

Development of an Exercise Program Based on Thai Traditional Wisdom Integration for Physical Education Undergraduate Students in Elderly Exercise Course

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Abstract

The objectives of this research were: 1) to develop an exercise program based on Thai traditional wisdom integration for physical education undergraduate students in elderly exercise course, and 2) to evaluate the appropriateness of the exercise program. The sample consisted of five experts who possessed knowledge and expertise in physical education or related fields studies. The research instruments were: 1) the developed exercise program, and 2) a program appropriateness assessment form. Data were analyzed by calculating the mean scores of program appropriateness ratings. The research findings revealed that: 1) the developed exercise program based on Thai traditional wisdom integration for physical education undergraduate students in elderly exercise course consisted of three activities: Activity 1 consisted of 22 warm-up, cool-down, and stretching integrating Thai traditional wisdom through the use of Pha Khao Ma; Activity 2 included 18 individual exercises integrating Thai traditional wisdom through the use of Pha Khao Ma; and Activity 3 contained 10 partner exercises integrating Thai traditional wisdom through the use of Pha Khao Ma. The program followed four steps, all integrating Thai traditional wisdom through the use of Pha Khao Ma: Step 1 warm-up and stretching; Step 2 individual exercises; Step 3 partner exercises; and Step 4 cool-down and stretching. 2) The evaluation of the developed program's appropriateness yielded the highest level of appropriateness with a mean score of 4.60. Consequently, physical education undergraduate students can implement this exercise program integrating Thai traditional wisdom in the exercise for the elderly course to promote better health behaviors among elderly individuals.

Keywords: Thai traditional wisdom, elderly exercise course, physical education program

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Introduction

In 2022, Thailand had a population of 66 million people, according to the Ministry of Interior's civil registration data. Within this population, there were 13 million people aged 60 years or older, accounting for 19% of the total population. The three provinces with the highest proportion of older persons were Lampang, Phrae, and Lamphun accordingly. All located in the Northern region, where the rate of older persons people exceeds one-fourth (26%) of the total population. On the other hand, the three provinces with the lowest proportion of older persons were Narathiwat, Yala, and Pattani accordingly. All situated in the southern border region, where the proportion of people aged 60 years or older was below 13% of the total population. Interesting statistics about older persons in Thailand: Despite the overall population declining (negative population growth) in Thailand, the number and proportion of older population are increasing rapidly. In the next 20 years, while the total population of Thailand is projected to decrease from 66 million to 60 million, older persons (aged 60 years or older) is expected to increase from 13 million to 19 million, accounting for 19% of the total population in 2022 to be 31.4% in 2042 (Department of Older Persons, 2023).

A significant concern for the elderly population is health issues stemming from physiological changes that affect various organ systems' functionality, including muscular strength capacity, cardiovascular and respiratory endurance, and decreased flexibility. As individuals age, the rate of physical deterioration increases proportionally with advancing years. While this decline in physical fitness during elderly years is inevitable, numerous research studies have concluded that regular exercise at appropriate intensity levels can effectively reduce the risk of age-related diseases and result in satisfactory improvements in physical fitness. These findings are applicable to the elderly population in general, demonstrating that seniors who engage in regular physical exercise maintain better physical fitness, as evidenced in their daily living activities. This enhanced physical fitness, characterized by improved strength and endurance, leads to better functional performance in daily activities. For instance, some elderly individuals who are new to exercise programs and initially lack strength gradually develop the ability to walk independently without assistive devices, perform self-care activities, or engage in various tasks with increased agility (Boonprakorn et al., 2023).

