



Prepared to Respond: Enhancing Emergency Medical Care Through Sensory-Informed and Communication-Accessible Interventions



INTRODUCTION

Emergency situations can trigger a stress response that disrupts communication and limits patient participation in care.

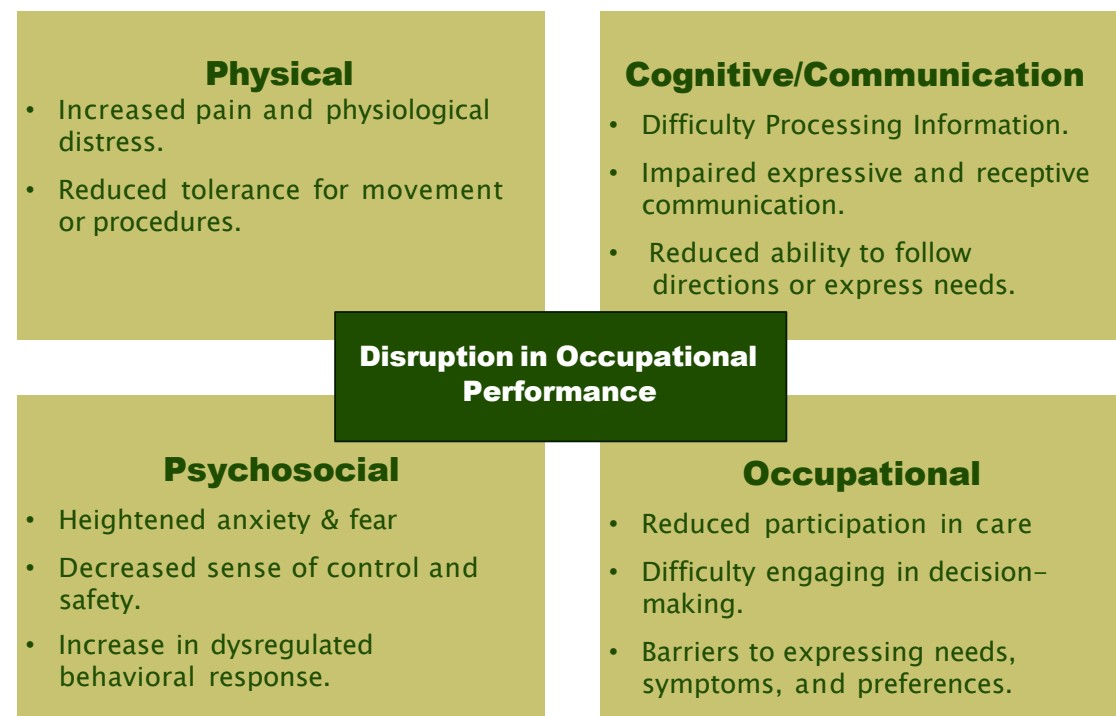
Emergency medical services (EMS) providers work in fast-paced environments where patients may experience distress, pain, sensory overload, and communication challenges. Inputs like lights, sirens, and touch can further impact information processing and engagement in care.

Sensory and communication-based strategies are often underutilized in emergency care. This project developed an OT-informed, nervous system-based training program within Thompson Valley EMS to support regulation, improve communication, and enhance patient care.

BACKGROUND & LIT REVIEW

Occupational Problem & Performance Impact

Emergency medical environments can disrupt occupational performance due to sensory overload, acute stress, and communication barriers.



Literature highlights sensory processing differences, communication barriers, and acute stress as key challenges, yet sensory-informed and communication-based strategies remain inconsistently applied in emergency settings.

PROJECT GOAL & OBJECTIVES

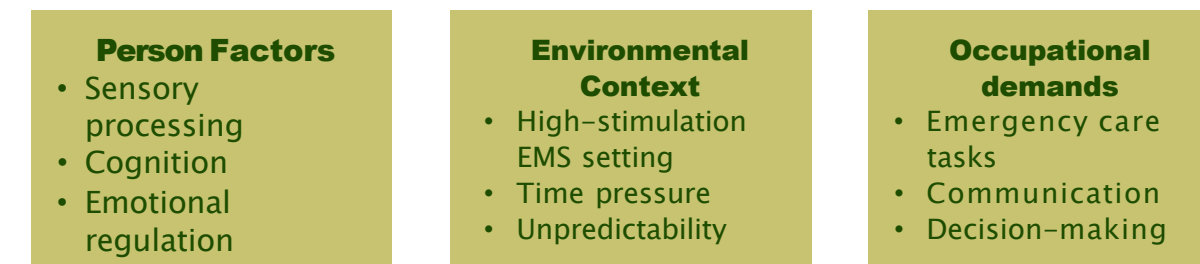
Project Goal: Develop and pilot an OT-informed training program that equips EMS providers with practical strategies to support regulation and communication across patients.

Obj. 1	Conduct interviews with EMS, fire, and dispatch; synthesize with literature to identify gaps in sensory processing, communication, and behavioral regulation.
Obj. 2	Develop and pilot an OT-informed training program (modules, scenarios, handouts); collect structured feedback on clarity, relevance, and real-world use.
Obj. 3	Design a field-ready communication board with an SLP; integrate into training and evaluate using pre/post pilot data.
Obj. 4	Revise materials based on feedback; finalize a sustainable program package and disseminate to Thompson Valley EMS.

THEORETICAL BASIS

1. Person-Environment-Occupation-Participation Model (PEOP)

The PEOP model explains how person factors, the high-demand EMS environment, and care tasks interact to influence patient participation during emergency care.



