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THE PEDAGOGICAL APPROACH TO INSTRUCTING FEMALE ATHLETES IN HURDLING, SYNCHRONIZED WITH THE RHYTHMIC CADENCE OF THEIR MOVEMENTS

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Abstract: The article delineates a comparative examination concerning the impact of training loads on the physiological response of athletic females engaged in hurdle running, utilizing non-conventional sports equipment to refine movement rhythm. It accentuates the execution of specific exercises administered at the onset and culmination of the investigation, alongside the scholarly inferences derived from the resultant findings.
Keywords: hurdle running, cadence of motion, methodology, unconventional sporting apparatus, implements, reinforcement-components of locomotion.

Introduction

One prevalent challenge encountered by numerous coaches pertains to the incomplete mastery of sprinting technique among sprinters, often resulting in disordered strides between sprints. Addressing these issues, local researchers B. Ne'matov, L. Davletyorova, and others have undertaken various scientific investigations aimed at refining running techniques. Nevertheless, there remains a paucity of scientific inquiries concerning the attainment of movement rhythm among female athletes engaged in hurdle running. The present studies, conducted by our team, are geared towards elucidating the outcomes of research endeavors focused on the training methodologies employed to cultivate movement rhythm among female athletes in hurdle running. Until the female sprinter attains proficiency in the rhythmic modulation of movement, optimal athletic performance will remain elusive. This deficiency impedes competitive success. Hence, training protocols should prioritize the meticulous refinement of rhythmic movement patterns alongside the strategic management of athletic exertion, ensuring the acquisition of technique is diligently pursued.

As evidenced across various sporting disciplines, including athletics, the cultivation of proficient movement rhythms stands as a central objective. Primarily, this endeavor hinges upon the identification and cultivation of gifted and auspicious athletes, steering them towards foundational instruction in movement rhythm, and subsequently, administering tailored training regimens. Crucially, a comprehensive strategic framework for long-term development warrants meticulous consideration.

The aim of the investigation

The establishment of a triadic cadence in the locomotion of female athletes navigating the hurdles, employing unconventional sporting apparatus for pit traversal.

Research Objectives

Within the framework of the research endeavor, the attainment of the overarching objective necessitates the sequential resolution of the ensuing tasks:

- Acquiring proficiency in hurdling through unconventional methods.
- The fundamental objective revolves around adequately equipping adherents of the movement to surmount hurdles proficiently, thereby facilitating the cultivation of foundational technical aptitude in hurdling.
- Instructing individuals to negotiate hurdles with each stride during locomotion.

Data Collection and Data Analysis

A series of scientific inquiries were undertaken over a span of six months, focusing on female cross-country runners. A cohort of athletes was deliberately chosen for an initial trial, aimed at investigating the efficacy of employing specialized exercises to cultivate a rhythmic pattern of three-step movements between strides, while enhancing its effectiveness through the utilization of unconventional sporting apparatus.

The study examines the physiological effects of physical training regimens on novice female sprinters during their initial training phase. Significant alterations in heart rate and bodily responses to exertion were observed between the experimental and control groups. The incorporation of unconventional training equipment and the resultant physical demands have tangible effects on the athletes' ability to negotiate obstacles and synchronize their movements. Notably, these exercises are tailored to facilitate prolonged running distances and simulate competitive conditions. A clear distinction emerges between the training methodologies employed by the experimental and control groups, exemplified by the adoption of three distinct physical load paradigms for each group.

The physical conditioning protocols administered during the preparatory phase of training for the experimental cohort are designed to facilitate the holistic enhancement of the athletes' physical fitness. The utilization of unconventional apparatus and its impact on physical conditioning have undergone substantial alterations. The distinguishing characteristic of these exercises resides in their concerted emphasis on optimizing the equine athletes' endurance for sustained long-distance running endeavors.

