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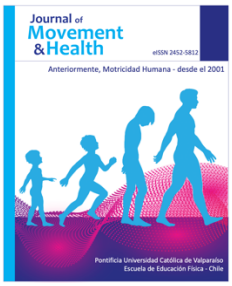

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Original article

Variations in physical performance during a short-term taekwondo training camp: A case study of Chilean youth national team

Variaciones en el rendimiento físico durante un campo de entrenamiento de taekwondo a corto plazo: un estudio de caso del equipo nacional juvenil de Chile

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Abstract

Objective: The effects of short-term taekwondo training camps on physical performance remain largely unexplored. This study analyzed the impact of a one-week taekwondo-specific program on the physical performance of the Chilean youth national team. **Methods:** Seventeen athletes (55% males, 45% females) completed two daily sessions consisting of technical work and simulated combats. Pre- and post-camp assessments included the countermovement jump (CMJ), squat jump (SJ), Frequency Speed of Kick Test (FSKT), and the Taekwondo Specific Agility Test (TSAT). **Results:** No significant group × time interactions were detected. However, TSAT performance improved significantly in both females ($p = 0.0067$) and males ($p = 0.0055$), and the Kick Decrement Index (KDI) improved in the total sample ($p = 0.02$). **Conclusion:** A high proportion of athletes were classified as responders in TSAT, while no meaningful changes were observed in total kicks during the FSKT or in jump performance.

Keywords: combat sports; martial arts; physical fitness; athletic performance.

Resumen

Objetivo: Los efectos de campamentos breves de taekwondo sobre el rendimiento físico han sido poco estudiados. Este trabajo analizó el impacto de un programa específico de una semana en el rendimiento físico de la selección chilena juvenil de taekwondo. **Métodos:** Diecisiete atletas (55% hombres, 45% mujeres) completaron dos sesiones diarias compuestas por trabajo técnico y combates simulados. Las evaluaciones pre y post campamento incluyeron el salto con contramovimiento (CMJ), el salto vertical desde sentadilla (SJ), el Frequency Speed of Kick Test (FSKT) y el Taekwondo Specific Agility Test (TSAT). **Resultados**: No se observaron interacciones significativas grupo × tiempo. Sin embargo, el rendimiento en el TSAT mejoró significativamente tanto en mujeres ($p = 0.0067$) como en hombres ($p = 0.0055$), y el Kick Decrement Index (KDI) mostró una mejora en la muestra total ($p = 0.02$). **Conclusión:** Una alta proporción de atletas fue clasificada como respondedora en el TSAT, mientras que no se observaron cambios relevantes en el número total de patadas durante el FSKT ni en el rendimiento de salto.

Palabras clave: deportes de combate; artes marciales; aptitud física; rendimiento atlético.

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Key Points

- A one-week taekwondo-specific training camp improved agility and kicking endurance in youth national athletes.
- Significant post-intervention gains were observed in the Taekwondo Specific Agility Test (TSAT) and Kick Decrement Index (KDI).
- Jump performance (CMJ and SJ) and total kicks in the FSKT-MULT remained unchanged, highlighting the selective nature of the short-term adaptations.

Introduction

Taekwondo (TKD) is an Olympic combat sport characterized by explosive intermittent actions.[1] The objective during bouts is to score more points than the opponent by executing kicking and punching techniques in designated scoring areas or by technical knockout. During bouts, an effort:pause ratio of 1:7 seconds to 1:2 seconds has been reported.[2] Moreover, research has reported that the oxidative system contributes 66 ± 6 % during bouts, followed by the ATP-PCr pathway with 30 ± 6 % and the glycolytic system with 4 ± 2 %.[3] TKD athletes compete annually at national and international levels.[4] This entails participating in at least four tournaments that include four to seven bouts.[5,6] In addition, there are short rest periods between each tournament.[7] This requires TKD athletes to maintain optimal physical condition throughout the year.[7]

