

Myofunctional Therapy in the Era of Digital and Airway-Focused Dentistry

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Abstract Myofunctional therapy (MFT) has gained increasing importance in modern dentistry as a non-invasive approach to correcting orofacial muscle dysfunctions that influence breathing, occlusion, facial growth, and overall oral function. With the shift toward airway-focused dental care, the role of MFT has expanded, supporting interventions for mouth breathing, sleep-disordered breathing, malocclusions, and craniofacial development. Parallel to this clinical evolution, digital dentistry has transformed the way practitioners diagnose, monitor, and deliver MFT. Advanced tools such as cone-beam computed tomography (CBCT) for airway evaluation, intraoral scanners (IOS) for assessing oral volume and arch form, artificial intelligence (AI) for automated posture and movement analysis, and tele-myofunctional therapy (tele-MFT) platforms for remote patient engagement have enhanced the precision and accessibility of therapy. **However, despite the growing clinical adoption of MFT and digital diagnostic tools, the existing literature remains fragmented, with limited integration of airway-focused principles, digital technologies, and myofunctional therapy into a unified clinical framework. There is a lack of consolidated evidence outlining how digital innovations can objectively enhance assessment, monitoring, and outcomes of MFT in contemporary dental practice.** This review addresses this gap by synthesizing current evidence on the role of MFT within digital and airway-centered dentistry, highlighting emerging technologies, clinical applications, limitations of existing evidence, and future directions for standardized, technology-enabled myofunctional care.

Keywords: Myofunctional therapy, digital dentistry, Airway-focused dentistry, Tele-myofunctional therapy

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1. Introduction

The concept of orofacial or myofunctional therapy (MFT) traces back to the mid-20th century when orthodontists and speech-language pathologists first recognized that abnormal tongue posture, inefficient swallowing patterns and habitual mouth-breathing could adversely affect craniofacial growth and dental development. [1] Over time, MFT has evolved from primarily treating tongue-thrust swallowing and lip incompetence to becoming a multidisciplinary intervention addressing breathing, swallowing, myofacial muscle dysfunction, and airway health.

In contemporary dentistry, the relevance of MFT has grown markedly. Dental professionals now increasingly recognize that underlying muscular and functional disorders can undermine orthodontic stability, contribute to relapse, affect temporomandibular joint (TMJ) health, and influence airway-related disorders such as snoring and obstructive sleep apnea (OSA). [2] In this context, MFT is shifting from a niche adjunctive therapy toward being a foundational component of modern, functional, airway-oriented dental care.

The link between airway health, craniofacial growth, and orofacial muscle function is well established. Habitual mouth breathing, low tongue posture, and dysfunctional swallowing patterns may result in altered maxillofacial development, including narrow palates, high-arched vaults,

retrognathic mandibles, and reduced airway dimensions. [3] These anatomic changes in turn perpetuate further functional compromise (such as poor tongue posture and airway collapse), creating a vicious cycle that influences both dental and general health.

The purpose of this review is to explore and synthesize the current evidence supporting the integration of MFT within the era of digital and airway-focused dentistry. Specifically, this paper will outline the evolution of MFT, discuss why it is increasingly important in modern dental practice, examine the functional interplay among airway health, craniofacial growth and muscle function, and provide an updated overview of how MFT fits into contemporary digital diagnostic and therapeutic workflows. The scope will include diagnostic advancements, treatment modalities, outcomes, and identified gaps in research to guide future directions

2. Overview of Myofunctional Therapy

2.1. Definition and Principles

Myofunctional therapy (MFT) is a structured, exercise-based program designed to retrain the orofacial muscles to achieve correct tongue posture, nasal breathing, optimal swallowing patterns, and balanced muscular function. It focuses on improving coordination and tone of the tongue, lips, cheeks, and oropharyngeal musculature to support healthy oral functions such as breathing, chewing, swallowing, and speaking. The core principles of MFT include promoting nasal breathing, establishing proper tongue resting posture, ensuring lip seal, and creating a coordinated, mature swallowing pattern. These principles serve as the foundation for addressing both functional and structural issues linked to oral development and airway health. [4]

