METHODS FOR DEVELOPING THE PHYSICAL FITNESS OF KURASH WRESTLERS

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Shermatov Gulom Qaxxorovich
Tashkent State University of Economics, Associate Professor, Department of Physical Culture and Sports Activity

Abstract. *The article examines scientifically grounded methods for developing the physical fitness of kurash wrestlers. The study systematizes strength, power, endurance, agility, flexibility and recovery-oriented training tools that correspond to the specific demands of standing grappling and throwing actions. The author proposes a 12-week periodized model based on integrated technical and physical preparation, load monitoring and injury-prevention principles. Tables, diagrams and illustrative statistical indicators are used to demonstrate how training components can be distributed across the macrocycle. The scientific novelty of the article lies in adapting general combat-sport conditioning principles to the pedagogical and practical features of kurash. The results show that the most effective approach combines maximal strength development, explosive power, anaerobic intervals, aerobic support, mobility work and systematic recovery control. The recommendations can be used by university sport clubs, youth sport schools and coaches working with beginner and intermediate kurash athletes.*

Keywords*: kurash, wrestler, physical fitness, strength training, endurance, agility, periodization, sports pedagogy, injury prevention, training load.*

Annotatsiya. *Maqolada kurashchilarning jismoniy tayyorgarligini rivojlantirishning ilmiy asoslangan usullari tahlil qilinadi. Kuch, tezkor-kuch, chidamlilik, chaqqonlik, egiluvchanlik va tiklanishga yo‘naltirilgan mashg‘ulot vositalari kurash sportining o‘ziga xos talablariga moslashtirilgan holda tizimlashtiriladi. Muallif 12 haftalik davriylashtirilgan tayyorgarlik modelini taklif etadi. Jadval, diagramma va statistik ko‘rsatkichlar orqali mashg‘ulot yuklamalarini taqsimlash, nazorat qilish va jarohatlarning oldini olish yondashuvlari asoslab beriladi.*

Kalit so‘zlar*: kurash, kurashchi, jismoniy tayyorgarlik, kuch mashqlari, chidamlilik, chaqqonlik, davriylashtirish, sport pedagogikasi, jarohatlarning oldini olish.*

Аннотация. *В статье рассматриваются научно обоснованные методы развития физической подготовленности борцов кураша. Систематизированы средства развития силы, скоростно-силовых качеств, выносливости, ловкости, гибкости и восстановления с учетом специфики стойковой борьбы и бросковых действий. Автор предлагает 12-недельную периодизированную модель подготовки, основанную на интеграции технической и физической подготовки, контроле нагрузки и профилактике травматизма.*

Ключевые слова: *кураш, борец, физическая подготовленность, силовая подготовка, выносливость, ловкость, периодизация, спортивная педагогика, профилактика травм.*

INTRODUCTION

Kurash is a traditional Uzbek wrestling sport that has developed from national cultural practice into an international competitive discipline. Its rules emphasize upright grappling, balance breaking, gripping, leg sweeps and throwing actions while excluding groundwork. This technical profile creates a distinctive physical demand: the athlete must be able to generate high force rapidly, resist opponent pressure, maintain postural control and recover repeatedly during short, intense contest episodes [1].

The relevance of this topic is determined by the rapid expansion of kurash in schools, universities and sport clubs, where coaches need simple but scientifically justified training models. Physical fitness is not a separate addition to technical preparation; it is the foundation that allows a wrestler to execute throws safely and repeatedly, maintain tactical activity and prevent fatigue-related errors. A poorly prepared athlete may understand a technique but fail to perform it under competitive pressure because of insufficient strength, power, mobility or anaerobic capacity.

The object of the article is the physical preparation process of kurash wrestlers. The subject is the set of pedagogical and training methods used to develop strength, power, endurance, agility, flexibility and recovery capacity. The aim is to propose an integrated model for improving the physical fitness of kurash wrestlers on the basis of literature analysis, combat-sport conditioning principles and applied coaching practice. The objectives are: to describe the main physical qualities required in kurash; to systematize effective training methods; to present a 12-week model program; to propose test indicators for monitoring; and to formulate practical recommendations for coaches.

Literature Review

Sport-science literature shows that successful wrestlers generally demonstrate high dynamic strength, upper-body strength and anaerobic power compared with less successful athletes [2]. Although kurash differs from Olympic freestyle and Greco-Roman wrestling in rules and tactical content, the shared grappling nature means that similar physical qualities are important: maximal and explosive strength, trunk stability, repeated high-intensity effort capacity, reaction speed and flexibility.