Physical exercise encompasses more than conventional sporting activities; it can incorporate traditional Thai wisdom-based body movements integrated into daily lifestyle practices and routine activities, including household tasks such as sweeping, mopping, water carrying, soil cultivation, and weed removal. Additionally, the implementation of the Pa Kao Ma (traditional Thai multipurpose cloth) can facilitate physical movement and bodily exercises. The utilization of Pa Kao Ma presents several advantages, particularly its exercise simplicity and adaptability across various environments and physical postures. The Pa Kao Ma, a historically significant artifact in Thai cultural heritage, serves as a multifunctional textile implement. Its applications extend beyond conventional attire and personal hygiene to include utilitarian functions such as: bedding material, hammock construction, solar protection headwear, hair covering, perspiration management, waist support, alternative carrying solution, infant transportation apparatus, and moisture absorption. In medical emergencies, it demonstrates therapeutic utility for first aid applications, including hemorrhage control, wound dressing, and injured appendage support. Historically, it also served tactical purposes in warfare for prisoner restraint. The integration of Pa Kao Ma in physical exercise methodology involves systematic muscular engagement through controlled pulling, pushing, lifting, and stretching movements. These movements follow a progressive

intensity pattern, transitioning from low to moderate velocity, while maintaining minimal impact stress. The textile provides essential functions including balance maintenance, muscular support, and injury prevention mechanisms. This exercise methodology demonstrates universal applicability across age demographics, from pediatric to geriatric populations. The exercise protocol can be implemented either as standalone physical activity or synchronized with musical accompaniment in standardized eight-count rhythmic patterns, promoting both physiological and psychological benefits through enjoyable engagement and systematic relaxation. The methodology employs a structured progression, initiating with fine motor muscle activation and advancing to comprehensive muscular engagement, ensuring systematic and holistic physical development (Thai Health Promotion Foundation, 2010).

Based on these findings, the researcher proposed the development of an exercise program incorporating Thai traditional wisdom for physical education undergraduate students in elderly exercise course. This program aims to create age-appropriate exercise interventions for the aforementioned elderly population, with the objective of improving their self-perceived quality of life.

Objectives of Study

1. To develop an exercise program based on Thai traditional wisdom integration for physical education undergraduate students in elderly exercise course.
2. To evaluate the appropriateness of the exercise program based on Thai traditional wisdom integration for physical education undergraduate students in elderly exercise course.

Methodology

The sample consisted of five experts who possessed knowledge and expertise in physical education or related fields studies. The research instruments were: 1) the developed exercise program based on Thai traditional wisdom integration for physical education undergraduate students in elderly exercise course, and 2) a program appropriateness assessment form. Data were analyzed by calculating the mean scores of program appropriateness ratings.

The evaluation was conducted using a 5-point Likert scale, with the following rating system: 5-highest, 4-high, 3-moderate, 2-low, 1-least. The interpretation of the mean appropriateness scores was as follows: mean score ≥ 4.20 : highest, mean score between 3.40 - 4.19: high, mean score between 2.60 - 3.39: moderate, mean score between 1.80 - 2.59: low, mean score < 1.80 : least.

Conclusion

Section 1: Developing an Exercise Program Based on Thai Traditional Wisdom Integration for Physical Education Undergraduate Students in Elderly Exercise Course

The developed exercise program based on Thai traditional wisdom integration for physical education undergraduate students in elderly exercise course consisted of three activities:

Activity 1: Consisted of 22 warm-up, cool-down, and stretching integrating Thai traditional wisdom through the use of Pha Khao Ma.