2.2. Orofacial Myofunctional Disorders (OMDs)

Orofacial myofunctional disorders (OMDs) refer to dysfunctions involving the lips, tongue, jaws, and facial muscles that interfere with normal growth, development, or function. Common OMDs include mouth breathing, tongue-thrust swallowing, low or incorrect tongue posture, open-mouth rest posture, and atypical chewing patterns. These disorders are often associated with malocclusions, temporomandibular disorders (TMD), speech difficulties, and compromised airway health. Factors contributing to OMDs include allergies, enlarged tonsils or adenoids, prolonged oral habits (thumb sucking, pacifier use), restrictive lingual frenulum (tongue-tie), and neuromuscular imbalances. Recognizing and treating OMDs early is essential because they can significantly affect craniofacial growth and dental arch development. [5]

2.3. Traditional MFT Protocols

Traditional myofunctional therapy protocols involve repetitive, targeted exercises performed daily to strengthen and coordinate orofacial muscles. These protocols typically include:

- Tongue posture training (maintaining the tongue on the palate)
- Lip seal exercises
- Breathing retraining to promote nasal respiration
- Swallowing exercises to establish a mature, non-tongue-thrust pattern
- Chewing and mastication drills Therapy is usually delivered across weekly or bi-weekly sessions, with home exercises assigned between visits. Treatment duration can vary from 8 weeks to more than 6 months, depending on the severity of dysfunction, patient age, and compliance. While conventional MFT is primarily therapist-guided, it heavily relies on patient motivation and consistency to achieve lasting outcomes. [6]

2.4. Limitations of Conventional Approaches

Despite proven benefits, traditional MFT approaches face several challenges. First, standardization is limited, as protocols often vary across practitioners and disciplines. Second, patient compliance is a major obstacle because exercises must be performed consistently for long periods without direct supervision. Third, assessing progress relies largely on subjective evaluation rather than objective measurements, making it difficult to quantify muscle function and therapy success. Additionally, conventional MFT may be less effective in patients with unresolved airway obstructions, structural breathing issues, or restrictive oral conditions (e.g., severe tongue-tie) that require interdisciplinary intervention. These limitations highlight the need for modern, technology-supported approaches, such as digital monitoring, AI-based assessment, and tele-myofunctional therapy, to improve accuracy, personalization, and long-term success. [7]

3. Digital Transformation in Myofunctional Therapy

3.1. Digital Diagnostic Tools

3.1.1. CBCT for Airway Evaluation

Three-dimensional imaging via CBCT has become an indispensable tool in modern dentistry, it provides volumetric assessment of maxillofacial structures with more precision than traditional two-dimensional radiographs. [8] In the context of myofunctional therapy, CBCT allows clinicians to visualize upper-airway spaces, hyoid-bone positions, tongue posture (via tongue space) and relationships between skeletal, dental and soft tissue structures. For example, a study on TMD patients showed measurable changes in hyoid-mandible distances and head posture after MFT protocols analyzed via CBCT. [9] By incorporating CBCT evaluation into orofacial myofunctional assessment, practitioners can document baseline airway constrictions, observe morphological correlates of tongue rest posture or mouth breathing, and monitor structural changes over time.

3.1.2. Intraoral Scanning for Arch Form and Tongue Space

Digital intraoral scanners (IOS) capture detailed surface data of dental arches and adjacent structures. While specific literature on IOS use in myofunctional therapy is still emerging, the principle is that accurate 3-D models of the dental arch and palate enable measurement of tongue volume, tongue space (especially when combined with CBCT data), and arch form changes associated with muscular function. These scans facilitate digital arch form monitoring, changes in palate dimension, and can help in quantifying effects of MFT on dental-skeletal relationships. [10]

3.1.3. Digital Photographs and Posture Analysis

Digital photography combined with posture analysis software enables assessment of head posture, lip seal, tongue rest posture, and external facial-muscle tone. For example, one pilot study used lateral photographs and a mobile posture-screening application to show forward head posture improvement after orofacial myofunctional therapy. [9] Such tools allow objective documentation of rest posture (head, neck, lips) and may serve as follow-up data in MFT protocols.