The International Kurash Association describes kurash as a standing sport in which action is allowed only in the standing position, with no groundwork and with strict prohibitions on armlocks, choking, kicking and grips below the belt [1]. This means that a kurash-specific physical program should emphasize upright posture, gripping endurance, hip and trunk power, acceleration of throws, balance control and safe falling/landing mechanics.

General health and physical activity recommendations also support the inclusion of both aerobic and muscle-strengthening work. The World Health Organization recommends regular aerobic activity and muscle-strengthening activities because these improve health,

work capacity and resilience [3]. For combat athletes, these general principles must be transformed into sport-specific training through progressive resistance exercises, interval work, movement drills and technical-tactical tasks.

A 2023 systematic review of strength training in Olympic combat sports concluded that well-designed strength programs can improve components of physical fitness in combat-sport athletes, especially when exercises are selected according to sport demands and planned progressively [4]. Injury-prevention literature similarly emphasizes neuromuscular warm-up, load management, mobility and athlete monitoring. Recent evidence in freestyle wrestling reported that a structured injury-prevention program reduced overall injuries substantially, indicating that prevention should be integrated into ordinary training rather than treated as an occasional separate activity [5].

Uzbek and regional methodological sources also highlight that the physical training of wrestlers includes the development of strength, endurance, flexibility, agility and speed as components that support technical-tactical actions [6]. However, many practical programs still separate conditioning from technique or rely on uniform loads for all athletes. The present article differs by proposing an integrated and measurable model in which physical qualities are developed through kurash-relevant exercises and controlled by simple tests.

Research Methodology

The article uses a qualitative-analytical methodology. First, the specific competition demands of kurash were identified from official rules and sport-science literature. Second, the physical qualities required for upright grappling were grouped into seven categories: maximal strength, explosive power, strength endurance, aerobic endurance, anaerobic capacity, agility/coordination and flexibility/mobility. Third, training methods were selected and organized into a 12-week periodized model. Fourth, illustrative statistical indicators were prepared to demonstrate how coaches may evaluate progress before and after the training cycle.

The proposed data tables and diagrams are not presented as results of a new experimental intervention with human participants. They are author-developed methodological models and illustrative examples designed for practical planning. Where empirical values from published research are used, the source is indicated in the references. This approach is suitable for a methodological scientific article because it combines literature-based evidence with applied coaching recommendations.

Analysis and Results

Physical demands of kurash

The physical structure of kurash performance is multidimensional. A wrestler must enter gripping distance, control the opponent’s jacket and belt, resist pulling and pushing forces, create an imbalance and execute a throw explosively. These actions usually occur in short bursts, but the athlete must repeat them throughout the bout and across several matches in a tournament. Therefore, the program should not develop one quality at the expense of others; it should balance strength, speed, endurance and mobility.

Table 1. Main physical qualities and their relevance to kurash performance

Physical quality	Kurash-specific expression	Recommended tests	Training priority
Maximal strength	Resistance during grips, posture control and opponent displacement	1-3RM squat/deadlift variation; handgrip dynamometry	High
Explosive power	Fast entry, hip extension and throw acceleration	Standing long jump; medicine-ball throw; vertical jump	Very high
Strength endurance	Ability to maintain gripping and pulling actions repeatedly	Pull-ups in 60 s; rope climb; loaded carries	High
Anaerobic capacity	Repeated attacks and defensive actions under fatigue	30 s repeated throws; shuttle intervals	Very high
Aerobic endurance	Recovery between exchanges, training tolerance, tournament endurance	Yo-Yo IR1; 12-min run; HR recovery	Medium
Agility and coordination	Rapid changes of direction, balance recovery, feints	T-test; 5-10-5 test; balance tasks	High
Flexibility and mobility	Safe throwing mechanics, injury reduction, range of motion	Sit-and-reach; shoulder mobility screen	Medium

Table 1 shows that physical fitness in kurash should be understood as an integrated system. Maximal strength creates the base for resisting and controlling the opponent; explosive power transforms this base into fast throwing action; endurance supports repeated technical execution; and mobility helps maintain safe movement amplitude.