- Position 1: Wrist Circumduction Exercise*
- Position 2: Elbow Joint Flexion Exercise*
- Position 3: Shoulder Girdle Elevation Exercise*
- Position 4: Cervical Spine Flexion-Extension Exercise*
- Position 5: Cervical Spine Bilateral Rotation Exercise*
- Position 6: Cervical Spine Lateral Flexion Exercise*
- Position 7: Combined Upper Extremity Abduction with Axial Rotation Exercise*
- Position 8: Combined Upper Extremity Abduction with Lateral Trunk Flexion Exercise*
- Position 9: Upper-Lower Extremity Coordination Exercise*
- Position 10: Multi-joint Extension and Elevation Exercise*
- Position 11: Cervical Spine Anterior-Posterior Static Stretching Exercise*
- Position 12: Cervical Musculature Static Stretching Exercise*
- Position 13: Shoulder Complex Static Stretching Exercise*
- Position 14: Thoracolumbar Paraspinal Muscle Stretching Exercise*
- Position 15: Lumbar Erector Spinae Stretching Exercise*
- Position 16: Anterior Abdominal Musculature Stretching Exercise*
- Position 17: Hip Complex Static Stretching Exercise*
- Position 18: Femoral Musculature Static Stretching Exercise*
- Position 19: Comprehensive Multi-joint Stretching Exercise*
- Position 20: Multi-regional Dynamic Stretching Exercise*
- Position 21: Comprehensive Multi-joint Mobility and Balance Exercise*
- Position 22: Traditional Archery Simulation Exercise*

Activity 2: Included 18 individual exercises integrating Thai traditional wisdom through the use of Pha Khao Ma.

Position 1: Integrated Upper-Lower Extremity Exercise

This mindfulness-based neuromuscular integration protocol emphasizes coordinated upper and lower extremity synchronization through conscious movement patterns. The exercise sequence begins with participants establishing a standardized shoulder-width stance, facilitating vertical cloth manipulation through superior-inferior trajectories coordinated with stationary bilateral lower extremity rhythmic movements. This sophisticated pattern integrates proprioceptive awareness between manual control and pedal rhythmic coordination, promoting enhanced neuromuscular integration throughout the kinetic chain. The protocol comprises two complete sets of eight repetitive cycles, emphasizing mindful movement awareness while maintaining temporal precision in the synchronized upper and lower extremity movement patterns. This integrated sequence promotes the development of enhanced motor control, spatial awareness, and bilateral coordination through conscious engagement of multiple muscle groups in both the upper and lower extremities.

Position 2: Combined Upper-Lower Extremity Dynamic Exercise

The dynamic movement pattern progresses through controlled anterior trunk flexion with maintained upper extremity extension, facilitating alternating contact between the cloth implement and contralateral knee joints. This rhythmically synchronized sequence incorporates mild knee flexion to enhance postural stability and dynamic equilibrium throughout the movement cycle. The protocol is executed in accordance with musical temporal cues, comprising two complete sets of eight repetitions, promoting enhanced

proprioceptive awareness, neuromuscular coordination, and core engagement while maintaining dynamic stabilization through controlled movement patterns.

Position 3: Integrated Cross-Body Movement Exercise

The dynamic sequence integrates controlled anterior trunk flexion synchronized with diagonal knee elevation patterns, incorporating plantar flexion of the elevated extremity. This sophisticated movement pattern emphasizes oblique muscle activation through rotational components while maintaining dynamic stabilization throughout the kinetic chain. The exercise sequence promotes enhanced neuromuscular coordination through alternating sinistral and dextral patterns, comprising two complete sets of eight bilateral repetitions. The diagonal trajectory of the movement facilitates increased activation of the lateral trunk musculature, specifically targeting the external and internal oblique muscle groups, while promoting enhanced core stability and waist reduction benefits compared to the sagittal plane movement pattern of Position 2.

Position 4: Upper Extremity Elevation with Straight Leg Extension Exercise

The dynamic movement pattern progresses through controlled anterior trunk flexion with maintained upper extremity extension, synchronized with alternating unilateral lower extremity elevation through sagittal plane trajectory. This sophisticated sequence emphasizes coordinated neuromuscular control through reciprocal movement patterns, comprising two complete sets of eight alternating bilateral repetitions. The integrated movement promotes enhanced proprioceptive awareness, dynamic stabilization, and temporal precision while engaging multiple muscle groups throughout both the anterior and posterior kinetic chains.