3.2. AI-Assisted Assessment

3.2.1. Automated Tongue Posture Detection

Emerging platforms are using AI and computer-vision tools to analyze tongue posture and movement. For instance, AI systems designed for speech-language pathology settings can track tongue mobility, jaw movement and resting posture, thereby providing quantifiable data over time. In the myofunctional therapy domain, such tools offer promise for automated detection of low-tongue posture, tongue-thrust swallowing patterns, or abnormal resting lip/tongue relationships. [11]

3.2.2. Machine Learning for Facial and Airway Analysis

Machine learning algorithms are increasingly applied to dental imaging workflows, e.g., AI-enhanced CBCT interpretation, automated landmark identification, and segmentation of airway volumes. For example, a review indicates how AI enhanced CBCT data to assist diagnosing sinus and airway conditions. In MFT this means that the combined data from CBCT, IOS and photographic posture scans can be processed by machine learning models to detect patterns of dysfunction (e.g., tongue posture, airway constriction, head posture) and quantify improvement. [12]

3.2.3. Predictive Analytics in MFT Outcomes

By integrating longitudinal digital data (airway volumes, tongue-space measures, posture changes, patient compliance logs), predictive analytics can potentially forecast which patients will respond best to a given MFT protocol, estimate duration of therapy required, or identify risk of relapse. Although specific published studies in MFT are limited, the infrastructure is emerging via app-based or tele-therapy systems. For example, a mobile app concept for MFT was developed with visualization, reminder and tracking features. [13] This shift allows for data-driven decisions in therapy planning and monitoring,

aligning MFT more closely with modern precision dentistry.

3.3. Wearable Biofeedback Devices

3.3.1. Tongue Trackers

Wearable or intra-oral sensors that monitor tongue position or movement are under development. While direct publications within MFT are still sparse, similar devices in OSA and swallowing research demonstrate that intra-oral sensors can record tongue pressure, contact events and rest posture, enabling immediate feedback to the patient during therapy. [14]

3.3.2. Smart Posture Sensors

Wearable posture sensors (e.g., neck-strap accelerometers or tilt sensors) enable continuous monitoring of head and neck posture. Because forward head posture, tongue posture, and airway mechanics are interconnected, these devices can provide objective data on how posture affects orofacial muscle function and how MFT enhances it over time. The previously mentioned study using a posture-screening mobile app confirmed this idea. [15]

3.3.3. EMG-based Digital Monitoring

Electromyographic (EMG) sensors applied to orofacial muscles (tongue, masseter, suprahyoid) can measure muscle activity during rest, swallowing, or therapy exercises. Advanced systems now integrate EMG with digital platforms to provide real-time feedback. In myofunctional therapy, EMG-based monitoring allows quantification of muscle activation changes over the course of therapy, thereby supporting objective outcome measures rather than relying solely on clinical observation. (Figure 1) [16]