In this sense, optimizing physical performance is crucial for TKD athletes, which involves constant monitoring and follow-up through different physical tests to set short-, medium-, and long-term aims for athletes.[2] For example, the countermovement jump (CMJ) has been used in multiple sports for the assessment of neuromuscular performance,[8,9] where mean values range from 39.3 to 43.9 cm for males and 26.4 to 32.8 cm for females.[2,9,10] Furthermore, the CMJ has been reported to discriminate between female athletes of different competitive levels in TKD, with values of 32.8 ± 3.9 cm reported for the international level and 28.7 ± 1.9 cm for the national level.[10] Similarly, the squat jump (SJ) is used to assess lower-body explosive strength without the contribution of the stretch-shortening cycle (SSC), with values reported in national and international athletes of 35.8 to 45.4 cm for males and between 23.7 to 29.8 cm for females.[11]

On the other hand, winning athletes have shown greater anaerobic power and a higher number of technical executions compared to defeated athletes.[12–15] Since the ability to repeat and maintain explosive actions during combats is important for success in TKD,[2] different specific tests have been proposed to evaluate and monitor anaerobic power; among the most used are FSKT-MULT and TSAT.[16,17] FSKT-MULT is a test that considers three variables: number of kicks per series, sum of kicks between series, and the index of decrease of kicks (%) representing the maximum capacity of the athlete to execute kicks.[16] Beyond these metrics, the FSKT-MULT functionally reflects the athlete's ability to sustain repeated high-intensity kicking actions, capturing anaerobic alactic power and resistance to fatigue during short explosive efforts characteristic of taekwondo exchanges. Meanwhile, TSAT has been validated as a field test to evaluate specific agility in TKD, reporting a relationship with linear speed, SJ, and body composition.[12] In addition to its psychometric properties, the TSAT integrates sport-specific movement patterns and rapid directional changes, providing a functional representation of an athlete's ability to respond effectively during combat situations.

Given the large number of tournaments and fights during the year, TKD athletes need to maintain optimal physical performance throughout each season.[5] To this end, coaches can implement different preparation strategies and methodological approaches depending on the competitive period. For example, Loturco et al.[18] reported significant increases in punch impact force (8%) and in SJ and half-squat power

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(12% and 14%, respectively) after one week of work with the optimal power load (OPL) in elite boxers, recommending its inclusion during phases in which priority is placed on technical skill development. Likewise, Pereira et al.[19] analyzed variations in muscle power over a seven-month preparation period in Olympic boxers, reporting that maintaining power output while optimizing technical–tactical skills is essential during the final stages prior to major competitions. In this sense, the physical and physiological demands imposed by technical–tactical workloads can contribute to the development or maintenance of performance capacities depending on the athletes' level.[6]

To our knowledge, no study has examined short-term variations in physical performance in TKD athletes, which is relevant for decision-making in the design and planning of sport-specific preparation according to the competitive calendar. Therefore, the purpose of this research was to analyze the variations in neuromuscular performance, anaerobic capacity, and taekwondo-specific agility after one week of technical-tactical training in the Chilean youth national team. We hypothesized that this short-term taekwondo-specific training would produce positive changes in these performance capacities.

Methods

Study Design

This research had a pre-experimental design with pre-and post-assessments, taekwondo athletes performed technical-tactical training for a week, with the aim of competing in the Selective Championship to form the 2022 youth team. The athletes were tested 48 hours before and after the training camp. All evaluations and program were carried out at the Olympic Training Center in Chile. The athletes performed 12 training sessions over six days. Each day consisted of two sessions: one held in the morning (9:00 to 10:30 a.m.) and one in the afternoon (4:00 to 5:30 p.m.) (see Figure 1 and Table 1). During the first 15 minutes of each session, athletes completed a warm-up routine based on moderate running, skipping, stretching, and low-intensity kicking. In the final 15 minutes, the protocol concluded with free stretching exercises.