Position 5: Integrated Shoulder-Lower Extremity Exercise

The dynamic movement pattern incorporates stationary marching mechanics synchronized with reciprocal upper extremity pendulum motion, simulating natural gait-associated arm swing patterns. This sophisticated sequence facilitates enhanced neuromuscular coordination through rhythmic integration of upper and lower extremity movement patterns, comprising two complete sets of eight repetitive cycles. The protocol promotes improved joint mobility, dynamic stabilization, and temporal coordination while maintaining optimal postural alignment throughout the movement sequence.

Position 6: Shoulder Complex Mobilization with Dynamic Knee Elevation Exercise

The dynamic movement pattern encompasses plyometric ankle articulation through springlike mechanics, coordinated with elevated knee drive patterns and reciprocal upper extremity oscillation. This sophisticated sequence emphasizes enhanced neuromuscular coordination through integrated movement patterns, comprising two complete sets of eight unilateral repetitions. The protocol promotes improved cardiovascular conditioning while simultaneously engaging multiple muscle groups through dynamic stabilization and rhythmic coordination patterns, with particular emphasis on core activation through high-knee mechanics and sustained upper body engagement.

Position 7: Upper Extremity Abduction with Lateral Step Pattern Exercise

The dynamic movement pattern encompasses plyometric ankle articulation through springlike mechanics, coordinated with elevated knee drive patterns and reciprocal upper extremity oscillation. This sophisticated sequence emphasizes enhanced neuromuscular coordination through integrated movement patterns, comprising two complete sets of eight unilateral repetitions. The protocol promotes improved cardiovascular conditioning while simultaneously engaging multiple muscle groups through dynamic stabilization and rhythmic coordination patterns, with particular emphasis on core activation through high-knee mechanics and sustained upper body engagement.

Position 8: Combined Upper Extremity Abduction with Rotational Stepping Pattern Exercise

The dynamic movement pattern encompasses alternating rotational trunk movements synchronized with posterior heel elevation through coordinated weight shifting mechanics. This sophisticated sequence emphasizes enhanced neuromuscular coordination through bilateral rotational patterns, comprising two complete sets of eight repetitive cycles. The protocol promotes improved joint mobility and muscular flexibility while maintaining dynamic stabilization throughout the kinetic chain, with particular emphasis on thoracolumbar rotation and hip complex mobility through coordinated movement patterns.

Position 9: Combined Upper Extremity Abduction with Full Body Extension Exercise

The dynamic movement pattern promotes enhanced proprioceptive awareness and neuromuscular coordination through alternating bilateral rotational sequences, comprising two complete sets of eight repetitive cycles. The protocol facilitates improved multi-planar mobility while maintaining dynamic stabilization throughout the kinetic chain, with particular emphasis on thoracolumbar rotation and diagonal force vectors through integrated movement patterns.

Position 10: Upper Extremity Elevation with Lateral Dynamic Movement Exercise

The dynamic movement pattern incorporates elevated upper extremity oscillation with maximal vertical extension, synchronized with alternating unilateral weight transfer patterns and contralateral heel elevation. This advanced sequence emphasizes full-body elongation through coordinated movement patterns, promoting enhanced proprioceptive awareness and dynamic stabilization throughout the kinetic chain. The protocol comprises two complete sets of eight bilateral repetitions, facilitating improved neuromuscular coordination while maintaining rhythmic precision in the alternating lateral weight shift patterns.

Position 11: Combined Lower Extremity Flexion with Bilateral Cloth Movement Exercise

The dynamic movement pattern incorporates eccentric lowering phases synchronized with posterior cloth trajectory, followed by concentric extension to maximal vertical elongation accompanied by alternating heel elevation patterns. This sophisticated sequence emphasizes enhanced neuromuscular coordination through bilateral movement patterns, comprising two complete sets of eight repetitive cycles. The protocol promotes improved dynamic stabilization and mobility throughout the kinetic chain while maintaining rhythmic precision in the alternating movement patterns.

