

Temporomandibular Disorders In Dance: Somatognathology For Cranio-Cervico-Mandibular Function, Posture And Foot Support

Giorgio Brunelli

Former Full Professor, University Of Cagliari, Cagliari, Italy

Date of Submission: 01-07-2026

Date of Acceptance: 10-07-2026

I. Introduction

Temporomandibular disorders (TMD) are among the most common causes of pain and dysfunction in the craniofacial region and may substantially affect mastication, speech, sleep, and quality of life. In contemporary clinical research, TMD are increasingly understood not as isolated disorders of the temporomandibular joint or masticatory muscles alone, but as conditions that often involve a wider musculoskeletal and functional context [1,2,15]. In particular, systematic reviews have shown that patients with TMD frequently present cervical pain, reduced cervical mobility, altered craniocervical posture, and broader cervical musculoskeletal impairment, supporting the view that the jaw should be interpreted within a cranio-cervico-mandibular system rather than as a separate anatomical region [1-5].

This broader perspective may be especially relevant in dancers. Dance is a highly demanding activity that requires exceptional postural control, fine motor coordination, balance, precision of head and trunk alignment, and continuous adaptation of the body axis to technical and aesthetic demands. Dancers repeatedly work under conditions of high load, prolonged practice, extreme ranges of motion, and strong performance expectations, all of which may influence the cranio-cervico-mandibular region as well as the lower kinetic chain [8-12]. In this context, the foot is not merely a distal structure but a fundamental element of support, balance regulation, and force transmission, particularly in ballet and other dance forms that rely on demi-pointe, pointe, jumps, turns, and repeated loading of the ankle-foot complex [8-12].

The relationship between TMD and posture has long been debated. Reviews suggest that associations may exist between TMD and head posture, cervical alignment, and global body posture, although the strength and direction of these relationships remain heterogeneous and, in some areas, controversial [5-7]. This uncertainty is partly due to methodological variability across studies, but it also reflects the intrinsic complexity of the systems involved. The stomatognathic system, cervical spine, trunk, pelvis, and lower limbs operate within an integrated postural network in which local dysfunction may coexist with regional or whole-body adaptations [1,2,5-7]. From this viewpoint, the study of dancers offers a particularly interesting model because dance performance depends on the continuous coordination of these body segments under refined biomechanical and sensorimotor demands [8-12].

Dance medicine has consistently highlighted the importance of the foot and ankle in both performance and injury patterns. Studies in ballet and other dance populations have shown that foot and ankle disorders are among the most common problems in dancers, and that alignment, flexibility, loading strategies, and footprint characteristics may influence performance capacity as well as injury risk [8-12]. Yet, despite the centrality of posture and foot support in dance, the possible relationship between these factors and temporomandibular disorders has received little direct attention in the dance medicine literature. This is notable because the cranio-cervico-mandibular region contributes to head position, gaze orientation, breathing-related coordination, and upper body organization, all of which are fundamental to dance technique and expression [1-3,8-12].

A useful conceptual framework for addressing this complexity may be Somatognathology. As used in this paper, Somatognathology does not indicate a new diagnostic entity, but an integrative perspective in which the stomatognathic system is considered in relation to the body axis, postural organization, pain-adaptation processes, and the lived bodily experience of the dancer [1,5,15]. This perspective is consistent with growing attention to interdisciplinary models that bridge orofacial pain, cervical function, movement analysis, and performance-related demands. In this respect, data from sports medicine may also be informative, as recent work has suggested that TMD in athletes may be influenced by sport-specific loads, postural demands, and functional compensation strategies [13,14]. Although dancers are not fully comparable to athletes in every respect, they

share with them the exposure to repetitive training, biomechanical stress, high performance standards, and load-sensitive symptom expression [13,14].