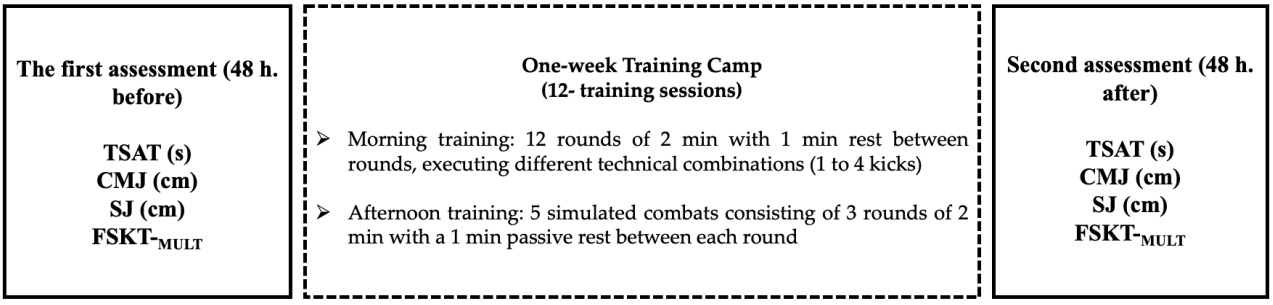

Figure 1. Experimental design. Legends: TSAT: Taekwondo Specific Agility Test; CMJ: Countermovement Jump; SJ: Squat Jump; FSKT-MULT.

Morning training consisted of working in pairs for 60 min and was characterized as an intermittent technical-tactical session with high specific density. Each athlete performed a total of 12 rounds of 2 minutes with 1 minute of active rest between rounds, executing different lower-extremity technical combinations (1 to 4 kicks) to an impact shield held by a training partner (see Figure 1 and Table 1). This work was divided into four blocks of three rounds, with 3 minutes of rest between blocks. The active rest consisted of the athlete holding the impact shield for the partner. This structure represents a high-volume technical stimulus involving repeated explosive kicking actions performed under intermittent anaerobic demands, commonly used during pre-competitive microcycles in combat sports. The afternoon training consisted of 5 simulated combats (5 blocks) with different training partners. Each combat followed an

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official competition format, com-posed of 3 rounds of 2 minutes with 1 minute of passive rest between rounds, and a 6-minute passive pause between combats. Athletes were instructed to freely select offensive and defensive techniques, simulating tournament conditions. This session structure reflects a competition-like intensity profile, characterized by repeated high-intensity bursts, rapid directional changes, and sport-specific tactical decision-making.

Table 1. Training camp program for females and males taekwondo athletes.

Morning training: Monday, Tuesday, Wednesday, Thursday, Friday, and Saturday								
Time	2 min	2 min	2 min	2 min	2 min	2 min	3 min	
Athletes A	Round 1	Pause active	Round 2	Pause active	Round 3	Pause active	Pause active	For 4 blocks
Athletes B	Pause active	Round 1	Pause active	Round 2	Pause active	Round 3		
Afternoon training: Monday, Tuesday, Wednesday, Thursday, Friday, and Saturday								
Time	2 min	1 min	2 min	1 min	2 min	6 min	For 5 blocks	
All athletes	Round 1	Pause active	Round 2	Pause active	Round 3	Pause active		

Participants

A freeware statistical software tool (G*Power; University of Düsseldorf, Düsseldorf, Germany) was used to calculate the required sample size. The following variables were included in the a priori power analysis: number of tail: 2; effect size dz: 2, based on a previous study that investigated the effects of intensified training in adolescent female athletes[31]. Alpha error: 0.05; desired power (1-ß error): 0.80. The results of the a priori power analysis indicated that a minimum of 5 participants to achieve statistical significance for FSKT performance Seventeen participants were recruited, corresponding to the total number of athletes participating in the training camp. A sample of 17 athletes participated in this study (males, age: 16.41 ± 1.00 years; body mass: 62.08 ± 7.85 kg; height: 1.75 ± 0.07 m; competition experience in black belt category: 2 to 5 years; and females, age: 16.25 ± 1.39 years; body mass: 59.31 ± 6.43 kg; height: 1.66 ± 0.05 m; competition experience in black belt category: 2 to 5 years). The athletes were free of injuries and neuromuscular disorders. All athletes gave their written consent after being informed about the procedures and associated risks. This research was approved by the Institutional Ethics Committee (Universidad Autonoma de Chile Code: 18-18).