Position 12: Dynamic Circular Movement with Cloth-Assisted Upper Extremity Exercise

The dynamic movement pattern encompasses circumferential superior trajectory with maximal upper extremity extension, executing two complete sinistral rotations followed by two dextral rotations above the cranial vertex. This sophisticated sequence incorporates synchronized pedal advancement patterns corresponding to the directional circular movements. The protocol comprises two complete sets of eight repetitive cycles, promoting enhanced neuromuscular coordination and spatial awareness while maintaining dynamic stabilization throughout the integrated movement pattern.

Position 13: Bilateral Upper Extremity Coordination with Dynamic Cloth Transfer Exercise

The dynamic movement pattern encompasses maximal vertical elongation facilitated by bilateral plantar flexion, promoting optimal muscular extension throughout the kinetic chain. This sophisticated sequence incorporates contralateral lower extremity elevation synchronized with cloth trajectory, enhancing dynamic equilibrium control. The protocol emphasizes conscious movement awareness through rhythmic bilateral transitions, comprising two complete sets of eight repetitive cycles. The integrated movement pattern promotes enhanced proprioceptive awareness, neuromuscular coordination, and postural stability while maintaining temporal precision throughout the alternating movement sequences.

Position 14: Combined Upper Extremity Elevation with Dynamic Knee Flexion Exercise

The dynamic movement pattern encompasses superior cloth trajectory above the cranial vertex followed by controlled descent synchronized with alternating knee elevation patterns. This sophisticated sequence promotes enhanced core activation through coordinated upper and lower extremity movements while maintaining postural stability throughout the kinetic chain. The protocol comprises two complete sets of eight bilateral repetitions, facilitating improved neuromuscular coordination and dynamic stabilization through the integrated movement patterns.

Position 15: Upper Extremity Elevation with Posterior Trunk Movement Exercise

The dynamic movement pattern encompasses superior cloth trajectory above the cranial vertex followed by posterior descent, synchronized with posterior lower extremity elevation and rhythmic plantar flexion through spring-like mechanics. This advanced sequence promotes enhanced neuromuscular coordination through integrated upper and lower extremity movements, comprising two complete sets of eight alternating unilateral repetitions. The protocol facilitates improved dynamic stabilization and proprioceptive awareness while maintaining temporal precision throughout the coordinated movement patterns.

Position 16: Dynamic Under-knee Forward Transfer with Alternating Pattern Exercise

The dynamic movement pattern encompasses lateral upper extremity oscillation facilitating alternating transfer patterns beneath elevated lower extremities through coordinated unilateral movements. This sophisticated sequence incorporates plyometric vertical displacement mechanics synchronized with rhythmic temporal patterns to enhance dynamic equilibrium control. The protocol emphasizes integrated neuromuscular coordination through complex

movement patterns, requiring precise proprioceptive awareness and spatial orientation. The sequence comprises two complete sets of eight alternating bilateral repetitions, promoting enhanced dynamic stabilization while maintaining coordinated movement precision throughout the integrated patterns.

Position 17: Dynamic Posterior Alternating Movement Pattern Exercise

The dynamic movement pattern simulates wing-flapping kinematics while integrating lateral stepping sequences with subtle plyometric elements for rhythmic enhancement. This complex sequence emphasizes coordinated neuromuscular control through bilateral upper extremity movements in the posterior plane, synchronized with lateral weight shifting patterns. The protocol promotes enhanced proprioceptive awareness and dynamic stabilization while maintaining temporal precision throughout the integrated movement sequence.

Position 18: Multi-directional Dynamic Movement Exercise with Cloth Wave Pattern

The dynamic movement pattern incorporates wide-based stance with sustained plantar flexion while executing complete rotational sequences through all four cardinal directions. This sophisticated protocol emphasizes enhanced neuromuscular coordination through integrated movement patterns, comprising two complete circumferential cycles. The sequence promotes improved spatial awareness and dynamic stabilization while maintaining multi-directional proprioceptive control throughout the rotational movement pattern.

