

The Effect of a Proposed Pilates-Based Training Program on Selected Special Motor Abilities and Offensive Ground Wrestling Skills in Junior Greco-Roman Wrestlers

Dr. Aymen hameed mohsin AL akraa ¹ & Dr. Hayder kadhim Abd Ali ²

Ministry of Education – Al-Qadisiyah Directorate of Education ^{2&1}

Corresponding Author: aymanhameed121@gmail.com

ARTICLE INFO

Received: 10 July
Accepted: 19 Aug
Volume: 3
Issue: 4

ABSTRACT

The significance of this study lies in identifying the role of Pilates training in developing selected specific motor abilities and its effect on improving the performance level of offensive ground wrestling skills among junior Greco-Roman wrestlers. Pilates training provides an engaging and motivating training approach that can be implemented within a relatively short period appropriate to the participants' abilities, while avoiding boredom and the limitations of traditional training methods. The study aimed to design a proposed training program based on the Pilates method and to investigate its effect on selected specific motor abilities and the performance of offensive ground wrestling skills among junior wrestlers. The researchers employed the experimental method using a one-group pretest-posttest design. The research sample was selected purposively from the junior Greco-Roman wrestlers enrolled in the Specialized Wrestling School in Al-Diwaniyah and consisted of (12) wrestlers. The proposed Pilates training program was implemented for eight (8) weeks, with three (3) training sessions per week using the interval training method. Pretests and posttests were conducted, and the collected data were statistically analyzed. The study concluded that the proposed Pilates-based training program developed selected motor abilities, namely coordination, agility, and dynamic flexibility, and significantly improved offensive ground wrestling skills, including the gut wrench, lift, and reverse lift, among the junior wrestlers. The findings demonstrated the effectiveness and importance of the proposed program. The study also emphasized that training exercises should be designed according to the athletes' physical and motor capabilities to promote adaptation and enhance skill performance.

Keywords: Pilates Training, Motor Abilities, Greco-Roman Wrestling.

1- Introduction and Importance of the Research:

In recent years, sports sciences have advanced in various fields, making it possible to benefit from these developments in reaching higher levels and achieving success. Winning and the quality of technical performance in local or international championships and competitions depend on sound scientific planning and attention by training and administrative staff to specific physical, technical, tactical, psychological, and other requirements in preparing athletes and teams. Sports training is an applied science that seeks to provide coaches and athletes with information and newly developed training methods that help them achieve the best results and levels of technical performance in a scientific, specialized manner within a short time.

Organized and regulated training programs are important as a foundation that enables athletes to attain high levels of physical, technical, and tactical qualities. Possessing high levels of these qualities is of great importance in achieving sporting excellence. (7: 31)

Greco-Roman wrestling is a complex combat sport in terms of its skills, tactics, and varied movement patterns. It has developed substantially at the international level over recent decades through the use of the best modern training approaches and methods based on scientific principles. This sport requires appropriate physical, technical, and tactical abilities as a basis for activity during competitions. Physical and technical preparation therefore plays an effective role in wrestler preparation programs as the means of raising general and specific physical and motor abilities in ways consistent with the nature of performance, reaching the best possible technical levels and achieving high results.

Pilates movements (exercises) are a modern method of physical preparation and training the muscles of the body as a unit. They can be performed by men and women of various ages, in any location, with or without equipment. (16: 122)

Pilates movements are among the modern methods widely used in sport. They aim to develop certain physical and motor abilities through engaging exercises, away from boredom and conventional ways of performing exercises and movements. They help control motor performance through the different muscles of the body in general and the muscles acting on the trunk in particular, through coordination and precision between the nervous and muscular systems. Pilates movements recruit the largest number of working muscle groups during continuous, fluid movements of the body, with close attention to the strength and balance of the various trunk muscles, including the back and abdominal muscles and the muscles acting on the hip joint. (16: 318)

Motor abilities are associated with technical and tactical performance in Greco-Roman wrestling and help control performance. The distinctive character of the basic motor skills in this sport determines which specific motor abilities must be developed to improve wrestlers' technical level and achieve optimal movement performance. This can be accomplished through the use of the best available training methods. The importance of this research lies in identifying the role of Pilates exercises in developing certain specific motor abilities and improving offensive ground wrestling skills among junior Greco-Roman wrestlers within a short period and by a method suited to the sample and its abilities.

2- Research Problem

The research problem arose from the researchers' observation of a low level of performance in offensive ground wrestling skills (the turning hold, lift, and reverse lift) among junior Greco-Roman wrestlers in Al-Diwaniyah Governorate. These holds (skills) require specific motor abilities and control of all parts of the body during performance. Junior athletes in these clubs and specialized schools cannot undertake lengthy training and instructional periods; their training sessions are short and few each week in consideration of their age and physical and motor capacities. Pilates exercises are suited to these conditions because they do not require much time to affect wrestlers' physical and motor capabilities. They train the

muscles of the body as a unit and can be performed anywhere, without equipment or with supporting equipment. This led the researchers to propose a program using Pilates exercises to develop certain specific motor abilities and improve offensive ground wrestling skills in an engaging manner, within a short period suited to the sample and its abilities, away from boredom and conventional methods.