Measures

Jump performance

Jump performance was assessed by SJ and CMJ through the maximum height reached (cm) using an electronic contact platform (Ergojump; Globus, Codogné, Italy; accuracy: 0.01 m). For the CMJ, athletes were instructed to perform a quick jump since a sharp transition between the eccentric and concentric phases is essential for the stretch-shortening cycle.[8] Athletes performed the eccentric phase at a self-selected depth before jumping vertically with hands fixed on the hips throughout.[20] Finally, they performed three CMJs with 90 s of rest between each jump for data collection. For the SJ, the procedure was similar, except that the athletes began the jump from a "90-degree" squat position with hands on hips, holding the position for three seconds to reduce the use of the stretch-shortening cycle.[21] They then performed three SJs with the greatest possible intention, with 90 s of rest between each jump for data collection. The CMJ and SJ tests were supervised by an experienced coach.

FSKT-MULT

The ability to repeat specific high-intensity efforts was measured by performing the frequency velocity of kick multiple test (FSKT-MULT), following previously described protocols[16,22]. FSKT-MULT

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consisted of five sets with a duration of 10 s each and a 10 s rest interval between sets. Athletes performed the test using a training dummy (boxing dummy) attached to the chest plate. The set time was programmed using the mobile phone application Time Plus Workouts Timer (1. 0.9) [Mobile App] Google Play) connected to a sound system (Bose© Soundlink Mobile Bose Corporation, 100 Mountain Road, Framingham, MA, USA). Following the signal emitted by the sound, athletes executed the maximum possible number of kicks, alternating between the right and left legs. Performance results were determined by the number of kicks in each series, the total number of kicks (total kicks), and the decreased kicking index (KDI) during the test. To calculate the KDI, the number of kicks applied during the FSKT-MULT was considered. The outcomes were calculated using an equation that considers the results of all FSKT series (see Figure 2).

$$\text{KDI (\%)} = \left[1 - \frac{\text{FSKT1} + \text{FSKT2} + \text{FSKT3} + \text{FSKT4} + \text{FSKT5}}{\text{Best FSKT} \times \text{Number of Sets}}\right] \times 100$$

Figure 2. Equation to calculate the Kick Decrement Index (KDI).

Specific Change of Direction Speed (CODS)

Specific CODS performance was measured through the TSAT following previous recommendations[12]. From a guard position with both feet behind the start/finish line, the performer had to: (*i*) move forward in guard position, without crossing feet, as quickly as possible to the center point; (*ii*) turn toward partner one by adopting a lateral shift and perform a roundhouse kick with the left leg (i.e., leading-roundhouse kick; dollyo tchagui); (*iii*) move toward partner two and perform a roundhouse kick with the right leg (i.e., leading-roundhouse kick; dollyo-chagi); (*iv*) return to the center; (*v*) move forward in the guard position and perform a double-roundhouse kick (i.e., narae-chagi) toward partner 3; and (*vi*) move backward to the start/finish line in a guard position. Sparring partners 1 and 2 hold a kick-target, whereas partner 3 holds two kick-targets. Sparring partners were instructed to maintain the kicking target at the torso height of the tested athlete. If a participant failed to follow these instructions (e.g., crossed one foot in front of the other during the various displacements or failed to touch the kicking target powerfully when kicking), the trial was terminated and restarted after a three-minute recovery period. The time needed to complete the test was used as a performance outcome and assessed with an electronic timing system (Brower Timing Systems, Salt Lake City, UT, USA).