Activity 3: Contained 10 partner exercises integrating Thai traditional wisdom through the use of Pha Khao Ma.

Position 1: Bilateral Hand Coordination with Dynamic Transfer Exercise

The dynamic movement pattern simulates natural gait-associated upper extremity reciprocation, incorporating alternating sinistral and dextral object transfer through coordinated temporal sequences. This sophisticated protocol employs discrete roles for each upper extremity, with one hand engaged in object projection while the contralateral extremity performs simultaneous object reception, creating a continuous, rhythmic exchange pattern. The movement sequence comprises eight complete bilateral cycles, promoting enhanced neuromuscular coordination, spatial awareness, and temporal precision while maintaining dynamic stabilization through asymmetric lower extremity positioning.

Position 2: Unilateral Upper Extremity Coordination Exercise

The dynamic sequence incorporates axial rotation with posterior momentum transfer, accompanied by posterior weight shift and maximal upper extremity extension, followed by anterior reorientation for reciprocal exchange. The protocol emphasizes integrated neuromuscular coordination through alternating bilateral movement patterns, incorporating weight transfer, rotational mobility, and temporal precision throughout the kinetic chain. This sophisticated movement sequence comprises eight complete bilateral repetitions, promoting enhanced proprioceptive awareness, dynamic stabilization, and multi-planar coordination while maintaining rhythmic precision in object transfer patterns.

Position 3: Bilateral Alternating Upper Extremity Pull Exercise

The dynamic movement pattern encompasses alternating sinistral and dextral force production and attenuation cycles through precise temporal coordination. The comprehensive protocol comprises eight complete bilateral cycles, promoting enhanced proprioceptive awareness of force modulation, rhythmic precision, and coordinated neuromuscular control throughout the upper extremity kinetic chain while maintaining dynamic stabilization through asymmetric lower extremity positioning.

Position 4: Posterior-Facing Upper Extremity Alternating Overhead Pull Exercise

The dynamic movement pattern incorporates alternating sinistral and dextral force production cycles through rhythmic temporal coordination. The protocol comprises four complete bilateral cycles, followed by a transition phase involving contralateral forward limb advancement, culminating in an additional four cycles of alternating lateral force production. This integrated sequence promotes enhanced proprioceptive awareness of force modulation, temporal precision, and bilateral coordination throughout the upper extremity kinetic chain while maintaining dynamic stabilization through asymmetric lower extremity positioning.

Position 5: Isolated Upper Extremity Extension and Elevation Exercise

The dynamic movement pattern progresses through coordinated bilateral upper extremity abduction to maximal extension, synchronized with bilateral plantar flexion, facilitating optimal stretching through partner-assisted reciprocal facilitation. The protocol requires eight sequential repetitions of this integrated movement pattern, promoting enhanced kinesthetic awareness, dynamic mobility, and bilateral coordination throughout the kinetic chain. An advanced variation incorporates a rhythmic sequence of dual-tempo anterior trunk flexion followed by single-tempo extension, further enhancing neuromuscular control and temporal coordination. This comprehensive sequence promotes the development of enhanced flexibility, agility, and mindful movement awareness while maintaining synchronized partner dynamics throughout the movement cycle.

Position 6: Dynamic Rotational Movement with Directional Reversal Exercise

The dynamic movement pattern incorporates a complete axial rotation with synchronized momentum transfer, followed by counter-rotational movement while maintaining continuous bilateral manual contact. This complex motor sequence integrates conscious proprioceptive awareness of force application, force attenuation, and directional force transitions throughout the movement cycle. The protocol encompasses eight complete bilateral repetitions, facilitating enhanced neuromuscular coordination, dynamic stabilization, and spatial awareness while promoting mindful engagement of the core musculature and thoracolumbar mobility. The integrated movement pattern emphasizes the development of controlled force modulation and spatial orientation through sustained partner-assisted rotational sequences.