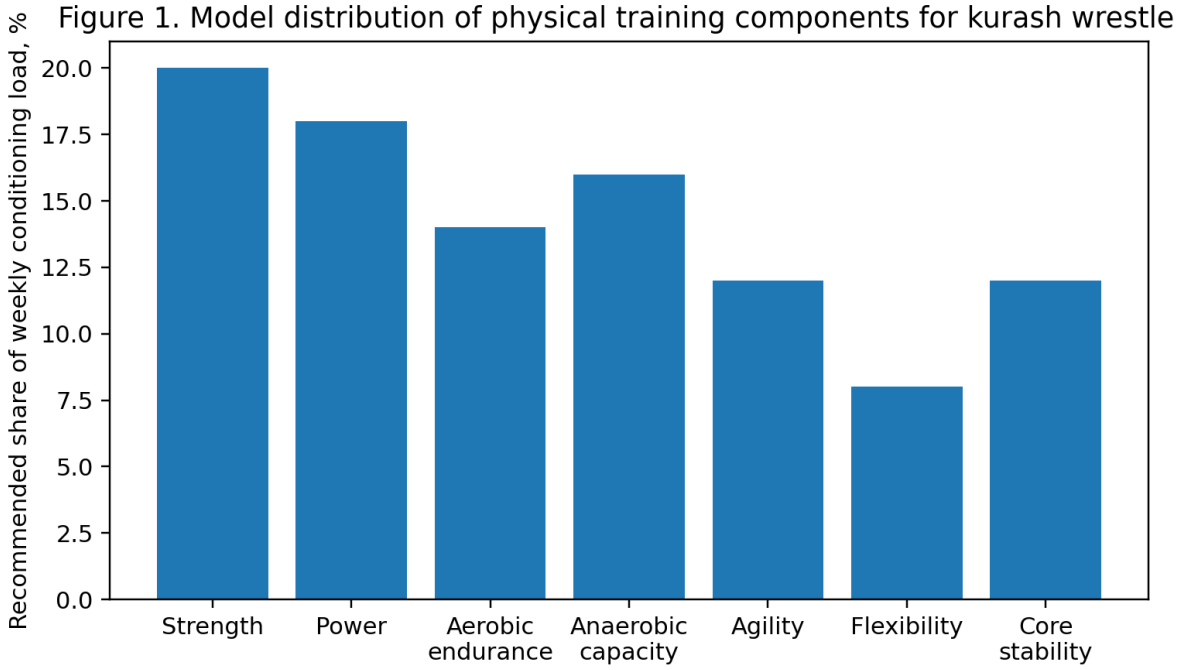


Figure 1 presents a model distribution of weekly conditioning emphasis. The largest share is allocated to strength and power because throwing sports depend heavily on force production and rapid acceleration. However, anaerobic intervals, core stability and agility remain essential, while aerobic endurance and flexibility provide support for recovery and movement quality.

Training methods for developing physical fitness

The following methods are recommended for the physical development of kurash wrestlers. First, resistance training should include multi-joint exercises such as squats, deadlift variations, lunges, rows, pull-ups, presses and loaded carries. These exercises build general strength and structural resilience. Second, power exercises should include medicine-ball throws, jump squats, kettlebell swings, Olympic-lift derivatives and partner-resisted explosive entries. Third, anaerobic conditioning should use short intervals of 10-30 seconds with incomplete recovery because many decisive contest actions occur in repeated high-intensity bursts.

Fourth, aerobic endurance should be developed through low-to-moderate continuous work and tempo intervals. The aim is not to turn the wrestler into a long-distance runner, but to improve recovery between bouts and allow the athlete to tolerate technical training volume. Fifth, agility training should combine change-of-direction tasks with reaction cues and kurash footwork. Sixth, flexibility and mobility should be integrated daily through dynamic warm-ups, hip mobility, thoracic rotation, shoulder mobility and post-training stretching. Seventh, recovery management should include sleep hygiene, hydration, simple wellness questionnaires and weekly load review.