Accordingly, the aim of this conceptual review is to examine temporomandibular disorders in dance through a Somatognathological lens. Specifically, we first summarise current evidence linking TMD to cervical and postural features [1-7]; second, we discuss dance-specific demands on posture and foot support [8-12]; third, we propose a Somatognathological framework for interpreting the relationship between cranio-cervico-mandibular function, posture, and foot support in dancers; and finally, we outline implications for interdisciplinary assessment, rehabilitation, and future research in dance medicine [8-15].

II. Temporomandibular Disorders And Posture: Current Evidence

The relationship between temporomandibular disorders and posture has been the subject of sustained clinical and research interest for many years. Much of this interest has focused on the cervical spine, because patients with TMD frequently report neck pain, stiffness, and functional discomfort in the craniocervical region. Systematic reviews and meta-analyses have consistently shown that individuals with TMD present more cervical musculoskeletal impairment than asymptomatic controls, including reduced cervical range of motion, altered muscle performance, craniocervical dysfunction, and greater pain sensitivity in the cervical region [1-3]. These findings do not mean that cervical dysfunction is the primary cause of all TMD, but they do support the view that the jaw and cervical spine often function as an interdependent clinical region rather than as separate systems [1-4].

The cervical spine is particularly relevant because it represents the first body segment through which cranial position is mechanically and sensorimotorly connected to the trunk. Changes in cervical alignment, mobility, and muscle function may therefore influence mandibular mechanics, head posture, and the distribution of load across the cranio-cervico-mandibular complex [1,2,5]. From the opposite perspective, persistent pain or altered motor behaviour in the stomatognathic system may also modify cervical muscle recruitment, protective postures, and movement patterns. This bidirectional view is one of the reasons why posture has remained central to discussions on TMD, even though causal interpretations remain controversial [5-7].

Systematic reviews focusing specifically on posture have suggested a possible association between TMD and head or cervical posture, especially forward head posture and altered craniocervical alignment [5,6]. Other reviews have extended this discussion to global body posture, indicating that TMD may coexist with broader postural adaptations involving the trunk and whole-body alignment [6,7]. However, these relationships are not uniformly demonstrated across all studies, and the overall quality of evidence remains variable. Different definitions of TMD, inconsistent postural assessment methods, and the multifactorial nature of both pain and posture make it difficult to establish simple or linear relationships [5-7]. For this reason, posture should not be interpreted as a single explanatory factor, but rather as one dimension of a more complex functional system.

Current evidence therefore suggests two clinically important conclusions. First, posture matters in TMD, particularly when posture is considered not as a static visual impression but as an expression of dynamic neuromuscular organization involving head control, cervical mobility, trunk orientation, and load adaptation [1,2,5-7]. Second, the relationship is likely to be contextual rather than universal. In some patients, cervical and postural factors may be highly relevant to symptom generation, maintenance, or compensation; in others, they may play a minor role [1-7]. This distinction is especially important when considering populations with highly specific movement and alignment demands, such as dancers.

For dancers, the question is not merely whether TMD are statistically associated with posture, but whether postural and movement demands specific to dance may increase the clinical significance of cranio-cervico-mandibular dysfunction. Unlike the general population, dancers train within a context in which head-neck alignment, axial elongation, trunk stability, balance, and precision of foot support are essential components of performance [8-12]. In such a setting, even subtle dysfunctions in the cranio-cervico-mandibular region may have amplified consequences through compensatory changes elsewhere in the body axis. Thus, although the existing posture-TMD literature is not dance-specific, it provides a relevant foundation for exploring how TMD in dancers may interact with postural control and foot support in a distinctive and clinically meaningful way [1-12].

From a Somatognathological perspective, this evidence supports an integrative rather than reductionist interpretation. The aim is not to claim that posture causes TMD or that all dancers with TMD have a definable postural syndrome. Rather, the goal is to recognise that the stomatognathic system is embedded within a body-axis organization in which cervical function, global posture, pain adaptation, and sensorimotor control can influence one another [1-7]. In dancers, this framework may be particularly valuable because it allows clinicians to move beyond isolated jaw findings and consider how cranio-cervico-mandibular dysfunction may interact with the technical and biomechanical demands of dance practice.

