Scientific and theoretical foundations of preparing individuals with hearing impairments for the deaflympic games in greco-roman wrestling

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Abstract

Purpose: This theoretical review synthesizes literature on preparing Deaf and hard-of-hearing (D/HH) athletes for elite Greco-Roman wrestling, focusing on physiological, psychological, communication, and coaching considerations. It examines how Deaf culture, visual learning, coaching strategies, and mental and physical preparation intersect in training Deaf wrestlers for the Deaflympic Games.

Methods: A narrative literature review was conducted using electronic databases and reference tracking to identify relevant publications (2000–2025). Keywords included "Deaf athletes," "Deaflympics," "wrestling training," "visual learning," and "Deaf culture." Peer-reviewed articles, systematic reviews, and official Deaf sports regulations were analyzed.

Results: The review finds that hearing impairment alone does not limit physical performance: D/HH wrestlers typically exhibit aerobic capacity, strength, and power comparable to hearing peers. However, vestibular deficits associated with hearing loss often lead to poorer static balance in Deaf wrestlers. Deaf athletes benefit from visual-oriented instruction: coaches are advised to use demonstrations, visual cues, and positioning to enhance communication. Deaf culture plays a central role in athletes' identity; embracing Deaf identity and community supports motivation and self-esteem. Contrary to common assumptions, studies indicate Deaf learners are not inherently stronger visual learners than hearing students, but they do rely on visual language and "people of the eye" strategies. Deaf athletes express interest in sport psychology support, but language barriers limit access.

Conlcusion: Training programs for Deaf Greco-Roman wrestlers should combine standard conditioning with adaptations for hearing impairment: use visual teaching methods, ensure clear communication (e.g. sign language or written cues), and integrate psychological skills training that respects Deaf culture. Coaches must be aware of balance challenges and adapt drills accordingly. Further research is needed on sport-specific training of Deaf wrestlers. This review provides a foundation for evidence-based coaching and support strategies in Deaf wrestling.

Keywords: Deaflympics; Greco-Roman wrestling; Deaf athletes; Visual learning; Deaf culture; coaching strategies.

Introduction

Wrestling has been a core sport of the Deaflympic Games since their inception, and Greco-Roman wrestling is a flagship discipline in which Deaf athletes compete at the highest level. The Deaflympic Games (under the International Committee of Sports for the Deaf, ICSD) is the premier international multi-sport event for Deaf and hard-of-hearing (D/HH) athletes, founded in 1924. Unlike Paralympic events that address a range of disabilities, the Deaflympics is exclusively for athletes with hearing loss (minimum 55 dB in the better ear). Contest rules follow standard international wrestling regulations, with one key modification: all auditory signals (e.g. referee whistle, start gun) are replaced by visual cues. Significantly, use of hearing aids, cochlear implants, or other auditory devices is prohibited during competition, ensuring a uniform environment where all competitors rely on non-auditory communication. Therefore, preparing Deaf wrestlers for competition involves not only physical training but also adaptation to a visual-communication setting.

Deaf culture and identity are fundamental to understanding D/HH athletes. A shared visual language (e.g. sign language) and norms, often encapsulated by the phrase "people of the eye", characterize deaf culture. Within Deaf culture, hearing loss is not viewed as a deficit but as a difference; Deaf individuals value their visual-oriented cognition and community ties. These cultural factors influence how Deaf athletes train and compete. For example, Deaf athletes often rely on visual-spatial processing and peripheral awareness, which can be advantageous in sports, but they may also experience cognitive load from constant visual alertness (since they cannot rely on sound for situational cues).