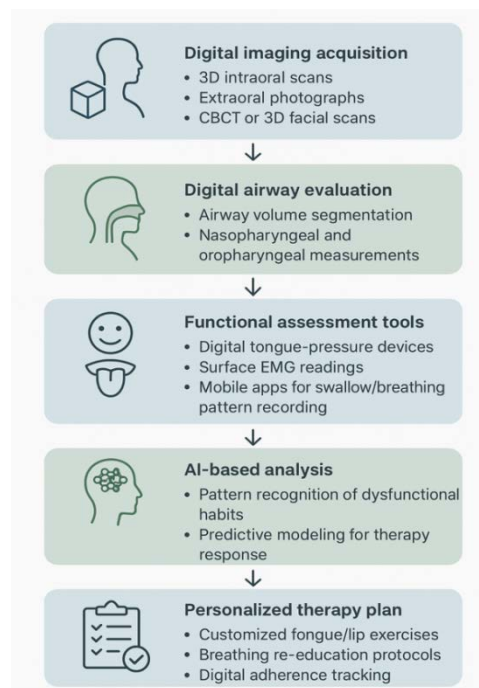


Figure 1. Digital workflow for modern myofunctional therapy (MFT) assessment

4. Tele-Myofunctional Therapy

Tele-myofunctional therapy (Tele-MFT) represents an emerging model of delivering orofacial myofunctional interventions through digital communication platforms. This remote approach has gained traction due to increasing accessibility of telehealth technologies, improved patient engagement tools, and the need for flexible, home-based therapeutic models.

4.1. Virtual Consultation Platforms

Virtual platforms enable clinicians to conduct synchronous video-based consultations, allowing real-time assessment of tongue posture, swallowing patterns, facial muscle activity, and oral habits. High-resolution video interfaces facilitate close observation of orofacial structures, while screen-sharing tools allow practitioners to demonstrate exercises and review patient-recorded data. Studies in tele-rehabilitation suggest that virtual care can achieve outcomes comparable to traditional in-clinic sessions when interactions are structured and patient education is optimized. [17]

4.2. App-Based Guided Exercises

Mobile health applications have transformed how MFT exercises are delivered and monitored. Many apps offer interactive modules with step-by-step demonstrations, timers, progress dashboards, reminders, and outcome-tracking tools. For MFT specifically, apps can guide patients in performing tongue re-education exercises, nasal breathing routines, and orofacial posture correction through visual cues and instructional videos. Digital exercise guidance has been shown to increase adherence, improve neuromuscular retraining consistency, and support patient autonomy. [18]

4.3. Remote Adherence Tracking

Remote monitoring technologies, including wearable sensors, app-integrated logs, and AI-enabled tracking, allow clinicians to evaluate patient compliance in real time. Acoustic sensors, accelerometers, and EMG-based wearables provide objective measures of tongue motion, swallowing frequency, and orofacial muscle activity. These tools alert clinicians to non-adherence, enable timely intervention, and provide motivational feedback to patients, improving long-term outcomes. [19]

4.4. Advantages and Clinical Challenges

Tele-MFT offers numerous benefits, including increased accessibility for patients in remote or underserved regions, reduced travel burden, improved flexibility, and greater opportunities for continuous monitoring. It enables high-frequency touchpoints and empowers patients to integrate therapy seamlessly into daily routines. However, challenges remain. Some patients may lack technical literacy or stable internet connectivity. Clinical accuracy can be limited by suboptimal camera angles or lighting during assessments. Additionally,

certain MFT evaluations, such as palpation of muscle groups or intraoral examinations, are difficult to perform remotely. Ensuring data privacy and compliance with telehealth regulations is also essential. Despite these limitations, growing evidence supports tele-rehabilitation as a reliable adjunct or alternative to in-person MFT care. (Figure 2) [20]