III. Dance-Specific Mechanical And Postural Demands

Dance places highly specific mechanical and postural demands on the body that distinguish dancers from both the general population and many athletic groups. Technical execution in dance requires the precise integration of head, neck, trunk, pelvis, and lower limbs within a continuously regulated body axis. Alignment is not simply aesthetic; it is a functional requirement for balance, movement efficiency, line, and injury prevention [8-12]. In many dance forms, especially ballet, the dancer must maintain axial elongation, controlled cervical positioning, refined scapulothoracic organization, and stable trunk control while simultaneously managing turnout, dynamic weight transfer, rapid directional changes, jumps, and repeated landings [8-12].

Within this environment, the foot plays a particularly important role. It serves not only as a support structure but also as a sensorimotor interface between the dancer and the floor, contributing to balance, shock absorption, propulsion, and the regulation of whole-body alignment [8-12]. This function becomes even more critical in activities such as demi-pointe, pointe work, releve, turns, and jump-landing tasks, where subtle changes in foot loading, ankle flexibility, and weight distribution may affect the entire kinetic chain. Studies in dancers have shown that foot and ankle injuries are frequent, and that alignment, flexibility, and footprint characteristics are closely linked to technical demands and injury patterns [8-12]. These observations support the idea that foot support is not a peripheral detail in dance, but one of the central organisers of postural behaviour.

At the same time, the upper part of the body axis must remain highly controlled. The head is continuously used for spatial orientation, spotting, balance modulation, aesthetic expression, and coordination with trunk and limb movement. Because of this, the cranio-cervico-mandibular region may be exposed to repetitive muscular loading, sustained postural requirements, and compensatory tension strategies, even in the absence of overt trauma [1-3,5-7]. In some dancers, jaw clenching, altered breathing coordination, fatigue-related cervical stiffness, or compensatory head positioning may represent subtle but clinically relevant contributors to dysfunction. Although these mechanisms have not yet been thoroughly studied in dance-specific TMD research, they are biomechanically and clinically plausible within the broader framework of postural regulation and performance demand [1-7].

An important feature of dance is that mechanical stress is rarely local. A deficiency at one level of the body axis may be compensated for elsewhere in order to preserve line, balance, technical appearance, or performance continuity. A dancer with limited ankle control may adjust through the knee, hip, trunk, or cervical region; similarly, altered head-neck organization may influence trunk stabilization or weight distribution through the feet [8-12]. This capacity for compensation is functionally useful in the short term, but it may also obscure the origin of symptoms and contribute to persistent or distributed dysfunction. For this reason, a regional complaint such as TMD should not automatically be interpreted as an isolated craniofacial disorder in dancers, but rather as a potential expression of a more complex system of adaptation involving the full body axis.

This is where the concept of Somatognathology becomes particularly relevant. In dancers, the stomatognathic system operates within a functional context shaped by alignment, sensorimotor precision, breathing pattern, postural control, and foot-floor interaction [1,5,8-12]. The jaw may therefore be affected not only by local dental or muscular factors, but also by the postural and kinetic demands required to maintain technical performance. Equally, dysfunction in the cranio-cervico-mandibular region may influence how the dancer organizes head position, balance, and support over the feet. A Somatognathological perspective allows these interactions to be conceptualised not as isolated anomalies, but as part of a continuous body-axis regulation process.

From a clinical standpoint, these dance-specific demands justify a model of assessment that goes beyond the local examination of the temporomandibular joint. In dancers, understanding TMD may require attention to head and cervical control, breathing coordination, axial organization, lower limb alignment, and patterns of foot support under both static and dynamic conditions [8-12]. Such an approach does not assume that every dancer with TMD has a postural or podal origin of symptoms. Rather, it acknowledges that the dance environment magnifies the functional importance of body-axis integration, making even subtle disturbances in cranio-cervico-mandibular organization potentially relevant to both symptoms and performance.