Despite these differences, research consistently shows that hearing impairment itself does not limit core physical capacities needed for wrestling. Several comparative studies have found that elite Deaf athletes have similar or even superior levels of aerobic fitness, muscular strength, and speed as hearing athletes. This suggests that traditional training regimens focusing on endurance, power, and skill are equally applicable to Deaf wrestlers. However, there are unique physiological and sensory fac-

tors to consider. In particular, many Deaf individuals have concomitant vestibular (balance) deficits, which can impair static stability. These issues must be addressed in training. Moreover, Deaf athletes may have altered reaction times or response patterns due to reliance on visual rather than auditory signals.

Psychologically, Deaf athletes share the competitive drive of all elite wrestlers, yet they navigate additional challenges. They often report a strong Deaf identity and pride, which can bolster self-esteem and motivation. At the same time, they may face isolation or miscommunication in predominantly hearing environments, leading to stress or barriers in coaching and support. Notably, recent qualitative research highlights that D/HH athletes are eager for sport psychology support, but such services are often inaccessible due to language barriers (few sport psychologists are fluent in sign language). Therefore, understanding the mental training needs of Deaf wrestlers is essential.

Finally, effective communication between coach and athlete is crucial. Deaf athletes require adaptations such as sign language, interpreters, or clear visual aids for coaching instructions. Best-practice guidelines from Deaf sports organizations recommend that coaches demonstrate techniques visually, use whiteboard or video for strategy, and ensure the athlete has good line-of-sight and understands all signals. Learning sport-specific signs or gestures can also improve in-competition communication. In sum, preparing Deaf wrestlers for elite competition involves blending standard wrestling training with intentional adaptations for hearing impairment. This review critically examines the theoretical and empirical literature on these topics, to inform coaches, sport scientists, and policy makers engaged in Deaf sports.

Research methods and organization

Research indicates that D/HH athletes are not physiologically disadvantaged in the key performance domains of Greco-Roman wrestling. A systematic review by Gaweł et al. (2024) concluded that aerobic capacity, muscular strength, power, and speed of reaction are comparable between D/HH and hearing athletes. In practical terms, this implies that a Deaf wrestler can train under the same conditioning principles as a hearing wrestler to develop endurance, maximal strength, and explosive power. For example, cardiovascular training (e.g. running, interval drills) should yield similar improvements in VO_2max for Deaf athletes as for hearing athletes. Likewise, strength programs focused on weightlifting and plyometrics have the same benefits, since these capacities depend on musculature and physiology unaffected by hearing status.

However, there are notable *sport-specific* physiological factors where hearing loss can play a role. One such factor is balance. The vestibular system, essential for static postural control, is anatomically linked to the auditory system. Deafness - especially congenital or profound loss - often involves vestibular hypofunction, which can impair balance and coordination. Empirical studies of deaf athletes confirm this: Coskun et al. (2019) found that hearing-impaired wrestlers exhibited significantly poorer static balance (e.g. ability to stand on one leg) than matched hearing wrestlers. In Coskun's study, deaf wrestlers scored lower on stork balance tests (static, eyes open), whereas their dynamic balance (the Y-balance test anterior reach) was actually better in some directions. These results suggest that while Deaf wrestlers may develop compensatory strategies, they nonetheless tend to have deficits in maintaining stillness and posture without external feedback. Coaches should therefore include balance training (e.g. one-leg stances, unstable surfaces) into preparation, especially in the early phases. Core stability and proprioceptive drills may mitigate these vestibular challenges.

Reaction time is another consideration. Deaf athletes cannot rely on auditory cues, so their visual reaction skills become critical. Some studies show that D/HH athletes have slower reaction times to visual stimuli in certain tasks (possibly due to differences in processing or lack of routine auditory alerting), while others show comparable or even enhanced performance in peripheral awareness and rapid visual processing. For wrestling, which is a highly visual combat sport, Deaf wrestlers may naturally excel at quickly noticing an opponent's movement in their field of vision. The concept of "Deaf gains" suggests that long-term auditory deprivation leads to enhanced sensitivity in other sensory modalities. For instance, fluent signers often demonstrate superior peripheral vision and spatial attention (though this can be influenced by factors like video gaming or training as well). Nevertheless, training should still emphasize reactive drills (e.g. response to visual signals, random movement cues) to ensure Deaf wrestlers can counter and initiate techniques

rapidly.