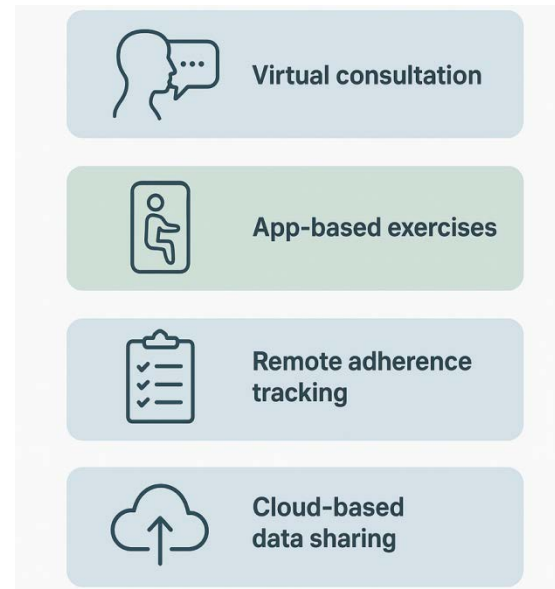


Figure 2. Tele-myofunctional therapy model

5. MFT in Airway-Focused Dentistry

5.1. Relationship between Airway Obstruction and Muscle Dysfunction

Airway obstruction, whether due to nasal blockage, enlarged tonsils, turbinate hypertrophy, or craniofacial narrowing, often disrupts normal orofacial muscle patterns. Chronic mouth breathing alters tongue posture, weakens lip seal, and promotes compensatory muscle recruitment, leading to dysfunctional swallowing and altered facial growth patterns. Evidence shows that airway compromise contributes to low tongue resting posture, increased mandibular rotation, and impaired orofacial stability. MFT helps restore physiologic patterns by retraining tongue elevation, nasal breathing, and balanced muscle coordination. [21]

5.2. MFT for Mouth Breathing, Snoring, and OSA

Orofacial myofunctional therapy has demonstrated clinical benefits in reducing symptoms of OSA, snoring, and chronic mouth breathing in both adults and children. Systematic reviews indicate that MFT can reduce AHI (apnea-hypopnea index) by 50% in adults and up to 62% in children, primarily through improved tongue tone, pharyngeal muscle stability, and nasal breathing habits [22]. MFT also complements behavioural interventions for nasal obstruction and is effective in re-establishing diaphragmatic breathing patterns. [22]

5.3. Integration with Mandibular Advancement Devices (MADs)

MADs mechanically increase upper airway space during sleep; however, their effectiveness is enhanced when combined with MFT. MFT strengthens the tongue and oropharyngeal musculature, improving airway patency and preventing posterior collapse. Studies show that patients using both MADs and MFT experience greater reductions in snoring intensity, decreased daytime sleepiness, and more stable long-term outcomes. This integrated approach is especially valuable for patients with low tongue tone or persistent mouth breathing despite appliance use. [23]

5.4. Interdisciplinary Coordination (ENT, Sleep Medicine, SLP)

Airway-focused dentistry requires coordination among ENT specialists, sleep physicians, speech-language pathologists, and myofunctional therapists. ENT evaluation identifies structural causes of airway obstruction (e.g., adenoid hypertrophy, deviated septum). Sleep medicine contributes polysomnography and treatment planning, while SLPs assist with functional swallowing and speech-related muscle patterns. Research strongly supports multidisciplinary management for pediatric and adult airway disorders. Integrated care ensures that MFT is appropriately sequenced with surgical or medical interventions. [24]

6. MFT in Modern Orthodontics

6.1. Role in Correcting Malocclusions

Orofacial myofunctional dysfunction contributes to multiple malocclusions, including anterior open bite, posterior crossbite, Class II division 1, and dental protrusion. Abnormal tongue posture, low lip tone, and altered swallowing patterns exert forces that oppose orthodontic correction. Evidence shows that incorporating MFT improves muscle balance, enhances tongue-palate contact, and supports better alignment outcomes. This functional correction helps orthodontists address the etiology, not just the symptoms. [25]

6.2. Importance in Clear Aligner Therapy

Clear aligners depend heavily on predictable tooth movement, which can be disrupted by improper tongue posture, incorrect swallowing, or persistent mouth breathing. [26] MFT optimizes these neuromuscular patterns, reducing unwanted forces on anterior teeth and improving aligner tracking. Digital aligner systems increasingly incorporate functional assessments due to their direct impact on treatment efficiency. [26]