IV. Somatognathology As A Framework For TMD In Dancers

A Somatognathological framework is useful because it treats temporomandibular disorders in dancers as part of an integrated functional system rather than as a strictly local problem of the temporomandibular joint. This approach is consistent with the broader literature showing that TMD often coexist with cervical dysfunction, altered head posture, and wider postural adaptations, even if the direction of causality remains uncertain [1-7].

Within this perspective, a first domain is the stomatognathic domain, which includes the temporomandibular joints, masticatory muscles, occlusal behavior, parafunctions, and mandibular motor control. In dancers, this domain remains essential, but it should not be interpreted in isolation because jaw function may be influenced by fatigue, stress-related clenching, cervical muscle co-contraction, and task-specific postural demands during training and performance [1-3,5-7].

A second domain is the body-axis domain. Dance requires continuous regulation of head position, cervical alignment, trunk organization, pelvic control, and lower-limb loading, while the foot acts as a key interface for balance, propulsion, and force transfer; recent dance literature also emphasizes that ankle instability and foot-ankle overload are common and can alter postural control in meaningful ways [8-12]. In this model, the cranio-cervico-mandibular region is one segment of a larger postural chain, so dysfunction at the jaw may both reflect and contribute to compensatory strategies elsewhere along the axis [1-3,5-12].

A third domain is the pain-adaptation domain. The TMD literature suggests that pain is not just a symptom layered onto normal movement, but a factor that can modify muscle recruitment, protective behavior, cervical mobility, and habitual posture; in the same way, recurrent overload in dancers may generate adaptations that preserve technique while redistributing stress through adjacent regions [1-7]. This matters clinically because a dancer may continue to perform at a high level while progressively relying on compensations that obscure the original source of dysfunction [8-12].

A fourth domain is the lived-body domain, meaning the dancer's embodied experience of technique, effort, symmetry, pain, and aesthetic control. Dance is not only a biomechanical activity but also a performance practice shaped by body image, precision demands, repetition, and the need to maintain technical appearance under load; this can influence how symptoms are perceived, minimized, or integrated into movement behavior [8-12]. In this sense, Somatognathology helps frame TMD not only as a structural or biomechanical condition, but also as a disturbance in how the dancer organizes and experiences the body in action [1,5,15].

Taken together, these four domains support a model in which TMD in dancers are interpreted through the interaction of local jaw function, whole-axis postural organization, pain-related adaptation, and embodied performance demands. This framework does not claim that every dancer with TMD has the same mechanism, but it does provide a coherent rationale for interdisciplinary assessment that includes the jaw, cervical region, posture, and foot support within the same clinical reasoning process [1-12,15].

V. Clinical Implications For Assessment And Rehabilitation

The Somatognathological interpretation proposed in this paper has important clinical implications for both assessment and rehabilitation in dancers with temporomandibular disorders. If TMD in this population are understood within a broader cranio-cervico-mandibular and postural network, clinical reasoning should extend beyond the local examination of the temporomandibular joint and masticatory muscles [1-7]. This does not diminish the importance of standard TMD assessment; rather, it situates local findings within a more comprehensive functional model that is particularly relevant in dancers, whose technical performance depends on refined integration of the body axis and lower-limb support [8-12].

Assessment should therefore begin with a conventional TMD evaluation, including pain location, joint sounds, mandibular range of motion, pain during function, muscular tenderness, parafunctional behaviors, symptom duration, and aggravating or relieving factors. However, in dancers this examination should be complemented by attention to cervical pain, cervical mobility, head posture, fatigue-related symptom fluctuation, breathing pattern, and training-specific triggers, since current evidence indicates that cervical dysfunction and postural alterations may accompany TMD and influence its clinical presentation [1-7]. The history should also include dance discipline, training volume, performance level, use of pointe work when relevant, previous injuries, and the conditions under which symptoms emerge, for example during rehearsal, sustained posture, turns, jumps, or periods of high performance stress [8-12].