Nutrition, weight management, and recovery are physiological areas unlikely to differ by hearing status. Deaf wrestlers need the same attention to diet, hydration, and recovery (e.g. sleep, injury prevention) as hearing wrestlers. Coaches should note that Deaf athletes *may be more sensitive to environmental stressors* such as bright lights or unexpected vibrations, which can affect arousal and recovery, though these are not strictly physiological. Overall, the physical conditioning of Deaf wrestlers should mirror that of hearing athletes, while providing extra focus on balance and sensory integration.

The psychological readiness of Deaf wrestlers encompasses motivation, identity, stress management, and mental skills training. A central theme in the literature is the role of Deaf culture and identity. Deaf athletes often embrace a positive Deaf identity that can enhance their self-esteem and motivation. Gaweł et al. (2024) reported that identification as a Deaf athlete is a key determinant of self-esteem and quality of life. In other words, when Deaf athletes see themselves as valued members of the Deaf sports community, they tend to exhibit higher confidence and satisfaction. This aligns with sociocultural models that view Deafness as a cultural identity (akin to ethnicity) rather than a deficiency. Coaches should therefore cultivate an environment that respects Deaf culture – for example, celebrating Deaf role models and allowing athletes to socialize in sign language – as part of psychological preparation. Such cultural affirmation may buffer against negative stereotyping and internalized stigma.

While Deaf culture provides strengths, Deaf wrestlers also face unique mental demands. Markov-Glazer et al. (2025) found that many Deaf athletes reported living "on high alert" because they rely entirely on vision to monitor their environment. One athlete described always scanning the gym to catch visual cues, feeling that this constant vigilance "takes all my energy". This continuous cognitive load can lead to fatigue or anxiety if not managed properly. Coaches should be aware that Deaf wrestlers might experience higher arousal levels or anxiety in chaotic auditory environments (e.g. tournaments with loud announcements they cannot hear). Mental training for these athletes could include relaxation and focus techniques that acknowledge this extra sensory monitoring. For example, practice sessions might incorporate "visual rest" periods, or mindfulness exercises that relax the eyes and encourage breath control.

Deaf athletes' motivation is often fueled by the need to overcome barriers. Gaweł et al. note that overcoming obstacles and pushing past limits during training boosts Deaf athletes' self-esteem. This suggests that personal narratives of perseverance (e.g. "I can do this even without hearing") can be used in mental coaching. Moreover, friendly integration with hearing athletes in training is shown to benefit motivation: inclusive practices (such as competing together in national teams) can challenge Deaf wrestlers and improve their skills. The literature reports that Deaf and hearing athletes training together tend to raise each other's level, and Deaf wrestlers report feeling more motivated when regularly facing hearing opponents. Thus, psychological readiness also involves social factors and the team climate; encouraging mutual respect and support within the team (Deaf and hearing alike) is key.

A substantial psychological need is access to sport psychology services. Deaf athletes value mental skills training (e.g. imagery, goal-setting, anxiety control), yet as Markov-Glazer et al. (2025) document, Deaf athletes often lack access to qualified sports psychologists who can communicate in sign language. Many Deaf wrestlers in leagues with hearing coaches have rarely had a single sports psychology session in Deaf-friendly format. Coaches and sport organizations should therefore seek creative solutions: this might involve using sign-language-fluent sports psychologists, training coaches themselves in basic sport psychology methods adapted for Deaf learners, or employing video modeling and visual feedback for mental skills. For example, imagery training can be adapted by having the athlete visualize techniques in their own sign language or as silent video loops. It is important to note that Deaf athletes' way of thinking is often visual; some verbal elements of cognitive-behavioral skills (like "self-talk") may need to be reframed (e.g. "picture your inner dialogue in sign or lip movement").

