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Contribution ID: **247** Type: **1 - Scientific Poster**

Beyond Muscle: Neuro Fascial Health as a Missing Piece in Exercise Oncology

Wednesday 22 July 2026 12:25 (20 minutes)

Background:
Emerging work in fascia biology and integrative oncology suggests that fascia is not a passive scaffold but a dynamic, innervated interface that shapes tumor mechanics, immune trafficking, and symptom burden. Fascial integrity, stiffness, and remodeling appear to influence local invasion, metastatic spread along tissue planes, and treatment-related fibrosis, with direct implications for imaging, surgery, and rehabilitation. This narrative review (peer review pending) explores the neuro fascial interface from an exercise oncology perspective.
Methods:
Clinical, translational, and preclinical evidence on fascial involvement in cancer was synthesized, focusing on fascia-tumor relationships, neuro immune interactions, and the impact of physical-based interventions (exercise, manual/myofascial techniques, and movement-based therapies) on fascial structure and function in oncology populations. Data were drawn from imaging studies of tumor-fascia interfaces, surgical and pathological descriptions of fascial planes, and clinical trials or pilot studies evaluating fascial or myofascial interventions in cancer survivors.
Results:
Across tumor entities, fascial planes and connective tissue interfaces can function both as barriers and as preferred routes for cancer cell invasion and metastatic spread, and tumor-fascia relationships on MRI are highly predictive of malignancy in superficial soft tissue masses. Physical-based fascial interventions, including myofascial and manual therapies as well as exercise-based approaches, demonstrate potential to modulate connective tissue stiffness, inflammation, and fibrosis, with early data supporting improvements in pain, range of motion, dysphagia, and other patient reported outcomes. Fascial assessment further refines preoperative planning and margin evaluation, potentially enhancing surgical precision and functional preservation.
Outlook/Conclusion:
Fascia, conceptualized as a neuro immuno mechanical interface, represents a pivotal yet underutilized target in oncology, spanning diagnosis, treatment planning, symptom control, and rehabilitation. Integrating fascia-focused assessment and neuro fascial interventions - particularly exercise and manual therapies - into exercise oncology frameworks may optimize both biological and patient-centered outcomes and supports a more holistic, systems-oriented approach to cancer care.

Keywords

Fascia Health, Neuro-immune Interface, TME, Myofascial Therapy

Conflict of Interest & Ethical Approval

yes

Abstract submitters declaration

yes

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Session Classification: Poster Session