Procedures

The athletes participated in two testing sessions on two separate days 48 hours apart. The assessments were performed during the morning at the Olympic Training Center of Chile by professionals in the physical activity sciences. On the first day the athletes were evaluated on their jumping performance and the FSKT-MULT test. While on the second day they performed the TSAT test. The days of measurements, the athletes warmed up by running on a treadmill at a speed of 9 km/h for five minutes, followed by joint mobility and ballistic stretching exercises, and low intensity kicking techniques. The specific tests were performed in the TKD room covered with a "tatami" floor, which is commonly used in competitions. The athletes were informed of the procedures and practiced the test for three weeks prior to the start of the study.

Statistical Analysis

The distribution of variables was examined using the Shapiro–Wilk test. Data are presented as means and standard deviations. Ninety-five percent confidence intervals and percentage changes are

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reported for the observed differences. Sphericity was tested and confirmed using Mauchly's test. A paired t-test was applied to analyze changes in the total sample, while a mixed model was used to examine the interaction between groups (females vs males) and time (pre- vs post-assessments). Effect sizes (ES) were calculated as Cohen's d, following the classification proposed by Rhea.[23] (Trivial < 0.35; small 0.35–0.80; moderate 0.80–1.50; large > 1.50). Following previous criteria,[24] non-responders (NRs) were defined as athletes who failed to demonstrate an increase or decrease greater than twice the typical error of measurement (TE) away from zero. Conversely, responders (Rs) were defined as athletes who exhibited a change beyond twice the TE, indicating a high probability (12:1) that the response reflected a true physiological adaptation rather than random technical or biological variation.[25] The TE values were as follows: CMJ, 3.02 cm; KDI, 6.51 %; total kicks, 7.24; TSAT, 0.47 s; and SJ, 5.96 cm. Additionally, Fisher's exact test was used to compare the proportion of athletes meeting or exceeding the TE threshold for each outcome (NR vs R).[24] All statistical analyses were performed using GraphPad Prism (version 10.0; San Diego, California).

Results

No significant interaction was observed in any Group x Time factor dependent variable. However, significance was found in the time factor for the TSAT variable (**$F_{1, 8} = 60.50$**; $p < 0.0001$) in females ($p = 0.0067$) and males ($p = 0.0055$). When analyzing the total sample, a significant improvement was found for the TSAT (t = 8.041, df = 16; $p < 0.0001$) and KDI (t = 2.384, df = 16; $p = 0.0298$) variables. The results for the variables analyzed are presented in Table 2.

Table 2. Effect of training camp in physical fitness for Females and Males taekwondo athletes

Variable	Group	Pre (Mean ± SD)	Post (Mean ± SD)	Effect Size Pre vs Post	Interaction Group x Time
TSAT (s)	Females	7.50 ± 0.60[a,b]	6.83 ± 0.54[a]	1.12 (Moderate)	F (1, 6) = 0.005386; $P = 0.9439$
	Males	6.58 ± 0.38[b]	5.93 ± 0.44	1.71 (Large)	
	Total Sample	7.01 ± 0.67[b]	6.35 ± 0.67	0.99 (Moderate)	---
CMJ (cm)	Females	28.6 ± 7.9	29.2 ± 6.6	0.08 (Trivial)	F (1, 6) = 0.09480; $P = 0.7686$
	Males	38.6 ± 4.7	38.9 ± 4.8	0.06 (Trivial)	
	Total Sample	33.9 ± 8.1	34.4 ± 7.5	0.06 (Trivial)	---
SJ (cm)	Females	25.6 ± 4.58[a]	28.0 ± 7.9	0.52 (Small)	F (1, 6) = 1.292; $P = 0.2990$
	Males	35.6 ± 3.4	35.7 ± 4.7	0.03 (Trivial)	
	Total Sample	30.9 ± 6.5	32.1 ± 7.3	0.18 (Trivial)	---
Total kicks (n)	Females	99.25 ± 5.99	99.50 ± 8.21	0.04 (Trivial)	F (1, 6) = 2.321; $P = 0.1785$
	Males	99.67 ± 4.24	103.3 ± 5.15	0.86 (Moderate)	
	Total Sample	99.47 ± 4.98	101.5 ± 6.83	0.41 (Small)	---
KDI (%)	Females	9.64 ± 3.57	8.45 ± 3.83	0.33 (Trivial)	F (1, 6) = 1.606; $P = 0.2520$
	Males	10.74 ± 2.69	6.78 ± 4.68	1.47 (Moderate)	
	Total Sample	10.22 ± 3.09[b]	7.57 ± 4.26	0.86 (Moderate)	---