Finally, psychological preparation must respect individual differences. Not all Deaf wrestlers use sign language as their first language; some may prefer written notes or spoken language. Thus, the coach must gauge each athlete's preferred communication mode. Also, gender differences noted in the literature suggest that female Deaf athletes may communi-

cate differently or have different preferences than males. This highlights the need for coaches to tailor their approach, perhaps by involving both signed and written materials, and by checking in frequently on understanding and emotional state. In summary, psychological readiness for Deaf wrestlers involves leveraging Deaf cultural pride, managing the cognitive load of constant visual monitoring, fostering inclusive team dynamics, and adapting mental training to the athletes' communication style.

Effective coaching of Deaf athletes requires deliberate strategies to bridge the communication gap. Multiple sources emphasize that visual communication methods are essential. For example, the Australian Deaf Kids sport guide recommends that coaches *demonstrate techniques whenever possible, rather than relying on verbal instructions*. In wrestling, this means physically showing moves one-on-one or using assistant athletes to illustrate positions, rather than verbally describing them. Coaches should break complex skills into one or two key points and use visible cues (e.g. hand gestures) to highlight them. Visual aids such as diagrams, video slow-motion reviews, or whiteboard diagrams of holds and counters are also best practice. These not only accommodate Deaf athletes but often benefit hearing athletes as well.

Positioning during instruction is another important factor: Deaf athletes should ideally see the coach's face and hands clearly. The coach should stand in front of the athlete during explanations (so lip-reading is possible) and ensure lighting is good. In group settings, Deaf wrestlers should be allowed to position themselves near the coach and away from visual obstructions. Similarly, identifying key signals (e.g. referee whistle) in advance is crucial: coaches must ensure Deaf wrestlers know the visual equivalent of auditory signals (for instance, raising an arm or a flag at the start of a round). In many wrestling competitions, visual timing lights or flag signals are used; Deaf athletes and coaches should confirm these systems are in place at tournaments.

Sign language is the primary natural language of many Deaf athletes. Ideally, coaches either learn the national sign language themselves or work closely with a qualified sign-language interpreter for training sessions. Research by Rochon et al. (2006) suggests that coaches using ASL interpreters can communicate effectively, but that direct coach-to-athlete interaction (when the coach learns sign) leads to even better relationships and performance. While this ERIC study is not directly about wrestling, its findings generalize: when coaches invest effort in learning basic sport-specific signs (for example, signs for "grip," "lift," "fall" in wrestling), athletes feel respected and understood. One practical tip is to have the Deaf athlete teach the coach key terms or signs for wrestling moves. Such collaborative learning of signs promotes teamwork and avoids isolating the athlete as "different".

When interpreters are used, best practice is to direct communication to the athlete, not the interpreter. The coach should speak or sign to the athlete, maintaining eye contact, and then pause to allow interpretation. The Deaf athlete usually signals understanding with a head nod; if they do not respond, the coach should rephrase or demonstrate before proceeding. It is also wise to involve the entire team in these communication methods: educating hearing teammates about signs or communication protocols fosters an inclusive environment. For example, the team can collectively learn basic sign phrases like "attack," "hold tight," or "time out," which allows on-the-mat cues during practice.

Finally, language modality impacts mental training as well. Markov-Glazer et al. note that some Deaf athletes prefer internal dialogue in sign language, which feels natural to them. Coaches and sport psychologists can harness this: guided imagery scripts, for instance, can be translated into sign or used with pictorial scripts. All written materials (training plans, playbooks) should be made available in text for athletes who rely on written English (or other spoken language) instead of sign. In short, coaching strategies for Deaf wrestlers revolve around maximizing visual communication, confirming comprehension, and respecting language preference.