Table 2. Recommended training methods by physical quality

Quality	Main methods	Example exercises	Frequency per week
Maximal strength	Progressive overload; 3-5 sets x 3-6 reps	Squat, trap-bar deadlift, bench press, rows, weighted pull-ups	2
Explosive power	Low-volume high-speed work; full recovery	Medicine-ball rotational throw, jump squat, kettlebell swing, band-resisted entry	2-3
Anaerobic capacity	Repeated high-intensity intervals	10 x 15 s throws / 45 s rest; 6 x 30 s shuttle / 90 s rest	2
Aerobic support	Tempo intervals and continuous low-intensity work	20-30 min easy run/cycle; 6 x 3 min tempo	1-2
Agility/coordination	Reactive footwork and balance tasks	T-test, mirror drill, partner reaction drill, one-leg balance throw entry	2-3
Flexibility/mobility	Dynamic mobility before; static stretching after	Hip opener, deep squat hold, thoracic rotation, shoulder band mobility	Daily
Core stability	Anti-rotation, anti-extension, loaded carries	Pallof press, plank variations, suitcase carry, Turkish get-up	2-3

12-week periodized model

A rational training plan should progress from general preparation to specific preparation and then to pre-competition sharpening. Table 3 presents a 12-week model that may be used by university and club-level kurash wrestlers. The plan assumes four to five training days per week and should be adjusted according to age, qualification, medical status and competition calendar.

Table 3. Twelve-week model for physical preparation of kurash wrestlers

Phase	Weeks	Main objective	Dominant content	Control focus
General preparation	1-3	Build movement base and strength foundation	Technique basics, general strength, aerobic support, mobility	Baseline tests, technique quality
Deload and correction	4	Reduce accumulated fatigue and correct weaknesses	Lower volume, mobility, technical precision	Wellness, soreness, HR recovery
Specific preparation	5-7	Convert strength into kurash-specific power and repeated effort	Explosive throws, grip endurance, anaerobic intervals	Power tests, repeated throw index
Deload and integration	8	Stabilize adaptation and improve movement efficiency	Moderate technical-tactical work, recovery sessions	Video analysis, agility
Pre-competition	9-10	Increase intensity and tactical speed	Short high-intensity bouts, reactive drills, power maintenance	Readiness and fatigue
Taper and evaluation	11-12	Reduce volume, maintain intensity, evaluate progress	Low volume, fast actions, competition simulation, final tests	Final test battery

Figure 2. Periodized 12-week load model

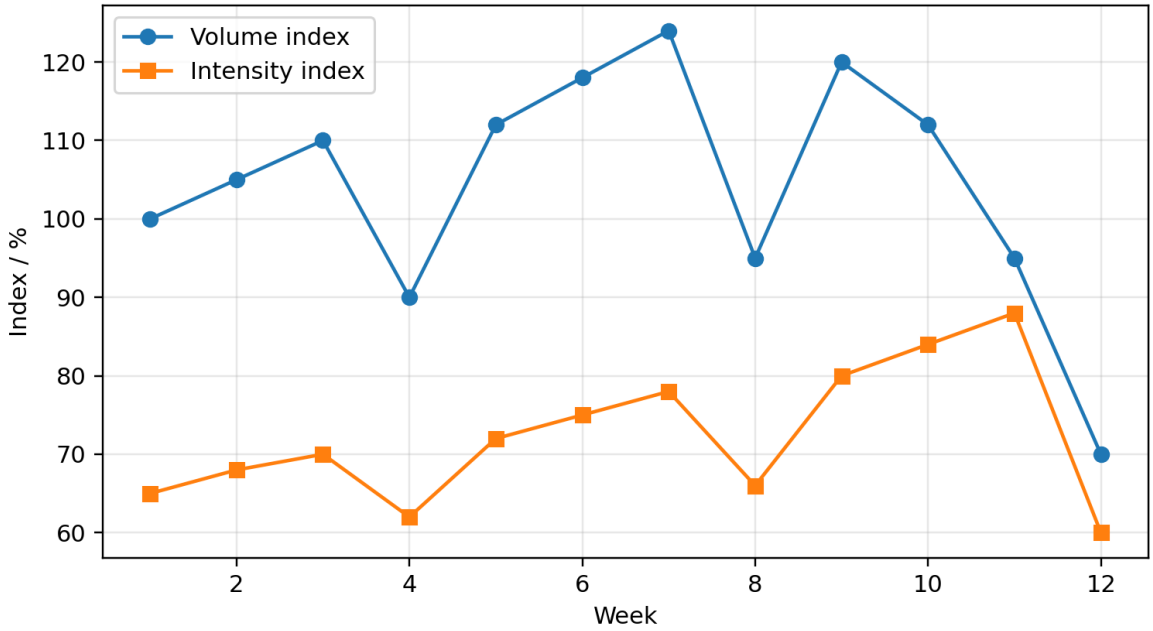


Figure 2 illustrates a common periodization principle: training volume rises during preparatory blocks and decreases during deload and taper weeks, while intensity gradually increases before evaluation or competition. This pattern helps athletes adapt while reducing excessive fatigue.

