studies examining the relationship between cumulative smartphone exposure and structural cervical degeneration are lacking. The therapeutic dose of DCF retraining most effective across different severity levels requires further exploration. For SMS thumb, the relative efficacy of different splinting designs and loading protocols awaits more robust randomised controlled trial evidence. Digital health tools — including app-based posture reminders and wearable sensor systems — show promise as adjuncts to physiotherapy but require validation against conventional care.

CONCLUSION

Text neck syndrome and SMS thumb are modern musculoskeletal conditions of significant clinical and public health importance. A structured physiotherapy approach, grounded in biomechanical understanding and supported by emerging evidence, can effectively reduce pain, restore function, and prevent recurrence in the

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majority of patients. Core to successful management are accurate assessment, targeted exercise prescription, manual therapy, and robust patient education encompassing device ergonomics and behavioural change strategies. Given projections of continued growth in smartphone usage globally, embedding preventive physiotherapy education within schools, workplaces, and digital platforms represents a public health imperative that the physiotherapy profession is well equipped to lead.

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