TSAT: Taekwondo Specific Agility Test; CMJ: Countermovement Jump; SJ: Squat Jump; KDI: Kick Decrement Index; [a] = significant differences with males; [b] = significant differences whit post.

Regarding the analysis of interindividual responses, for the total kicks, 12% of female athletes and 22% of male athletes were found to be responders. For the KDI index, we found a rate of 0% responders

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for female athletes and 33% of male athletes. Regarding TSAT, 62% of female athletes and 78% of male athletes were found to be responders. Finally, regarding jump performance, in CMJ, we found a rate of 0% responders in female athletes and 25% of male athletes. While for SJ, we found 11% of female athletes and 12% of male athletes. Fisher's exact test did not report significant differences in the percentage of non-responders between female and male athletes (Figure 3).

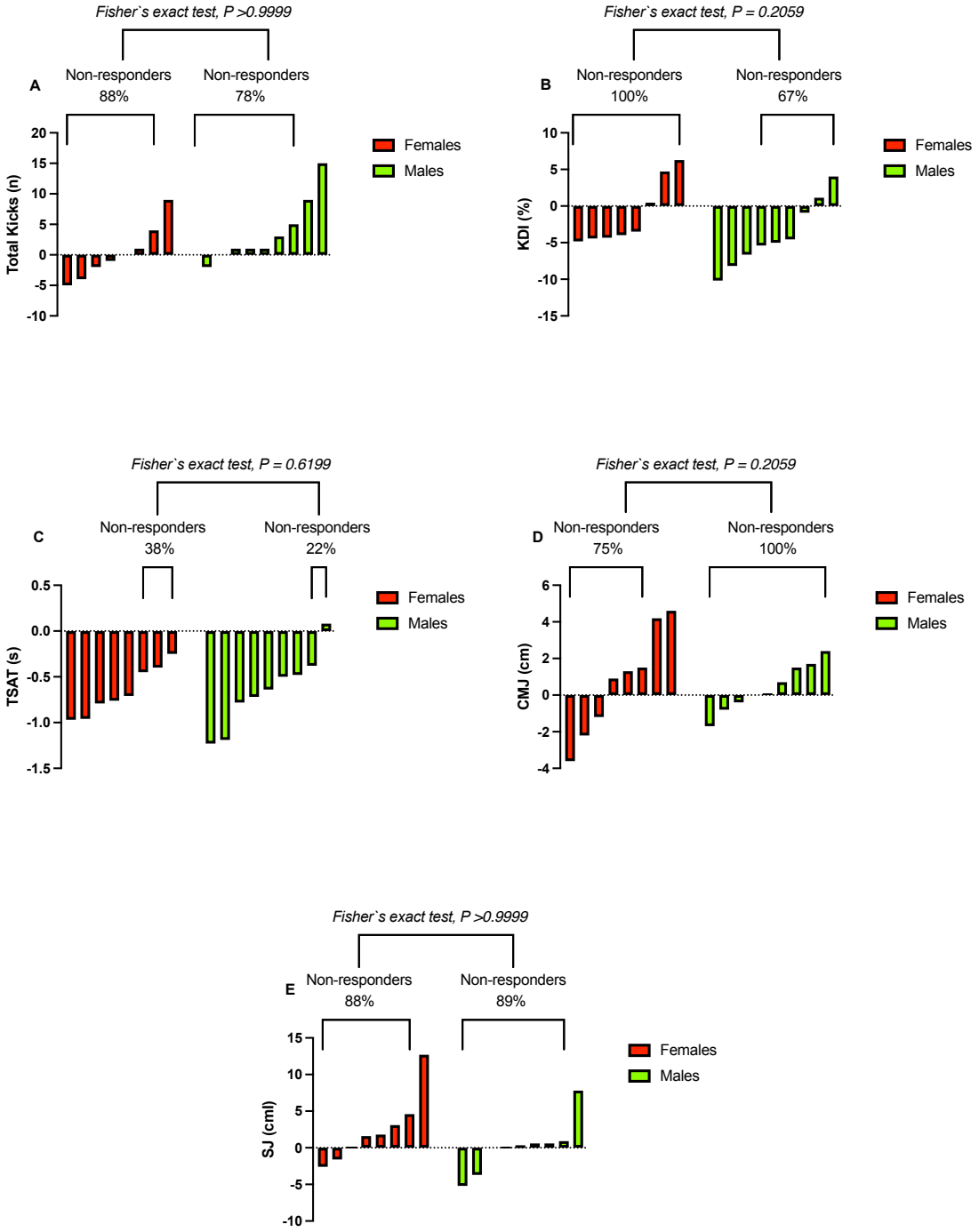

Figure 3. Individual pre–pos change [Δ], after one week of training camp, for (A) Total Kicks, (B): Kick Decrement Index, (C) Taekwondo Specific Agility Test, (D) Countermovement jump, (E) Squat jump**.**

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Discussion

The purpose of this study was to analyze the effect of a week of specific taekwondo training on the physical performance of the Chilean youth national team. We hypothesized that a week of specific TKD training would have a positive effect on the physical performance of the athletes. However, we partially corroborated our hypothesis given that there was a "moderate" ES only for the variables of TSAT (0.99) and for KDI% (0.86) after the intervention.

Jump Performance

Regarding jump performance, no significant post-intervention improvements were observed in CMJ for the total sample. Similarly, SJ showed no meaningful post-intervention changes, although a small effect size (d = 0.52) was observed in female athletes. These findings are consistent with those reported by Ouergui et al.[26], who examined the effects of eight weeks of sparring-based practice performed in different area sizes (4 × 4 m, 6 × 6 m, and 8 × 8 m) and found that none of these formats influenced CMJ performance. Comparable results were observed by Nakamura et al.[27], who reported no changes in CMJ height among karate athletes after eight preparatory sessions prior to the Pan American Games. The absence of improvements in our study may be explained by the lack of muscular overload through specific strength-enhancing exercises (e.g., squats, lunges, or jumps), which have been shown to effectively improve jump capacity in combat sports.