Microcycle and session structure

The weekly microcycle should combine physical training with technical-tactical development. A common mistake in combat sports is to place heavy conditioning after every technical session, which may reduce technical quality and increase injury risk. Instead, high-intensity physical work should be placed on selected days, and recovery or mobility sessions should be used between demanding sessions.

Table 4. Example weekly microcycle for intermediate kurash wrestlers

Day	Main focus	Physical content	Intensity
Monday	Technical basics + maximal strength	Squat/hinge, pull-ups, core stability	High
Tuesday	Footwork, gripping and aerobic support	Tempo intervals, mobility	Moderate
Wednesday	Throw combinations + explosive power	Medicine-ball throws, jumps, resisted entries	High
Thursday	Recovery and technical correction	Mobility, balance, light drilling	Low
Friday	Randori/contest simulation +	Repeated throw intervals, shuttle	Very high

	anaerobic capacity	sprints	
Saturday	General conditioning and flexibility	Circuit with low joint stress, stretching	Moderate
Sunday	Rest	Sleep, nutrition, passive recovery	Very low

Figure 4. Structure of a 95-minute training session

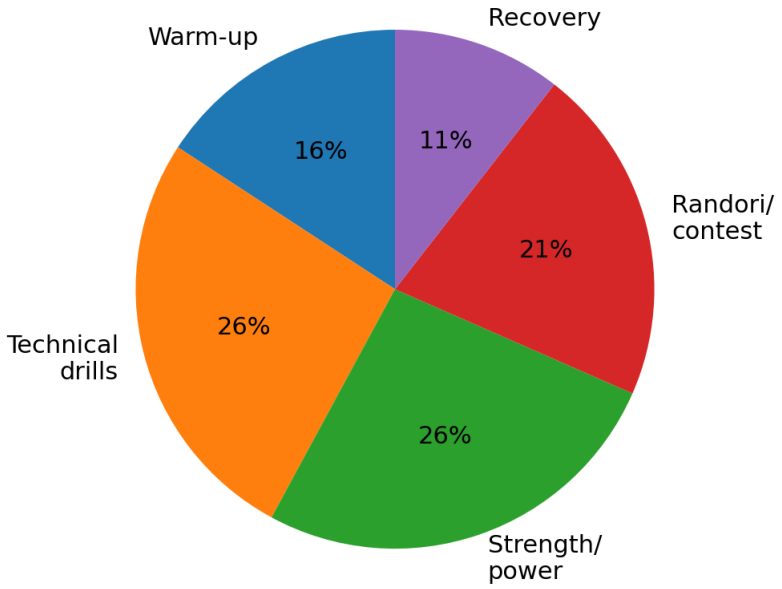


Figure 4 shows the structure of one 95-minute session. The warm-up prepares joints and the nervous system; technical drills develop movement quality; strength or power work stimulates adaptation; randori or contest tasks transfer qualities to sport performance; and recovery work reduces residual fatigue.

Monitoring and statistical indicators

Monitoring must be simple enough for coaches to perform regularly. Complex laboratory methods are useful in elite sport, but many clubs can achieve meaningful control with field tests. The most important rule is consistency: the same test conditions, similar time of day, standardized warm-up and reliable recording. Table 5 presents a suggested test battery.