6.3. Enhancing Treatment Stability and Reducing Relapse

Relapse is frequently associated with unresolved myofunctional problems, especially tongue thrusting and

low resting tongue posture. When MFT is integrated during or after orthodontic treatment, patients demonstrate improved long-term stability due to restored functional equilibrium of the orofacial complex. Research has shown that MFT significantly reduces relapse in open bite and Class II cases by retraining correct swallowing and nasal breathing. [27]

6.4. Growth Modification and Pediatric Applications

In children, untreated mouth breathing or low tongue posture can redirect craniofacial development, leading to long-face syndrome, narrow maxilla, or retrusive mandible. Early MFT helps promote proper tongue-palate contact, balanced facial growth, correct nasal breathing, and improved orofacial tone. Combined orthopedic and MFT protocols accelerate functional correction and support harmonious growth patterns. [28]

7. Emerging Technologies in Myofunctional Therapy (MFT)

7.1. 3D Tongue and Airway Modeling

Advancements in digital imaging are expanding the diagnostic possibilities of MFT. Three-dimensional (3D) modeling of the tongue, palate, and airway, derived from CBCT scans, intraoral scans, and MRI, allows clinicians to visualize structural-functional relationships with unprecedented clarity. 3D volumetric assessment helps in understanding tongue posture, airway collapsibility, and spatial constraints that influence orofacial muscle behavior. These models improve treatment planning by identifying functional bottlenecks and predicting therapeutic outcomes. [29]

7.2. Digital EMG and Muscle Activity Mapping

Surface EMG has been digitized into portable devices that allow real-time monitoring of orofacial muscle activation. Modern digital EMG systems produce detailed muscle activity maps during swallowing, breathing, chewing, and rest. Such data can identify compensatory muscle patterns, quantify therapy progress, and support evidence-based interventions. These tools are increasingly integrated into MFT protocols for personalized assessment and objective outcome tracking. [30]

7.3. VR or AR-Based MFT Training Systems

Virtual reality (VR) and augmented reality (AR) platforms are emerging as innovative tools to enhance patient engagement and adherence in MFT. VR-guided breathing and tongue exercises provide immersive biofeedback, while AR overlays can show real-time tongue posture correction using facial landmark detection. By gamifying therapy tasks, these technologies improve patient motivation, especially among children, and enable standardized, repeatable training environments. [31]

7.4. Next-Generation AI Platforms for Personalized Therapy

AI-driven platforms use facial recognition, motion tracking, acoustic analysis, and machine learning algorithms to create tailored MFT plans. Predictive models can estimate therapy duration, detect incorrect exercise execution, and forecast relapse risk. Automated progress monitoring through smartphone video analysis or wearable sensors can alert clinicians to early signs of non-compliance. In the future, AI is expected to become a central component in delivering precision myofunctional therapy. [32]

8. Clinical Applications and Case Evidence

8.1. Pediatric Patients

In children, MFT plays a vital role in addressing functional habits that can affect craniofacial development. Early intervention helps correct mouth breathing, low tongue posture, and improper swallowing, which contribute to maxillary constriction and vertical growth patterns. Studies show that combining MFT with orthopedic expansion or airway management significantly enhances outcomes in pediatric sleep-disordered breathing and malocclusion. [33] Children also respond positively to digital and gamified platforms, boosting adherence and long-term success. [33]

8.2. Adult Patients with Airway Disorders

Adults with snoring, obstructive sleep apnea (OSA), or chronic mouth breathing benefit substantially from MFT. Therapy enhances tongue tone, reduces pharyngeal collapsibility, and encourages long-term nasal breathing patterns. When paired with mandibular advancement devices (MADs) or continuous positive airway pressure (CPAP), MFT improves daytime symptoms, sleep quality, and adherence to treatment. Digital tools such as tele-MFT and wearable sensors allow consistent monitoring and adaptation of therapy. [34]

8.3. Orthodontic Patients (Pre-, Mid-, Post-Treatment)

MFT supports orthodontic stability by correcting dysfunctional habits that cause or worsen malocclusions.

