was greater than our metropolitan area. It is also important to note that despite the prevalence of violence-related injuries, MH ratings were in the normal ranges for our sample. Students demonstrated growth in HT knowledge, and licensed clinician's ratings of student's patient care competencies were near AOTA midterm and final rating thresholds suggesting that the SELC-HT is positively impacting students' development into future OTs. The data from this study stuggest that with advanced training, students can successfully evaluate and treat in a specialty SPBC, produce meaningful changes in participating patients, and demonstrate positive changes in their own clinical skills and HT knowledge, impacting their future practice. Additional research will continue to measure these outcomes.

Table 1
Patient Baseline and Discharge Score Comparisons

Construct	n	Baseline	Discharge	Change	p value
Disability	14	52.12	37.32	14.82	.023*
Work Disability	12	79.16	55.2	23.96	.008*
Physical Health	14	40.46	38.79	1.67	.367
Mental Health	14	43.47	41.75	1.72	.444
Current Pain	14	5.43	3.71	1.72	.044*
Best Pain	13	4	1.85	2.15	.036*
Worst Pain	13	7.92	6.38	1.54	.192
Work Ability	11	3.09	6	2.91	.007*

Wilcoxon Signed Rank Test; *p<.05

Table 2
Student Hand Therapy Knowledge Time Point Comparisons

Time point comparison	N	Time Point 1 Mean (Standard Deviation)	Time Point 2 Mean (Standard Deviation)	Change	p value
Pre advanced training–		1.47 (.175)	2.364 (.09)	.894	*.005
Post advanced training	3	1.075 (.265)	1.952 (.363)	.877	*.000
Cohort 1	7				
Cohort 2					
Post-advanced training–		2.364 (.09)	2.299 (.317)	-.064	.750
Post 1 semester	3	1.952 (.363)	1.791 (.295)	-.161	.142
treating patients	7				
Cohort 1					
Cohort 2					
Post 1 semester treating–		2.299 (.317)	2.452 (.08)	.153	.510
Post Level II HT	3				
Fieldwork Cohort 1					
Post Level II Hand Therapy		2.452 (.08)	2.602 (.088)	.15	*.004
Fieldwork–Post 1	3				
semester as Peer					
Mentor Cohort 1					

Paired samples t-test; *p<.05

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Mobile Tech Posture and the Upper Extremity: Prevalence and Biomechanics

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Purpose: Mobile technologies have transformed communication, education, and the workplace, simplifying daily tasks and increasing efficiency of communication. However, these undeniable benefits may have significant impact to posture and use of the upper extremity. The term tech posture, or "tech neck", is often used in articles related to ergonomics or workstation design to describe general postural compromise. The term is used to describe posture when interfacing with any type of technology, though posture at a workstation varies widely from posture when using mobile technology.

Mobile tech posture indicates the position a person assumes to interface with a mobile device (i.e. smartphone or tablet) in a seated or standing position.

The primary objectives of this study are to 1) provide a formal goniometric description of mobile tech posture, and 2) examine the prevalence of this sub-optimal posture among a group of graduate students.