This article is a narrative literature review drawing upon peer-reviewed research in sport science, Deaf education, and allied fields. We conducted electronic searches in PubMed, Web of Science, Scopus, and Google Scholar up to June 2025, using search terms related to deaf athletes and wrestling (e.g. "Deaf wrestling," "Deaf athletes sport science," "Greco-Roman wrestling Deaf training"). Additional sources were identified through reference lists of key articles and Google searches for official Deaf sports documents. Both qualitative and quantitative studies were considered, as well as reviews of Deaf sport and educational literature

that provide context. Inclusion criteria focused on (1) studies pertaining to Deaf or hard-of-hearing athletes, preferably in combat sports; (2) research addressing communication, coaching, or psychological aspects of Deaf athletes; and (3) publications on general Deaf culture or learning in sports settings. Non-English sources were included if an abstract or translation was available. No original data were collected; instead, existing findings were synthesized to produce a theoretical framework for Deaf wrestling preparation.

Methodologically, this review follows the approach recommended for theoretical reviews, organizing content by themes rather than aggregating statistical results. Where applicable, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) were loosely followed for search transparency. Notably, Gaweł et al.'s (2024) systematic review of Deaf sports literature (cited herein) informed the search strategy, and its reference list was mined for relevant sources (e.g. studies on physical fitness of Deaf athletes). All cited sources were evaluated for relevance and credibility, with priority given to empirical research and official Deaf sports guidelines.

Results and discussion

The synthesized findings from the literature can be grouped into major themes of athletic performance, sensory/motor factors, cultural-psychological factors, and coaching strategies:

Deaf wrestlers generally match their hearing counterparts in core fitness. Gaweł et al. (2024) found that D/HH athletes achieve similar or higher levels of aerobic capacity, strength, and power than hearing athletes. In other words, elite Deaf wrestlers can attain high VO_2 max, muscular endurance, and explosive strength through standard training programs. No studies indicated inherent deficits in anaerobic capacity or strength solely due to hearing loss. Therefore, conditioning plans (e.g. periodized strength cycles, cardiovascular training) for Deaf wrestlers should mirror those for hearing wrestlers.

By contrast, Deaf wrestlers often experience deficiencies in balance. Vestibular impairments associated with congenital or early-onset deafness can reduce static postural control. Empirical evidence confirms this: in Coskun et al.'s comparative study, Deaf wrestlers had significantly lower scores on static one-leg balance tests (eyes open) than hearing wrestlers. In dynamic balance tests (Y-balance), Deaf wrestlers performed better in the anterior reach, possibly reflecting adaptation or training specificity. However, the overall pattern indicates that static stability is a potential training deficit for Deaf athletes. Wrestlers should therefore engage in balance-specific exercises (e.g. stork stands, Bosu-ball drills) to compensate. Coaches may also utilize tactile or visual feedback (e.g. mirrors) when practicing holds and throws to help Deaf athletes calibrate their body position.

Deaf athletes rely heavily on vision for cues. Several sources describe Deaf individuals as "people of the eye," emphasizing their visual orientation. Fluent signers often show enhanced peripheral vision and spatial awareness, although research findings are mixed. For example, Lane et al. (2011, cited in Marschark et al. 2017) suggest that Deaf signers have heightened sensitivity to quickly presented visual information. However, other studies (and the comprehensive review by Marschark et al.) caution against assuming that Deaf people inherently "see well" across the board. What is clear is that Deaf wrestlers utilize visual cues (opponent's movements, referee gestures) to an exceptional extent. Training should leverage this: video analysis of matches, shadow-drills observing an opponent, and games emphasizing peripheral tracking can play to Deaf athletes' strengths. At the same time, coaches should be aware that multitasking visually (watching coach, opponents, and environment) could be taxing, so instructions should be clear and uncluttered.