A postural and movement-based examination is equally important. Static observation may provide useful information, but in dancers it is often insufficient because symptoms and compensations emerge most clearly during task-specific activity. For this reason, clinical assessment should consider head-neck organization, trunk control, scapular positioning, pelvic alignment, lower-limb loading, and foot support under both quiet standing and movement conditions. This is especially relevant given that dance literature consistently identifies the foot and ankle as major determinants of postural control and common sites of overload and injury [8-12]. In a dancer with TMD, abnormalities in support strategy or recurrent ankle-foot dysfunction may not explain jaw symptoms directly, but they may contribute to a broader compensatory pattern affecting the whole body axis [1-7].

The rehabilitation implications are similarly interdisciplinary. Treatment should be individualized according to the dominant clinical presentation, but a purely local approach may be insufficient when symptoms are maintained by cervical dysfunction, maladaptive posture, breathing discoordination, or persistent compensations in dance technique [1-7]. Management may therefore include education, behavioral strategies for parafunction, manual and exercise-based treatment for the jaw and cervical region, progressive motor control work, and dance-specific retraining aimed at reducing unnecessary tension and improving axial organization during performance tasks [1-7].

Foot support should also be considered within rehabilitation planning. Because dancers rely on precise loading strategies and sensorimotor control through the ankle-foot complex, recurrent instability, overload, or altered support patterns may perpetuate compensatory adjustments that extend proximally [8-12]. Where

clinically indicated, rehabilitation may therefore benefit from integrating foot-ankle assessment, balance retraining, proprioceptive work, landing mechanics, and technical correction alongside more conventional TMD management. Such an approach is not based on a simplistic claim that the foot causes TMD, but on the recognition that in dancers distal support and cranio-cervico-mandibular organization may interact within the same functional chain [1-12].

From an organizational standpoint, these considerations support the value of interdisciplinary collaboration. Depending on the presentation, meaningful assessment and treatment may require interaction among dentists or orofacial pain specialists, physiotherapists, dance medicine clinicians, movement specialists, and dance teachers. The purpose of this collaboration is not to multiply interventions unnecessarily, but to align local symptom management with the technical and biomechanical realities of dance practice [8-12]. In this sense, a Somatognathological model offers a clinically pragmatic framework: it encourages the clinician to ask not only where the pain is located, but how the dancer organizes the body, adapts to load, and maintains performance despite dysfunction [1-12].

VI. Future Directions And Research Needs

Despite the growing literature on temporomandibular disorders, cervical dysfunction, posture, and dance-related musculoskeletal loading, important gaps remain in our understanding of how these domains interact in dancers. Current evidence supports associations between TMD and cervical or postural variables, but the heterogeneity of study designs, diagnostic criteria, and assessment methods still limits causal interpretation and clinical generalizability [1-7]. In parallel, dance medicine research has clearly shown the central importance of foot and ankle function, injury burden, and postural control in dancers, yet these findings have rarely been integrated with the study of cranio-cervico-mandibular disorders [8-12].

A first research priority is therefore methodological. Future studies should adopt standardized diagnostic criteria for TMD, clearly defined measures of cervical function and posture, and reproducible approaches to the assessment of foot support and movement strategy [1-7,13,14]. Without greater methodological consistency, it will remain difficult to compare results across studies or determine whether observed associations reflect true functional relationships rather than sampling bias or measurement variability [5-7].

A second priority is the development of dance-specific research designs. Much of the available literature on TMD and posture derives from general clinical populations, while dance studies have mainly focused on lower-limb injury, training load, and performance-related biomechanics [8-12]. Future investigations should therefore examine dancers directly, distinguishing among dance styles, training levels, exposure to pointe work, rehearsal volume, and injury history [8-12]. Such stratification is essential because the mechanical demands placed on the cranio-cervico-mandibular system and on foot support are unlikely to be identical across all dance populations [8-12].