Table 5. Test battery for evaluating kurash wrestlers

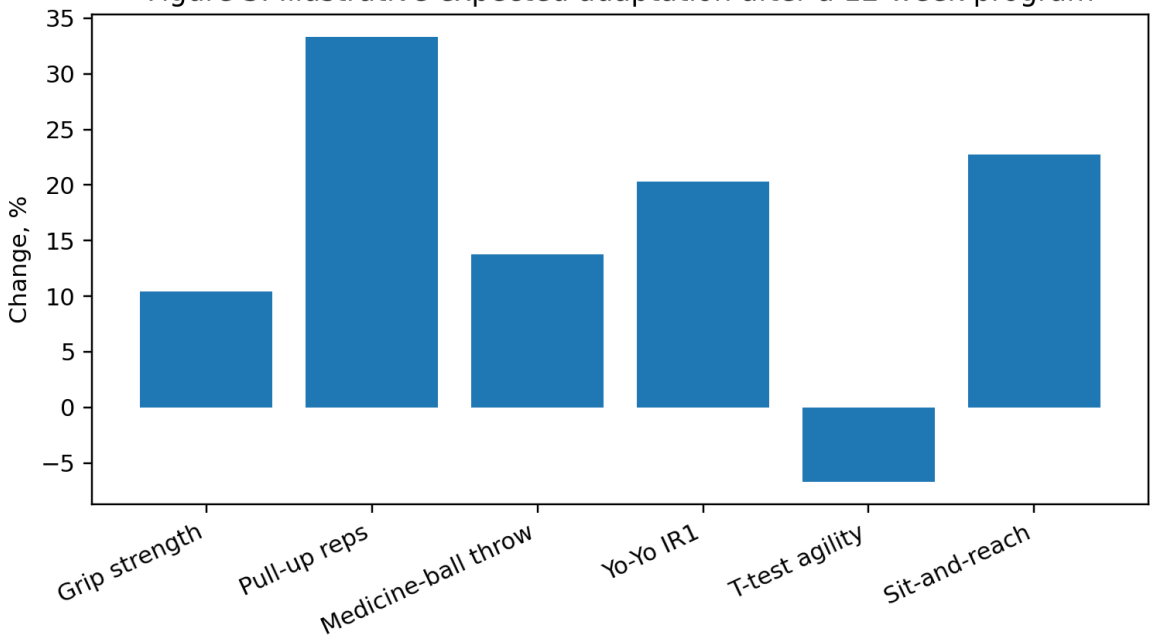
Test	Quality measured	Procedure	Target interpretation
Handgrip dynamometry	Grip strength	Best of three trials for each hand	Higher values support grip control
Pull-ups in 60 seconds	Upper-body strength endurance	Strict technique, full extension	Indicates repeated pulling capacity
Medicine-ball rotational throw	Explosive trunk and upper-body	3-5 kg ball, best of three throws	Reflects throw acceleration potential

	power		
Standing long jump	Lower-body explosive power	Best of three jumps	Useful for hip and leg power
Yo-Yo Intermittent Recovery Test 1	Intermittent endurance	Standard audio pace protocol	Shows ability to recover between high-intensity actions
T-test agility	Change-of-direction speed	Standard cone layout	Lower time indicates better agility
Sit-and-reach	Posterior chain flexibility	Standard box test	Supports safe movement range

Table 6. Illustrative pre/post indicators after a 12-week program

Indicator	Before program	After program	Change	Practical meaning
Handgrip strength, kg	48.0	53.0	+10.4%	Improved gripping and control
Pull-ups in 60 s, reps	12	16	+33.3%	Better pulling endurance
Medicine-ball throw, m	5.8	6.6	+13.8%	Greater rotational power
Yo-Yo IR1 distance, m	1180	1420	+20.3%	Improved intermittent endurance
T-test agility, s	10.4	9.7	-6.7%	Faster change of direction
Sit-and-reach, cm	22	27	+22.7%	Improved flexibility

Figure 3. Illustrative expected adaptation after a 12-week program



The illustrative values in Table 6 and Figure 3 show the type of changes a coach may expect when training is systematic and individualized. The largest percentage improvement is often seen in strength endurance and flexibility among less experienced athletes, while highly trained athletes usually show smaller but more meaningful gains.

Injury prevention and recovery

Injury prevention in kurash should begin with technical education: athletes must learn safe falling, correct gripping, controlled rotation and body alignment. Physical preparation also contributes to safety because stronger muscles and better coordination help protect joints during sudden perturbations. Recent wrestling research has shown that structured warm-up and prevention work can substantially reduce injury occurrence [5].