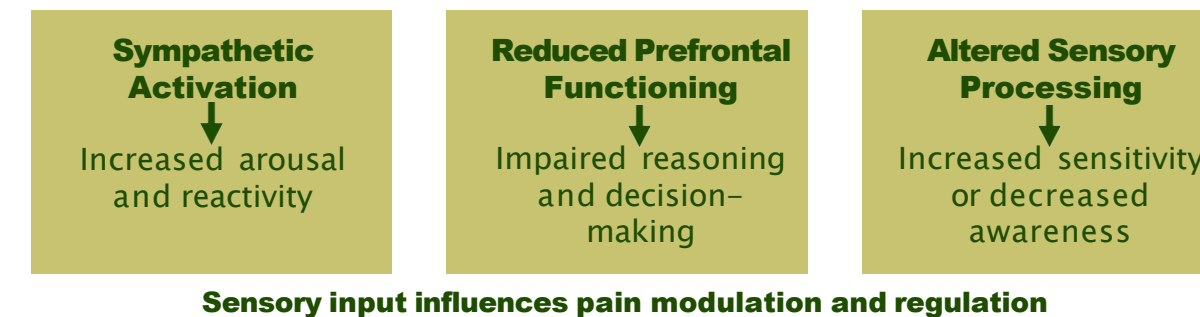
2. Dunn's Model of Sensory Processing

Dunn's model explains how differences in sensory thresholds and self-regulation influence how individuals respond to sensory input.

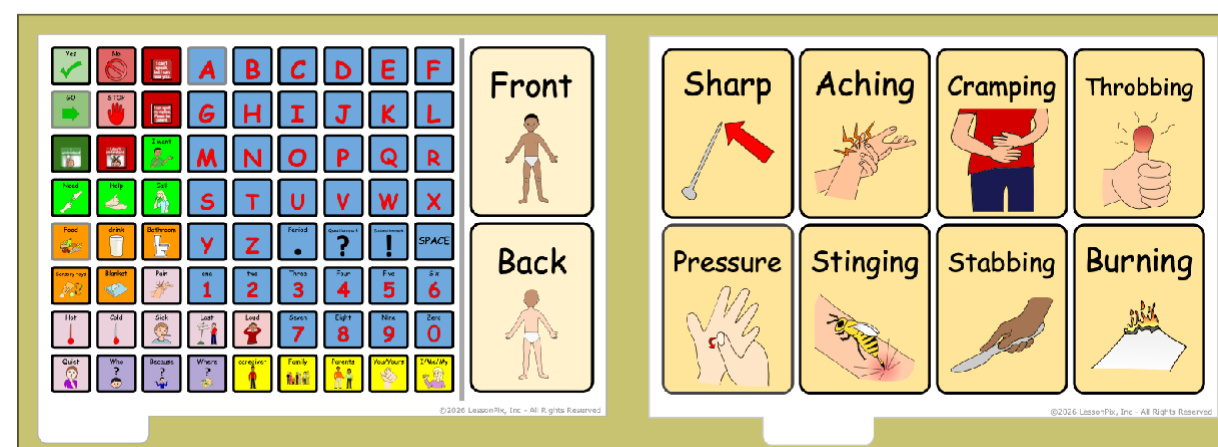
In high-stimulation EMS environments, these differences can impact regulation, communication, and participation in care.

3. Neurophysiological Concepts (Stress, Regulation, Pain Modulation)

Acute stress responses can impair cognition, communication, and regulation, impacting patient participation in emergency care.



DELIVERABLES



OT-informed training program (modules, scenarios, handouts) with pilot feedback.

Field-ready communication board (with SLP), integrated and evaluated with pre/post data.

METHODS & EVALUATION

Methods

- Ride-alongs and interviews.
- Surveys from stakeholders.
- On-going mentor feedback.
- Pre/post training surveys.
- Stakeholder input (fire personnel, dispatch, leadership).

Process:

- Development of training modules and resources.
- Pilot implementation of program with providers
- Refinement of materials based on feedback.

FINDINGS

Key themes identified through needs assessment informed the development of the nervous system training program. Pre- and post-training survey results demonstrate changes in provider knowledge, confidence, and readiness to apply these strategies in practice.

Needs Assessment Key Themes	Training Outcomes	Outcome Measures (Pre → Post)
• Communication challenges • Environmental overload • Interaction style impacts response • Need for individualized support	Understanding sensory impact	78% → 100%
	Recognition of overload	66.6% → 100%
	Strategy familiarity	22.2% → 100%
	AAC confidence	33.3% → 100%
	Application to practice	90% likely to implement

Pre-post survey results demonstrated increases across all measured domains, with all training outcomes reaching 100% post-training except understanding of sensory impact (100%) and recognition of overload (100%). Additionally, 90% of participants reported a high likelihood of implementing learned strategies in practice following the training.

DISCUSSION & CONCLUSION

Findings suggest that a sensory-informed and communication-based training approach improved provider knowledge, confidence, and readiness to apply strategies in emergency care. By supporting regulation and simplifying communication, providers are better equipped to engage patients who may be overwhelmed, in pain, or unable to effectively communicate during high-stress encounters.

Findings should be interpreted within the context of a small, leadership-level sample, which may not fully reflect perspectives or implementation patterns among line-level EMS providers. Additionally, patient-level outcomes were not directly measured, representing a future area of research and potential next capstone.

This project demonstrates the distinct value of occupational therapy in emergency medical settings by translating sensory-informed and communication-accessible principles into practical, field-ready strategies that support patient participation, engagement, and overall care outcomes.

REFERENCES

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