In the training regimen of the experimental cohort, a series of exercises involving rhythmic traversal of pits were sequentially executed in front of designated areas, with subsequent repetitions of pit-crossing exercises. Various methodologies for structuring sports training sessions were employed to optimize the acquisition of new exercises, including frontal instruction, small group dynamics, and individualized approaches. Emphasis was placed on augmenting speed and quick-power attributes. To enhance athlete engagement during training sessions, competitions and dynamic games were integrated, fostering mastery of the rhythmic cadence inherent in navigating pit obstacles.

The experimental cohort examines the impact of female athletes on the pre- and post-experimental levels of physical exertion administered.

Table-1

Number of participants	Sport load	The number of repetitions	Heart beat	Load acquisition rate (%)	
n-8	Mastering the methodology of navigating hurdles utilizing unconventional modalities.	Each exercise is performed 4 times	19 for 6 seconds =190	Good	95%
n-8	Preparation of the musculoskeletal system for negotiating obstacles through jumping.	Each exercise is performed 4 times	18 for 6 seconds =180	Good	90%
n-8	Instructing female athletes in the art of navigating obstacles akin to hurdles with each stride taken during ambulation.	Each exercise is performed 4 times	17 for 6 seconds =170	Satisfying	85%

The study scrutinized the efficacy of pre- and post-experiment physical exertion on a cohort of female athletes within the control group, assessing the resultant outcomes with a meticulous lens.

Table-2

Number of participants	Sport load	The number of repetitions	Heart beat	Load Mastery Rate (%)	
n-8	Mastering the methodology of navigating hurdles utilizing unconventional modalities.	Each exercise is performed 4 times	16 for 6 seconds =160	Satisfying	80%
n-8	Preparation of the musculoskeletal system for negotiating obstacles through jumping.	Each exercise is performed 4 times	17 for 6 seconds =170	Satisfying	85%
n-8	Instructing female athletes in the art of navigating obstacles akin to hurdles with each stride taken during ambulation.	Each exercise is performed 4 times	15 for 6 seconds =150	Satisfying	75%

The impact of physical exertion administered in the conducted pedagogical experiment on the training regimen of the experimental cohort comprised of female athletes in the process of

acquiring the technique of running over obstacles through employment of unconventional methods was examined. Each exercise was iterated between 2 to 4 times. Notably, there was an observable alteration in the heart rate, shifting from an average of 160 beats per minute prior to the experiment to 190 beats per minute post-experimentation within a span of one minute. Additionally, the rate of load absorption underwent a transformation from 40% (deemed satisfactory) to 95% (considered proficient). The focus was on priming the musculoskeletal system for the execution of running over obstacles. Furthermore, each exercise iteration resulted in adjustments in the heart rate, escalating from 170 beats per minute pre-experiment to 180 beats per minute post-experiment, while the assimilation of the load and proficiency level surged from 42.5% (deemed satisfactory) to 90% (deemed proficient). Moreover, training aimed at running over pits during every walking stride was undertaken, with each exercise being repeated between 2 to 4 times. There was a discernible rise in the heart rate from an average of 140 beats per minute pre-experiment to 170 beats per minute post-experiment within a minute, indicating a shift in load assimilation and mastery level from 35% (deemed unsatisfactory) to 85% (deemed satisfactory). Consequently, it is evident that the effect of these exercises on the physiological responses of the athletes has significantly intensified. With the amplification of training intensity and volume from 2 series to 4 series, there was a noteworthy alteration in the impact on heart rate and load assimilation within the body.