A third need concerns dynamic and task-specific evaluation. Static posture alone is unlikely to capture the complexity of how dancers organize the body during technique and performance. Future studies should combine clinical assessment with functional observation during dance-relevant tasks such as balance, turns, jump landings, releve, and sustained technical positions, ideally integrating cervical, mandibular, and foot-ankle variables within the same protocol [8-12]. This would be especially valuable because both the TMD literature and the dance injury literature suggest that dysfunction often emerges through adaptation to load rather than through isolated structural abnormality [1-7,8-12].

Longitudinal and interventional research is also needed. At present, most of the evidence is cross-sectional, which makes it difficult to determine whether postural or podal alterations precede TMD, result from TMD, or simply coexist as parallel adaptations within demanding movement systems [1-7]. Prospective studies in dancers could clarify whether recurrent foot-ankle dysfunction, altered support strategies, or cervical overload increase the likelihood of developing TMD symptoms over time [8-12]. Similarly, intervention studies are needed to test whether integrated management approaches addressing jaw function, cervical control, postural organization, and foot support produce better outcomes than treatments focused only on local symptoms [1-7,13,14].

Another important direction concerns interdisciplinary models of performance health. Emerging work in athletic populations suggests that sport-specific loading, functional compensation, and return-to-performance considerations may be relevant when studying temporomandibular disorders beyond conventional dental settings. Dancers represent a particularly suitable population for this line of inquiry because they combine artistic demands with high training loads, repetitive biomechanical stress, and strong pressure to maintain technical quality despite pain or fatigue [8-14]. Future studies should therefore include not only symptom outcomes, but also variables related to function, movement quality, training participation, and performance sustainability [8-14].

Finally, further conceptual work is warranted on Somatognathology itself. The value of this framework lies in its capacity to connect local stomatognathic findings with body-axis organization, pain adaptation, and the

lived bodily experience of performance, but these domains now require clearer operational definitions for research use. Refining this framework could help generate testable hypotheses, improve interdisciplinary communication, and support a more coherent research agenda on TMD in dancers [1-15].

VII. Conclusion

Temporomandibular disorders in dancers should not be viewed exclusively as local disorders of the temporomandibular joint, but rather as conditions that may emerge within a broader cranio-cervico-mandibular and postural system. The available literature supports meaningful relationships between TMD, cervical dysfunction, and posture, while dance medicine research emphasizes the central role of body-axis organization and foot support in performance and injury patterns [1-12].

From this perspective, Somatognathology offers a useful interpretative model because it integrates stomatognathic function, postural organization, pain-related adaptation, and the lived bodily demands of dance practice [1,5,15]. Such an approach is particularly relevant in dancers, in whom even subtle dysfunctions may acquire amplified significance through compensation, technical repetition, and the need to maintain performance quality under load [8-12].

Although current evidence remains insufficient to establish simple causal pathways, it is adequate to justify an interdisciplinary and function-oriented clinical perspective. Assessment and rehabilitation should therefore consider not only local jaw symptoms, but also cervical function, movement behavior, and foot support within the broader logic of dance performance [1-14]. In this sense, a Somatognathological framework may help bridge orofacial pain research and dance medicine, while also providing a foundation for future studies on the integrated management of TMD in dancers [1-15].

Funding

This research received no external funding.

Conflicts of interest

The authors declares no conflicts of interest.

Author contributions

Giorgio Brunelli was responsible for conceptualization, methodology, literature analysis, writing - original draft preparation, writing - review and editing, and supervision, and has read and agreed to the published version of the manuscript.

Ethics statement

Ethical review and approval were not required for this study because it is a narrative review based on previously published literature.

Acknowledgments

none.