Figure 5. Injury-prevention priority matrix

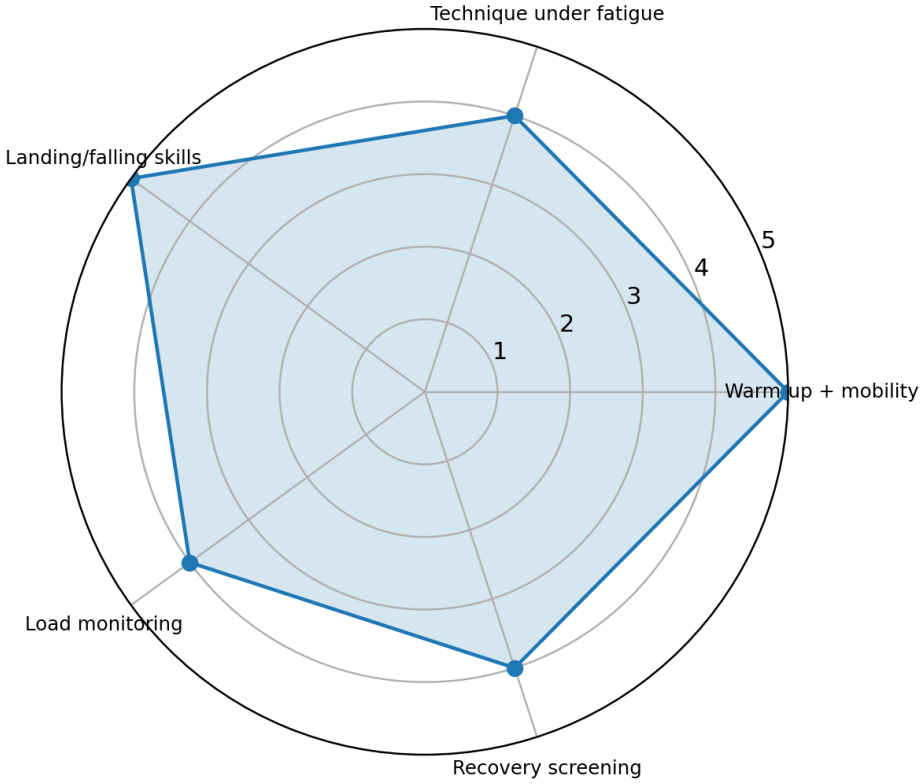


Figure 5 summarizes five prevention priorities. Warm-up and mobility are rated highest because they are easy to implement before every session. Falling skills are equally important in kurash because throws are central to the sport. Load monitoring and recovery screening allow the coach to identify athletes who are accumulating fatigue before performance declines or injury occurs.

Table 7. Practical load monitoring scale for coaches

Indicator	Question or measure	Warning sign	Action
Session RPE	How hard was the session from 1 to 10?	Two or more sessions above 8 in a row	Reduce volume by 15-25%
Sleep quality	How many hours and how well did the athlete sleep?	Less than 7 hours or poor sleep	Lower intensity and emphasize technique
Muscle soreness	0-10 soreness scale	Soreness above 6	Avoid maximal strength and hard randori
Mood/readiness	1-5 readiness score	Score of 1-2	Use recovery or technical correction
Pain check	Any joint pain during movement?	Persistent or sharp pain	Stop provoking exercise and refer to specialist

Discussion

The analysis indicates that kurash wrestlers need balanced but prioritized physical preparation. Strength and explosive power are central because the sport is decided by high-force and high-speed throwing actions. Nevertheless, endurance cannot be ignored, because fatigue reduces gripping quality, decision-making and technical precision. Agility and coordination link physical capacity with tactical execution; flexibility and mobility support safe amplitude; and recovery management preserves adaptation.

The proposed model is pedagogically suitable because it can be applied without expensive equipment. Most exercises require only free weights, medicine balls, resistance bands, cones and partner work. The model also respects the specific rule structure of kurash: no groundwork means less emphasis on prolonged ground-control strength and more emphasis on standing balance, grip control, explosive entry and safe throwing mechanics.

The main limitation of the article is that the statistical table is illustrative rather than experimental. Future research should test the proposed 12-week model with real kurash athletes of different age groups and qualification levels. Such studies should compare control and experimental groups, include injury surveillance and use both physical tests and competition-performance indicators.

Conclusion and Recommendations

Physical preparation is a decisive component of kurash performance. The most effective development strategy is an integrated model that combines general strength, sport-specific power, anaerobic intervals, aerobic support, agility, flexibility and recovery control. Training should be periodized across the season, tested regularly and adapted to the athlete's age, qualification and fatigue level.

The following recommendations are proposed for coaches and physical education specialists:

- Use a 12-week periodized plan with preparatory, specific, deload and taper blocks.
- Develop maximal strength through safe multi-joint exercises twice per week.
- Convert strength into explosive power using medicine-ball throws, jumps and resisted throw entries.
- Include anaerobic intervals that imitate repeated attacking actions.
- Maintain aerobic support with one or two low-to-moderate intensity sessions per week.
- Integrate agility, balance and kurash footwork into technical training rather than isolating them completely.
- Use a short test battery every 4-6 weeks to monitor progress.
- Apply daily warm-up, mobility, falling skills and simple wellness monitoring to reduce injury risk.

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