A dominant theme is the necessity for effective coach-athlete communication. Deaf athletes need direct visual communication or sign language. Gaweł et al. (2024) highlight that good communication between Deaf athletes and coaches "is necessary to achieve high athletic performance". Deaf wrestlers reported preferring hearing coaches who have sign language skills, over Deaf coaches or purely oral communication, although preferences vary. Both sign language and oral (spoken) communication can work if delivered clearly. The key finding is that coaches who learn and use even basic sign, or who work closely with interpreters, foster better training relationships.

Common belief holds that Deaf individuals are "visual learners," but empirical evidence complicates this notion. Marschark et al. (2017) found that Deaf students were *not* more likely to adopt visual learning strategies than their

hearing peers were. Deaf students performed similarly to hearing students on visual-verbal learning style tests. The implication is that coaches should not assume Deaf wrestlers would automatically prefer or excel with only visual teaching methods, although visual methods are important tools. Instead, coaches should individualize instruction: some Deaf athletes may respond equally well to written instructions or kinesthetic practice as to visual modeling.

Deaf athletes often demonstrate strong motivation and resilience. Gaweł et al. note that the *challenge of overcoming barriers* contributes positively to Deaf wrestlers' self-esteem. The social aspect of wrestling – camaraderie, achieving goals – is crucial: being accepted as a representative of Deaf athletes and persisting through difficulties were linked to greater life satisfaction. Coaches should therefore cultivate a supportive team culture and set progressive challenges to build confidence. Deaf athletes also experience unique stressors: some report heightened anxiety in noisy or crowded settings where they cannot track auditory cues. Mental skills training should address this; for example, teaching athletes to focus on chosen visual anchors (opponent's eyes or shoulders) can provide a sense of stability during matches.

Deaf wrestlers have expressed interest in sport psychology techniques, but access is limited. Markov-Glazer et al. (2025) observed that Deaf athletes are *aware of* and value techniques like imagery, goal setting, and relaxation, yet few have had formal guidance in their native language. Coaches should incorporate informal psychological coaching: for instance, encouraging athletes to use visual imagery (rehearsing a match in sign language internally, or watching video clips mentally) and to set clear, measurable goals (possibly written down). Peer support and mentorship within the Deaf sporting community can supplement professional services.

Finally, several studies highlight the benefit of integrated training. Deaf athletes who compete and train alongside hearing athletes tend to develop higher skills and motivation. In wrestling, having Deaf wrestlers spar with hearing wrestlers helps both groups improve: hearing wrestlers must adjust to silent grappling, and Deaf wrestlers are challenged by hearing opponents' verbal cues (or lack thereof). This inclusive model should be encouraged at club and national levels. The Deaflympics itself permits only Deaf athletes, but preparatory competitions with mixed participation (national championships, invitational meets) can raise performance standards for Deaf wrestlers.

In summary, the literature converges on the view that the physical training of Deaf wrestlers can follow the same scientific principles as for hearing athletes, while special attention must be given to balance training and sensory adaptations. Coaching methods must be culturally and linguistically attuned: emphasizing visual instruction and signing, confirming comprehension, and respecting Deaf identity. By synthesizing these findings, coaches can develop comprehensive training programs for Deaf Greco-Roman wrestlers that maximize their performance potential.

The review highlights that hearing impairment in itself does not impede the athletic capacities required for elite Greco-Roman wrestling. Deaf wrestlers can attain high levels of strength, endurance, and technical skill equivalent to hearing wrestlers. Therefore, any training program should not dilute physical conditioning because of hearing status. Coaches should not assume, for example, that a Deaf wrestler needs less aerobic work or simpler techniques; on the contrary, the goal should be to develop full athletic potential.

However, the "theoretical foundations" of such preparation diverge in critical areas. Firstly, *balance and proprioception* emerge as physiologically salient issues. Given the evidence of vestibular deficits affecting Deaf athletes, coaches may need to monitor balance and coordination explicitly. Regular balance assessments (e.g. stork test results) could be part of the training cycle to ensure deficits are identified early. Customized rehabilitation or strength exercises (e.g. squat to stabilize posture) can be integrated.