[28] Although internal load indicators such as sRPE were not collected, it is important to acknowledge that fluctuations in perceived exertion during a dense microcycle can influence interindividual variability in the adaptive response.[29] In combat sports, sRPE has been shown to provide valuable insight into the subjective cost of technical–tactical work and may partially explain why some athletes respond more favorably than others despite similar external demands. [15] Future research should integrate sRPE or heart-rate–based markers to more precisely contextualize the magnitude of the stimulus applied.

Repeat Specific High-Intensity Efforts

The ability to repeat specific high-intensity efforts, as assessed through the FSKT-MULT, showed a significant post-intervention improvement in the KDI (%) variable, with a moderate effect size (d = 1.47) for male athletes and a trivial effect size (d = 0.33) for female athletes. Regarding interindividual responses, there were 33% more responders in KDI (%) among male athletes compared to females. These results contrast with those reported by Santos and Franchini,[30] who found no improvement in KDI following nine weeks of taekwondo-specific training, but align with the findings of Aravena et al,[31] who also reported no improvement in KDI after a four-week HIIT program using TKD-specific techniques. As previously mentioned, the ability to sustain explosive actions during bouts is essential for success in TKD. A decrease in KDI indicates an enhanced capacity to sustain high-intensity actions, particularly kicking performance.[32] In this context, the reduction in KDI observed in our study can likely be attributed to the technical training performed during the morning sessions, which consisted of 12 rounds of 2 minutes with 1 minute of rest between rounds, executing various combinations of 1 to 4 kicks. The large volume of technical combinations may have improved the athletes' ability to repeat explosive lower-limb actions during the FSKT-MULT, although this did not translate into a significant increase in the total number of kicks during the test.[33] The discrepancies between our findings and previous research may stem from differences in training protocols. For instance, our morning training included free combinations of 1 to 4 kicks—such as miro chagui, bandal chagui, tui chagui, yop chagui, dolyo chagui, naryo chagui, furyo chagui, bakat chagui, and an chagui—whereas the study by Aravena et al[31] implemented only bandal tchagui kicks across three blocks of six repetitions, each lasting 10 seconds of maximal effort, interspersed