Pre-treatment: Helps identify functional etiologies and prepares the orofacial system for tooth movement.

Mid-treatment: Ensures appropriate tongue posture and swallowing patterns that support predictable aligner or bracket outcomes.

Post-treatment: Reduces relapse in open bite, crowding, and Class II malocclusions by establishing stable muscle patterns. Digital EMG, bite tracking, and posture analysis tools increasingly assist orthodontists in integrating MFT into comprehensive treatment plans. [35]

8.4. Prosthodontic and TMD Management

In prosthodontics, MFT is used to improve tongue mobility, lip seal, and orofacial muscle strength, all essential for denture stability, speech, and swallowing efficiency. Patients undergoing full-mouth rehabilitation or implant therapy benefit from improved neuromuscular coordination. For temporomandibular disorders (TMD), MFT helps reduce parafunctional patterns, normalize mandibular rest posture, minimize muscular hyperactivity, and enhance joint stability. Digital EMG and posture-tracking tools further refine diagnosis and monitor therapeutic progress. (Figure 3) [36]

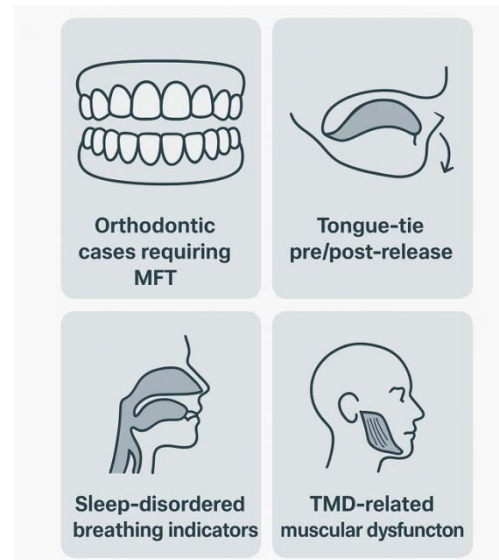


Figure 3. Myofunctional Therapy applications across dentistry

9. Challenges and Limitations

Despite significant progress in integrating MFT into modern dental and airway-focused care, several challenges and limitations continue to affect its clinical adoption and scientific validation.

9.1. Variability of MFT Protocols

MFT lacks universally accepted treatment protocols. Different practitioners, including dentists, speech-language pathologists, and certified myofunctional therapists, often use varying exercise sequences, session durations, and assessment frameworks. This variability complicates treatment comparison across studies, limits reproducibility, and makes it difficult for clinicians to determine which specific exercises yield the most benefit. [37]

9.2. Limited High-Quality Randomized Controlled Trials (RCTs)

Although evidence supporting MFT is growing, the number of high-quality RCTs remains limited. Most published studies are small, observational, or use

heterogeneous samples, making generalization difficult. Larger, multicenter, controlled trials are needed to strengthen the evidence base, evaluate long-term outcomes, and establish standardized outcome measures, especially for applications in airway disorders, orthodontics, and TMD. [37]

9.3. Compliance Issues

Patient adherence is one of the most significant barriers to successful MFT. Exercises must be performed consistently and correctly over weeks to months, which many patients, particularly children and busy adults, struggle to maintain. Remote monitoring tools, tele-MFT platforms, and gamified digital exercises show promise, but compliance remains a challenge that directly impacts the effectiveness of therapy. [38]

9.4. Need for Standardized Digital Tools

Although digital dentistry is rapidly expanding, digital tools for MFT assessment and monitoring remain inconsistent. Variability in software algorithms, limited validation of AI-driven platforms, and a lack of standardized digital biomarkers (e.g., tongue posture metrics, airway functional indicators) hinder widespread adoption. Standardization efforts are needed to ensure accuracy, reliability, and clinical utility across different technologies. [39]