3- Research Objectives:

- 1- To prepare a proposed Pilates-based training program for junior Greco-Roman wrestlers.
- 2- To identify the effect of the proposed training program on specific motor abilities in Greco-Roman wrestling (coordination, dynamic flexibility, and agility).
- 3- To identify the effect of the proposed training program on offensive ground wrestling skills (the turning hold, lift, and reverse lift) in Greco-Roman wrestling.

4- Research Hypotheses:

1. There are statistically significant differences between the experimental group's pretests and posttests in the motor abilities under investigation, in favor of the posttests.
2. There are statistically significant differences between the experimental group's pretests and posttests in the level of skill performance of the wrestling holds under investigation, in favor of the posttests.

5- Scope of the Research:

1- Participants: Junior athletes at the Specialized Greco-Roman Wrestling School in Al-Diwaniyah Governorate.

2- Time: From 20/5/2025 to 1/9/2025.

3- Place: Al-Sunniyah Wrestling Club Hall in Al-Diwaniyah Governorate.

6- Research Method and Procedures:

6-1- Research Method:

The researchers used the experimental method with a single experimental group and a pretest–posttest design because it suited the nature and problem of this research.

6-2- Research Population and Sample:

In research and studies, the sample should represent the original population. The research population comprised junior Greco-Roman wrestlers in Al-Diwaniyah Governorate. The sample was purposively selected from junior athletes at the Specialized Wrestling School in Al-Diwaniyah for the (2024/2025) year, aged (15–16) years and weighing (50–60 kg). It consisted of (12) wrestlers, of whom (4) were excluded because they participated in the pilot study. The final research sample comprised (8) wrestlers representing the experimental group.

6-3- Homogeneity of the Research Sample:

The researchers examined sample homogeneity for the variables of weight, height, and training age.

Table No. ()

Shows the homogeneity of the research sample

No.	Variables	Units of measurement	Mean	SD	Skewness coefficient
1	Weight	kg	53.45	4.92	0.2322
2	Height	m, cm	155.50	3.89	-0.44481
3	Training age	months	26	2.55	0.3494

The preceding table shows that the skewness coefficient fell between (-1 and 1), confirming the homogeneity of the sample.

6-4- Instruments, Devices, and Materials Used in the Study:

- 1- Questionnaires for personal interviews and expert opinions concerning the research tests.
- 2- Forms for recording and tabulating research data and results.
- 3- Two electronic stopwatches and (2) Sunny cameras.
- 4- A medical scale and a height-measuring tape.
- 5- - Elastic bands, medicine balls, and a wrestling mat.
- 6- Adhesive tape, chalk, and (2) whistles.

6-5- Determination of Research Variables:

6-5-1- Motor Abilities:

To identify specific motor abilities appropriate for the research sample, the researchers selected three abilities (motor coordination, dynamic flexibility, and agility) after reviewing scientific references, similar studies, and the opinions of experts and specialists.

Having identified the specific motor abilities under investigation, the researchers adopted motor tests suited to the abilities of the research sample, as follows:

1- Numbered Circles Test (8 circles) (11: 591–592):

- **Purpose of the test:** To measure eye–leg coordination.
- **Measurement tools:** Electronic stopwatch and chalk. Eight numbered circles, each with a diameter of 60 cm, are drawn on the ground.
- **Test instructions:** The athlete stands inside circle (1) and, upon hearing the start signal, jumps with both feet together into circle (2), then circle (3), and so on until reaching circle (8), as quickly as possible.
- **Scoring:** The time taken by the athlete to pass through the eight circles drawn on the ground is recorded to the nearest fraction of a second.

2- 7 m Run Between Cones Test: (11: 592)

- **Purpose of the test:** To measure agility.
- **Measurement tools:** (6) cones, an electronic stopwatch, and chalk.
- **Test instructions:**

The first cone is placed (2 m) from the starting line. The other five cones are placed (1) meter from the first cone, with (1) meter between each successive pair. The athlete runs quickly between the cones, out and back.

- **Recording method:**

- At the start signal, timing begins when the athlete sets off from the starting line and ends upon reaching the finish line. The time is calculated to the nearest fraction of a second.

3- Dynamic Flexibility Test (Flexion, Extension, and Rotation of the Spine): (11: 592–593)

- **Purpose of the test:** To measure specific dynamic flexibility.
- **Equipment and tools:** Stopwatch, wide adhesive tape, and a vertical wall.
- **Performance instructions:** An (X) is marked at two points, located as follows:

The first mark is on the ground between the athlete's feet.