Bibliography

- [1]. La Touche R, Paris-Alemany A, Von Piekartz H, Mannheimer JS, Fernández-Carnero J, Rocabado M. Craniocervical And Cervical Spine Features Of Patients With Temporomandibular Disorders: A Systematic Review And Meta-Analysis Of Observational Studies. *J Clin Med*. 2020;9(9):2806.
- [2]. De Melo LAD, De Moura Filho AG, De Sousa Lima MA, Et Al. Cervical Musculoskeletal Disorders In Patients With Temporomandibular Dysfunction: A Systematic Review And Meta-Analysis. *J Bodyw Mov Ther*. 2020;24(4):84-101.
- [3]. Bednarczyk V, Proulx F, Paez A. The Effectiveness Of Cervical Rehabilitation Interventions For Pain In Adults With Myogenic Temporomandibular Disorders: A Systematic Review And Meta-Analysis. *J Oral Rehabil*. 2024;51(6):1091-1107. Doi:10.1111/Joor.13671.
- [4]. Petronis Ž, Pliatkute N, Petroniene V, Et Al. The Relationship Between Cervical Spine Abnormalities And Temporomandibular Joint Internal Disorders: A Systematic Review Of Literature. *Med Sci Monit*. 2020;26:E923123.
- [5]. Armijo-Olivo S, Bravo J, Magee DJ, Thie NMR, Major PW, Flores-Mir C. The Association Between Head And Cervical Posture And Temporomandibular Disorders: A Systematic Review. *J Orofac Pain*. 2006;20(1):9-23.
- [6]. Kim JH, Lee HJ, Park YH, Et Al. Systematic Review Of The Correlation Between Temporomandibular Disorders And Body Posture. *J Acupunct Res*. 2017;34(3):123-131. Doi:10.13045/Jar.2017.02201.
- [7]. Correlation Between Temporomandibular Disorders (TMD) And Posture Evaluated Through The Diagnostic Criteria For Temporomandibular Disorders: A Literature Meta-Analysis. *J Clin Med*. 2023;12(7):2632.
- [8]. Beddis H, Broome B, Davies B, Et Al. Biomechanical Risks Associated With Foot And Ankle Injuries In Ballet Dancers: A Systematic Review. *Lower Extrem Rev*. 2022;14(6):28-37.
- [9]. Lai JHC, Fung NPY, Yung PSH. Comparison Of Dance-Related Foot And Ankle Injuries Among Pre-Professional Ballet, Contemporary, And Chinese Dancers. *J Dance Med Sci*. 2022;26(2):69-76. Doi:10.1177/1089313X221109575.
- [10]. Shah S, Weiss DS, Burchette RJ. Ankle Flexibility And Injury Patterns In Dancers. *Am J Sports Med*. 1996;24(6):754-757. Doi:10.1177/036354659602400609.

- [11]. Smith TO, Davies L, O'Driscoll ML, Donell ST. Risk Factors For Lower Extremity Injuries In Female Ballet Dancers: A Systematic Review. Clin J Sport Med. 2021;31(2):E64-E79. Doi:10.1097/JSM.0000000000000793.
- [12]. Kowalski E, Peled E, Goldstein R, Et Al. In Pursuit Of The Perfect Dancer's Ballet Foot: Footprint Parameters And Foot Alignment In Female Ballet Dancers. Int J Environ Res Public Health. 2021;18(10):5285. Doi:10.3390/Ijerp18105285.
- [13]. Starr C, McGrew C. TMJ Disorders In Athletes. Curr Sports Med Rep. 2023;22(1):10-14. Doi:10.1249/JSR.0000000000001026.
- [14]. Crincoli V, De Biase C, Cazzolla AP, Et Al. Effects Of Contact Sports On Temporomandibular Disorders: An Observational Study. Cranio. 2022;40(6):421-429. Doi:10.1080/08869634.2020.1846840.
- [15]. National Academies Of Sciences, Engineering, And Medicine. Temporomandibular Disorders: Priorities For Research And Care. Washington (DC): National Academies Press; 2020.