Methods: Study Design

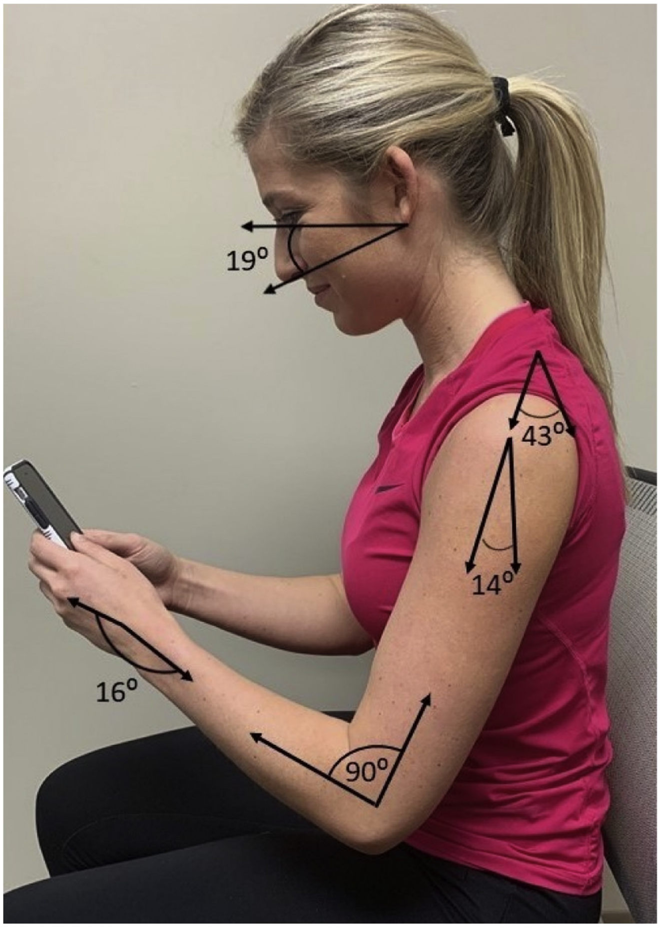
A descriptive analysis was used to gain insight into the biomechanics of mobile tech posture and prevalence of time spent using mobile technology among a healthy sample ($N = 46$) of graduate students. The study consisted of self-report of mobile device usage using Screen Time app data and comprehensive goniometric measurements of the neck and upper extremity while using a mobile device. Upon IRB approval, participants followed standardized instructions to self-report Screen Time data as well as estimated time spent using laptop technology. Comprehensive goniometric measurements were taken of the neck and upper extremity with each participant seated while using a mobile device (tech posture).

Aggregate data were analyzed to identify mean time spent using mobile technology as well as mean joint angles.

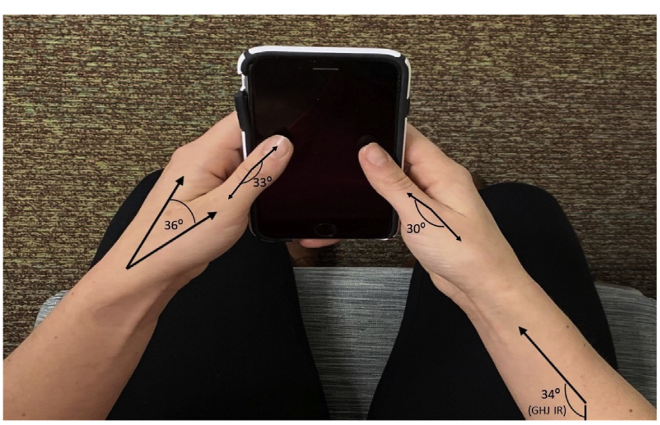
Results: The sample ($N = 46$) was largely female (96%), between the ages of 22 and 25 (87%), white (87%), and predominantly right-handed (91%).

The mean time spent in mobile tech posture, according to Screen Time data, was 2 hours and 23 minutes per day (SD = 70.4). Additionally, participants estimated the time spent using laptop technology with the majority of the sample reporting 1-10 hours per day of laptop use. (comprehensive results will be presented in table format). Several mean joint angles raise musculoskeletal concerns including cervical spine flexion (19 deg), scapular protraction (R 41 deg; L 43 deg), shoulder internal rotation (R 34 deg; L 33 deg), elbow flexion (90 deg), as well as wrist ulnar deviation (R 16 deg; L 13 deg) coupled with thumb palmar abduction (R 36 deg; L 35 deg) and flexion at the MCP (R 27 deg; L 30 deg) and IP joint ((R 30 deg; L 33 deg). (comprehensive results to be presented in table format). Specific anatomical concerns related to identified angles include neck flexor/extensor muscle imbalance, ulnar neuropathy at the cubital tunnel, as well as De Quervain's tenosynovitis with repetive exting with the APL/EBP tendons under positional stress.