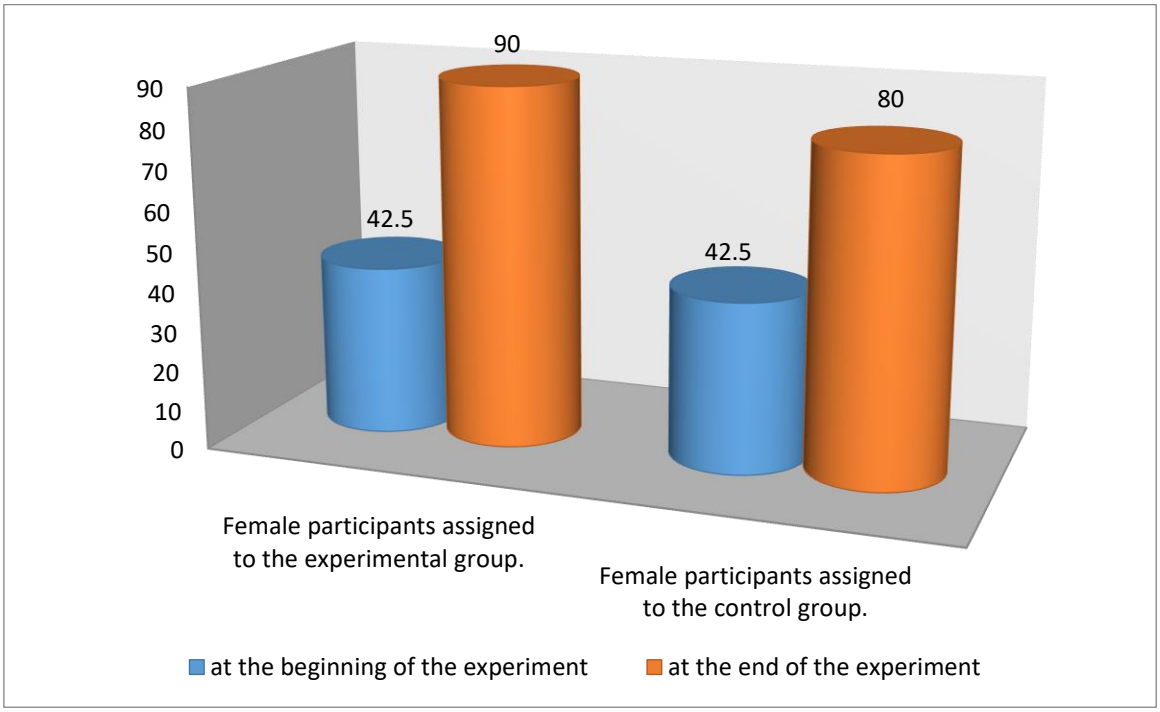

Diagram 1. The variance in the magnitude of physical load impact pre- and post-experience among female athletes.

In the conducted pedagogical experiment, noteworthy alterations were observed in the performance of athletes within the experimental group subjected to varying physical loads, particularly evident in heart rate reduction compared to their counterparts in the control group. The application of unconventional sprinting techniques utilizing non-standard equipment prompted notable physiological responses among athletes in the control group during training sessions,

where exercise frequency escalated from 2 to 4 repetitions. Preceding and following these sessions, average heart rates for a minute spanned 160, with notable enhancements in heart rate recovery observed, rising from a modest 40% to a noteworthy 80%. Moreover, exercises focused on priming musculoskeletal systems for jogging exhibited a similar pattern, with pre- and post-experiment heart rate averages maintaining at 170 beats per minute. Concurrently, skill mastery levels improved substantially, escalating from 42.5% to an impressive 80%.

Similarly, training protocols targeting hurdle clearance with a twofold increase in exercise repetitions demonstrated distinct physiological responses. Pre-experiment heart rates averaged 140 beats per minute, moderately rising to 150 beats per minute post-experiment. Notably, the rate of load absorption exhibited notable improvement, surging from a satisfactory 35% to a commendable 75%. This experimental evidence underscores the significant impact of intensified and prolonged training sessions on athletes within the control group. Enhanced attentiveness during training, coupled with the cumulative physiological stress of continuous training sessions, likely contributed to the observed adaptations. Noteworthy reductions in heart rate and alterations in physiological responses substantiate the efficacy of heightened training intensities. Consequently, the discernible discrepancy in physiological responses between the experimental and control groups underscores the pivotal role of tailored training regimens. For athletes in the nascent stages of their training journey, such targeted loads suffice to elicit favorable physiological adaptations. However, to optimize performance outcomes, the integration of competitive training stimuli becomes imperative, fostering the progression towards superior performance benchmarks.