Position 7: Bilateral Synchronized Hand Transfer Exercise

The dynamic movement pattern progresses through a coordinated sequence incorporating anterior bilateral exchange, followed by posterior momentum transfer with integrated rotational components, culminating in reciprocal object exchange. This complex motor sequence emphasizes the development of multi-segmental coordination while maintaining

temporal precision throughout the movement cycle. The protocol requires eight complete bilateral repetitions, promoting enhanced proprioceptive awareness, dynamic stabilization, and multi-planar coordination throughout the kinetic chain, while simultaneously engaging the core musculature and promoting thoracolumbar mobility. The integrated movement pattern facilitates the development of advanced neuromuscular coordination, incorporating dynamic balance control and rhythmic timing precision through alternating movement phases.

Position 8: Posterior Upper Extremity Transfer Exercise

A dynamic neuromuscular integration protocol incorporating coordinated axial rotation with alternating lateral object manipulation. The exercise sequence requires participants to maintain posterior orientation relative to each other, establishing a standardized shoulder-width base of support for optimal biomechanical stability. The protocol employs unilateral grip control of a cloth implement, facilitating controlled rotational movements of the vertebral column through transverse plane motion. This bilateral exchange sequence integrates reciprocal trunk rotation with coordinated object transfer between participants, alternating between sinistral and dextral orientations. The complete movement cycle comprises eight sequential bilateral repetitions, promoting enhanced thoracolumbar mobility, rotational core stability, and proprioceptive awareness throughout the kinetic chain.

Position 9: Bilateral Upper-Lower Extremity Coordination Through Synchronized Hand Placement Exercise

This dynamic movement pattern integrates multi-joint coordination through the anterior and posterior kinetic chains, requiring precise proprioceptive awareness and spatial orientation. The complete movement cycle is executed through eight sequential repetitions, promoting enhanced neuromuscular coordination, spinal mobility, and dynamic stabilization of the core musculature while maintaining bilateral symmetry throughout the range of motion.

Position 10: Reciprocal Object Manipulation Through Projectile Reception and Release

The dynamic component involves coordinated flexion-extension movements of the lower extremities, synchronized with a reciprocal cloth projectile exchange between participants. This bilateral exchange protocol is executed through eight repetitive cycles, completed in two comprehensive sets, facilitating the enhancement of proprioceptive awareness, spatial orientation, and temporal precision. The integrated movement pattern promotes the development of advanced neuromuscular coordination, incorporating visual tracking accuracy, dynamic balance control, and rhythmic timing precision, while simultaneously engaging multiple muscle groups in both the upper and lower kinetic chains.

Section 2: Evaluating the Appropriateness of the Exercise Program Based on Thai Traditional Wisdom Integration for Physical Education Undergraduate Students in Elderly Exercise Course

The program followed four steps, all integrating Thai traditional wisdom through the use of Pha Khao Ma: Step-1 warm-up and stretching; Step-2 individual exercises; Step-3 partner exercises; and Step-4 cool-down and stretching.

The evaluation of the developed program's appropriateness yielded the highest level of appropriateness with a mean score of 4.60. Consequently, physical education undergraduate students can implement this exercise program integrating Thai traditional wisdom in the exercise for the elderly course to promote better health behaviors among elderly individuals.

References

- Boonprakorn, K., Punyakham, A., Manorat, P., Phanpheng, Y., & Buransri, M. (2023). Effects of Exercise Program with Phakhawma on Balance and Movement in The Elderly. *Journal of MCU Ubon Review*, 8(3), 605-616.
- Department of Older Persons. (2023). *Situation of The Thai Older Persons 2022*. Amarin Corporations Public Company Limited.
- Thai Health Promotion Foundation. (2010). *Handbook of Applied Thai Traditional Wisdom in Sports: More than Sport*. Plan Printing Company Limited.

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