Conclusion: The results of this study align with prior research findings regarding the prevalence of mobile technology use among a group of graduate students. Additionally, specific goniometric measurements describe joint angles, identifying potential musculoskeletal risks and providing an operational biomechanical description for further analysis. Further research is recommended to confirm angular joint position with mobile device use, examine specific related symptomologies, as well as more definitive musculoskeletal examination potentially with imaging.



Mobile Tech Posture: Profile View



Mobile Tech Posture: Hands

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Varieties of Pediatric Brachial Plexus Pathogenesis and Treatment: Case Series

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Purpose: The purpose of this study is to describe the scope and distinct presentations of brachial plexus pathologies in children. Injury or obstruction to the brachial plexus in pediatric patients presents unique challenges. Literature is scarce in this area, with the exception of information pertaining to perinatal injury. In addition to knowledge of unique presentations in children, hand therapists must be aware of pediatric adaptations to motor and sensory testing and techniques to engage children and parents in therapy. More research is needed to explore the diversity of brachial plexus injury within the pediatric population and to reveal similarities and differences to existing guidelines for adult patients.

Methods: We performed a descriptive case series analysis to catalog the variety of brachial plexus pathology and outcomes in pediatric patients. Cases were consecutively sampled from a hand therapy clinic within a pediatric hospital and chosen for inclusion based on their representativeness of the population and educational utility. Cases were excluded once a representative of that diagnosis was identified. We created a matrix of cases according to etiology, initial presentation, medical or surgical intervention, therapy intervention, change in active movement on standardized scoring metrics such as the Toronto Active Movement Scale (AMS) and Medical Research Council (MRC) Scale, and similarities and differences to homologous adult presentations.

Results: We identified five patients (4 female, 1 male; age at onset 0-14.5 years) representing a spectrum of pediatric brachial plexus etiologies: (1) neurogenic thoracic outlet and pectoralis minor syndrome associated with hypermobility syndrome, (2) Parsonage-Turner syndrome, (3) perinatal injury, (4) synovial sarcoma, and (5) acute flaccid myelitis associated with enterovirus D68. Each case was compared to its homologous diagnosis within the adult population. This process revealed variations in initial presentation, course of treatment, and long-term outcomes. Five out of five patients required intensive hand therapy services at the frequency of at least one time a week for a duration ranging from 6 months to 2 years. Four out of five patients required surgical intervention with two out of five patients requiring nerve grafting and two out of five patients requiring nerve transfers. All patients benefitted from therapy utilitzing motor learning and developmental approaches. Patients who underwent nerve transfers benefitted from surface EMG biofeedback. Younger patients (infant and 7-year-old) benefitted from classic or modified constraint-induced movement therapy to combat developmental disregard, despite a dearth of formal evidence that this technique is supported for peripheral nerve conditions. The Active Movement Scale (AMS) and Medical Research Council (MRC) Scale were utilized to assess motor function over the course of treatment. No single muscle grading scale was sensitive enough to detect and monitor change spanning from flaccidity to normal strength, so a combination of the AMS and MRC were required. Patients diagnosed with Parsonage-Turner syndrome and acute flaccid myelitis post-nerve transfer demonstrated the greatest gains in active motion while patients diagnosed with sarcoma and thoracic outlet syndrome showed least improvements.

Conclusion: Common to all cases is the need for detailed understanding of brachial plexus anatomy, the effects of denervation on children's growth and development, an understanding of developmental disregard, and strategies for family-centric therapy. Each of these unique cases demonstrate the importance of understanding the pattern of injury to determine prognosis for recovery, team-based care planning with a brachial plexus surgeon, rate of progression of therapy, and the most suitable treatment methods. Collaboration among hand therapists, surgeons, patients and their families is crucial for effective rehabilitation. Future research should focus on prospective cohort studies or case-control observation studies of specific intervention strategies such as multimodal biofeedback and constraint induced movement therapy.