Conclusion

The findings of the conducted study afford the opportunity to extrapolate optimal practices concerning movement cadence and step frequency among athletes within both the experimental and control cohorts. Consequently, the outcomes of the investigation enable us to derive the following conclusions.

The examination of scholarly literature employing scientific methodologies has revealed a corpus of investigations conducted by researchers pertaining to the acquisition of motor rhythm in athletes during the formative phase. However, it has been discerned that the majority of these studies, predominantly authored by foreign scholars, are antiquated, thereby warranting a contemporary reevaluation of the subject matter.

In the course of our investigation, it became apparent that scant discernible disparities exist between the findings of our study and the insights proffered by indigenous scholars. Nonetheless, our analytical scrutiny unveiled a notable lag in our attainment vis-à-vis the benchmarks delineated by foreign researchers pertaining to the acquisition of rhythmic patterns in running.

According to the findings of the conducted study, the impact of physical exertion in the pedagogical trial on the heart rate of a select cohort of female athletes engaged in hurdle training via unconventional methods demonstrated noteworthy changes. Prior to the experiment, the average heart rate during 1-minute intervals hovered at 160 beats per minute (bpm), rising to 190 bpm post-experiment. Similarly, the level of mastery of the exertion increased from 40% (deemed satisfactory) to 95% (classified as proficient). The preparatory exercises for jogging facilitated alterations in heart rate dynamics, escalating from an average of 170 bpm pre-experiment to 180 bpm post-experiment, coupled with an enhancement in load absorption from satisfactory to 90%. Furthermore, during each phase of hurdle training, the heart rate surged from 140 bpm pre-

experiment to 170 bpm post-experiment within the same 1-minute timeframe, paralleled by an escalation in load absorption from an unsatisfactory 35% to a satisfactory 85%. Evidently, the impact of these exercises on the athletes' physiology exhibited a marked augmentation. Subsequent intensification of training regimen from 2 series to 4 series revealed significant alterations in both heart rate dynamics and load absorption levels.

The extent to which athletic exertions affect the physiological constitution of athletes underscores the correlation between performance outcomes and modifications in training methodologies. Primarily, these adaptations are designed to augment both the magnitude and velocity of the physical demands imposed during exercise sessions.

It is evident that the influence exerted by these loads upon the physiological well-being of athletes is comparatively insubstantial. Moreover, these loads appear adequate for stimulating adaptation within athletes' bodies during the nascent stages of training. However, the formulation of a comprehensive training methodology is imperative to optimize performance outcomes. Only through such strategic development can athletes adequately prepare their bodies for the ensuing challenges they will face.

Various methodologies for organizing athlete training have been employed to enhance task performance efficiency, encompassing frontal instruction, small group dynamics, and individualized approaches. Emphasis has predominantly been placed on augmenting speed and quick-power attributes. Moreover, to sustain athlete engagement and foster skill acquisition, competitions and dynamic gameplay have been integrated into training regimens, facilitating mastery of obstacle traversal rhythms.

As nascent hurdlers enhance their physical prowess, refine their rhythmic movement, and hone their technical acumen, they endeavor to align the configuration of their sprinting endeavors more closely with the exigencies of competitive conditions, all while maintaining the integrity of their running structure and cadence.

The pivotal aspect in athletes' mastery of the rhythmic sprinting technique lies in the intricate interplay of physical and psychological preparation. This process operates through the modulation of functional systems, wherein post-muscular engagement elicits consequential adjustments, priming the individual for the rigors of high-intensity physical exertion. As athletes adeptly refine their rhythmic jogging technique, their focus tends to gravitate towards the intricacies of unconventional exercise modalities.

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