9.5. Training and Certification Requirements

There is currently no single global regulatory framework defining who can provide MFT or what level of training is required. Certification programs vary widely in content, duration, and clinical rigor. This inconsistency affects the quality of therapy delivered and contributes to scepticism among medical and dental professionals. Establishing accredited training pathways and competency standards is essential for ensuring consistent and evidence-based practice. [39]

10. Future Directions

10.1. Integration of AI-Based Predictive Models

Artificial intelligence is expected to play a central role in refining MFT by predicting treatment outcomes, identifying dysfunctional patterns, and automating exercise evaluation. Machine learning models can analyze facial movements, airway dynamics, and tongue posture, allowing clinicians to anticipate relapse or therapy duration. Early work in AI-based orofacial analysis demonstrates the feasibility of automated muscle and airway assessment. [40]

10.2. Standardized Digital Assessment Systems

Future progress depends on creating validated, standardized digital systems to measure tongue posture,

muscle activity, nasal breathing efficiency, and airway function. Current tools (CBCT, IOS, digital EMG) offer valuable insights, but lack uniform benchmarks. Establishing digital biomarkers will improve cross-study comparisons and enhance clinical decision-making. [41]

10.3. Personalized Therapy Recommendations Using Data Analytics

Data-driven personalization will allow clinicians to generate individualized therapy plans based on digital scans, airway metrics, EMG activity, and compliance data. Predictive analytics can help classify patients into response categories and adjust therapy intensity or exercise type in real time. [42]

10.4. Stronger Evidence from Long-Term Studies

The field requires multicenter randomized controlled trials and longitudinal data to evaluate the durability of MFT outcomes in airway management, orthodontics, TMD, and pediatric growth modification. Long-term follow-up will clarify relapse patterns and determine whether digital MFT tools improve clinical success. [37]

10.5. Expansion of Tele-MFT in Global Dentistry

The widespread adoption of telehealth is accelerating the delivery of remote myofunctional therapy (tele-MFT). Mobile video platforms, dedicated apps, wearable sensors, and automated tracking systems allow clinicians to reach underserved populations. Tele-MFT has shown promising results in providing continuity of care, improving compliance, and enabling global standardization of therapy programs. (Figure 4) [43]

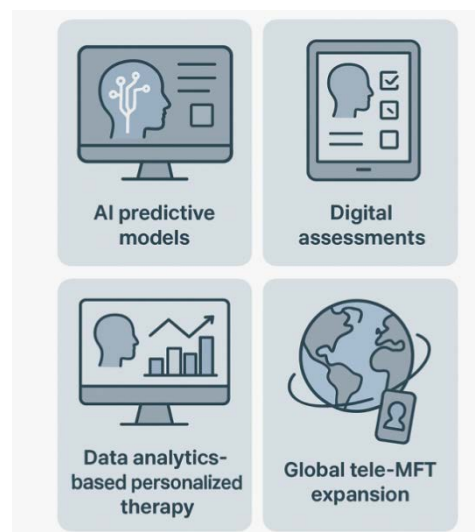


Figure 4. Future Myofunctional Therapy with AI

11. Conclusion

Myofunctional therapy plays an increasingly important role in airway-centred dental care by addressing orofacial

muscle dysfunctions that influence breathing, craniofacial development, and occlusion. The integration of digital technologies such as CBCT-based airway assessment, intraoral scanning, artificial intelligence-assisted analysis, and tele-myofunctional platforms, enhances diagnostic accuracy, treatment monitoring, and patient accessibility. Collectively, current evidence supports the value of digitally assisted MFT in improving clinical efficiency and patient engagement.

However, the effectiveness of these technologies depends on appropriate case selection, clinician training, and standardized protocols. At present, the lack of long-term clinical trials and uniform outcome measures limits definitive conclusions regarding treatment efficacy. Future research should focus on well-designed clinical studies and the development of evidence-based guidelines to support the consistent integration of digital tools into myofunctional therapy. Establishing standardized digital workflows may further strengthen the role of MFT in contemporary, airway-focused dental practice.

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