Secondly, *communication* fundamentally shapes training. Deaf athletes thrive when communication barriers are removed. This means that standard coaching must be supplemented by visual and signed communication. As the literature suggests, even simple strategies like writing down the training plan or using hand signals can have significant impact. It also means coaches must be patient and verify understanding continuously. The role of sign language cannot be overstated: fluent communication (whether by the coach learning sign or by an interpreter) builds trust and safety. Deaf athletes have reported that a coach's effort to sign or use clear gestures directly translates into better performance and attitude.

Thirdly, *psychology and culture* must in-

form preparation. Embracing Deaf culture in the training environment contributes positively to mental readiness. This could include celebrating Deaf wrestling achievements, using team huddles to encourage signing support, or even involving Deaf alumni as mentors. The psychological literature on Deaf sports also implies that training programs should build on Deaf athletes' strengths—self-reliance, visual-spatial skills—while mitigating stress from stigma or communication isolation. For instance, coaches might frame challenges as opportunities ("You turned your Deafness into an advantage; let's harness that visual focus").

The principle of *inclusion* is also noteworthy. Encouraging Deaf athletes to compete against hearing opponents is not only pragmatically helpful (more competition improves skill) but also psychologically empowering. Deaf wrestlers may sometimes view hearing athletes as a reference standard; succeeding against them can be a strong confidence booster. However, care must be taken to ensure Deaf athletes do not feel chronically "othered." Mixed training groups should be respectful and learned in basic Deaf etiquette (e.g. avoiding interrupting sign conversations with voice).

It is also important to note what the literature does *not* provide: there is a dearth of wrestling-specific research on Deaf athletes. Much of the information comes from general Deaf sport contexts or from other sports (volleyball, basketball, etc.). As such, coaches may need to extrapolate carefully. For example, while we know Deaf football players have poorer balance, we assume similar issues apply to wrestling. Future research should ideally include biomechanics studies of Deaf wrestlers (how does hearing loss affect takedown technique?), sport psychology interventions tailored to Deaf combat athletes, and experimental trials of communication methods in the wrestling gym.

Finally, the broader implication is that preparing Deaf wrestlers is an interdisciplinary endeavor. Sport scientists, physiotherapists, sport psychologists, and interpreters may all play a role. Collaboration between wrestling programs and Deaf sport organizations (e.g. national Deaf sport federations) could yield better resources. For instance, developing a "Deaf wrestling curriculum" that standardizes certain signals and coaching cues across countries might help.

Conclusion. In conclusion, the theoretical foundations for training Deaf Greco-Roman wrestlers combine standard elite wrestling practices with specialized adaptations for hearing impairment. Key takeaways include:

Deaf athletes can develop aerobic power, strength, and wrestling skill on par with hearing athletes. Coaches should apply rigorous conditioning and technical training without reservation.

Hearing loss often entails vestibular weakness, so incorporate balance and core stability exercises into regular training routines.

Use demonstrations, visual aids, and clear line-of-sight. Where possible, coaches should learn the Deaf wrestler's sign language or hire qualified interpreters. Always verify understanding and encourage the athlete to ask for clarification.

Recognize and respect Deaf identity. Engage with the athlete's Deaf community and Deaf sporting role models. This cultural inclusion strengthens motivation and self-esteem.

Offer mental skills training in a Deaf-friendly way (for example, using visual imagery and goal-setting worksheets). Address the unique mental load of constant visual vigilance by teaching relaxation and focusing techniques.

Promote opportunities for Deaf wrestlers to compete and train with hearing peers, as this enhances performance and social inclusion.

This review is intended to guide coaches and trainers in developing evidence-informed programs for Deaf athletes. It highlights that, with appropriate adaptations, Deaf wrestlers can reach high levels of performance in the Deaflympics. Continued research and coach education in this area will further improve training outcomes.

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