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with 10 seconds of passive recovery between sets and 1 minute of rest between blocks. From the perspective of dynamic correspondence, the morning sessions shared key biomechanical and temporal characteristics with the actions evaluated in the FSKT-MULT—namely rapid hip flexion–extension patterns, short ground-contact times, and repeated explosive efforts. [33,38] This alignment between training tasks and test demands may partially explain the reductions observed in KDI, even in the absence of changes in total kick count. In contrast, when the motor tasks practiced differ from those assessed, the transfer of adaptation is typically reduced, as highlighted in previous work on sport-specific training.

Specific Change of Direction Speed

Regarding specific change-of-direction speed (CODS) performance assessed through the TSAT, significant post-intervention improvements were observed in the total sample, with a moderate effect size (d = 0.99) and high responder rates of 62% for female athletes and 78% for males. These findings are consistent with those of Ouergui et al,[35] who reported significant improvements in TSAT after four weeks of high-intensity repeated technical training. Conversely, they differ from the results of Ojeda-Aravena et al,[12] who found no significant improvements in TSAT after four weeks of high-intensity TKD-specific training, although they did observe a trend toward reduced completion time. TKD athletes continuously accelerate and decelerate in multiple directions during bouts,[36] making agility a key determinant of performance.[12] It has been reported that top elite athletes outperform national-level athletes in the TSAT.[37] Agility is a multifactorial skill that integrates physical capacities (strength and conditioning), cognitive processes (motor learning), and technical abilities (biomechanics).[12] Therefore, the improvements observed in our study may be attributed to unmeasured variables. It is plausible that the simulated bouts performed among the top Chilean TKD athletes during the training week enhanced cognitive and technical skills, thereby contributing to the observed improvements in TSAT performance.[33,38] Moreover, improvements in TSAT performance may also reflect enhanced perceptual–decision-making agility. Taekwondo athletes constantly interpret opponent cues, anticipate attacks, and select appropriate motor responses under time pressure. Repeated exposure to simulated combats likely stimulated these cognitive components, which interact with change-of-direction ability to shape overall agility performance. Thus, the gains observed in TSAT may represent combined adaptations in physical, technical, and perceptual domains.

Practical Applications

Based on our findings, in competition periods where the aim is to improve technical skills without affecting the athletes' physical performance, coaches can use a short-term specific training program with a similar temporal structure to the competition and with the same duration as a bout to improve the ability to repeat explosive actions of TKD-specific kicks and direction changes without decreasing the athletes' explosive strength.

Limitations and strengths

Our research presents some limitations: i) training load was not monitored using the session rating of perceived exertion (sRPE) or heart rate; ii) no control group was included to compare with the group that performed the training program; and iii) psycho-emotional variables that may influence physical performance—such as identifying the menstrual cycle phase in female TKD athletes—were not assessed. On the other hand, this study also presents notable strengths: i) it gathered the top TKD athletes from the Chilean youth national team; ii) it included an analysis of responders and non-responders to the training program; and iii) it documented meaningful improvements in TKD-specific performance within a short time frame.

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Conclusions

Our results suggest that one week of taekwondo-specific training can improve sport-specific performance, particularly in KDI and TSAT, with a high percentage of responders observed for the latter. However, this short-term intervention was not sufficient to produce significant improvements in jumping performance (CMJ and SJ) or in the total number of kicks performed during the FSKT-MULT.

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