The second mark is on the wall behind the athlete's back (at the center).

- **Recording method:** At the signal, the athlete bends the trunk forward and downward to touch the (X) marked on the ground between the feet with the fingertips. The athlete then extends the trunk upward and rotates to the left to touch the second (X) behind the back with the fingertips. Next, the athlete rotates and bends the trunk downward again to touch the (X) between the feet, then extends and rotates to the right to touch the mark behind the back. The sequence is repeated as many times as possible within 30 seconds, touching the mark behind the athlete alternately from the right and the left.
- **Conditions for administering the test:**
 - أ- The athlete must not move the feet during performance.
 - ب- The specified sequence of touches in the test instructions must be followed.
 - ت- The athlete must not bend the knees at any time during the test.
- **Scoring:** The number of touches made on the two marks within 30 seconds is recorded.

6-5-2- Tests of Technical Wrestling Performance:

To identify the most important offensive Greco-Roman wrestling skills from the ground wrestling position suited to the research, the researchers selected three offensive holds:

- 1- The waist-turning hold (roll).
- 2- The hold involving lifting the opponent from the mat and throwing him backward (lift).
- 3- The reverse lift hold.

After identifying the wrestling holds under investigation, the researchers conducted skill performance tests with the sample by having athletes perform the three selected holds. Scores were assigned to the phases of movement using a dedicated evaluation form presented to expert judges and specialists, as follows: initial position (4 points), main phase (4 points), and final position (2 points). Evaluating different sports skills by a points system is an important assessment method based on observation. Observation may occur directly, when the athlete performs the movement or skill before experts, or through video recording of the skills followed by presentation of the video to experts and specialists for evaluation

(13: 273). The researchers used video recordings to evaluate the skills under investigation, because this method allows the judges to review a skill or movement more than once and makes the assessment more accurate.

6-6- Pilot Study:

The researchers conducted the pilot study on Saturday, 7/6/2025, at 4:00 p.m. in the Al-Sunniyah Wrestling Club Hall with (4) athletes outside the research sample. It lasted two days and sought to:

- 1- Identify problems that might arise during the main experiment and assess the competence and number of assisting staff.
- 2- Verify that the equipment and tools were suitable and that the cameras were appropriately positioned.
- 3- Ensure the safety of the wrestlers participating in the tests.

The pilot study showed the following:

- 1- The equipment and tools used in the experiment were suitable and serviceable, and met safety requirements.
- 2- The venue was appropriate and sufficiently spacious for the main experiment with the research sample.

6-7- Research Pretests:

With the assistance of staff, the researchers conducted the sample's pretests for the research variables over two days in the Al-Sunniyah Sports Club wrestling hall. After giving instructions and specifications for each test, the researcher conducted the designated tests. The technical performance tests were conducted first, on Wednesday, 11/6/2025, at 3:00 p.m.

The researcher and assisting staff then conducted the motor ability tests (coordination, then agility, then dynamic flexibility) in the Al-Sunniyah Wrestling Club Hall.

6-8- Exercises Used (Main Experiment):

The researchers designed a Pilates exercise program for the experimental research group to improve certain motor abilities and the technical performance of the Greco-Roman wrestling skills under investigation. The program included the following:

- 1- The Pilates exercises used the repetition training method and the interval training method.
- 2- The training program lasted (8) weeks, with (3) training sessions per week on Saturdays, Mondays, and Wednesdays, for a total of twenty-four training sessions.
- 3- Pilates exercises took (30–60) minutes per training session at an intensity of (50–70%).
- 4- The exercises were implemented from 14/6/2025 through 7/8/2025. Their design was based on scientific principles concerning:
 - The suitability of the exercise content to the level and abilities of the sample members, and gradual increases in intensity and repetitions.

- The purpose for which these exercises were prepared.
- The appropriate arrangement of training load for the exercises in terms of intensity, volume, and rest. The weekly load progression followed a (3/1) pattern: three weeks of increasing intensity followed by a fourth week of reduced intensity. The daily progression followed a (2/1) pattern: two days of increasing intensity followed by a third day of reduced intensity.

6-9- Research Posttests:

Following implementation of the Pilates training program prepared by the researchers, posttests were conducted on Saturday, 9/8/2025, using the same procedure as the pretests in terms of timing, location, sequence, conditions, assisting staff, equipment, and tools.

6-10- Statistical Methods:

The researcher used the Statistical Package for the Social Sciences (SPSS) for statistical analysis.

7- Presentation, Analysis, and Discussion of Results

7-1 Presentation, Analysis, and Discussion of the Sample's Pretest and Posttest Results for Motor Abilities.

Table (2)

Shows pretest and posttest results for the motor abilities under investigation.

Tests	Units of measurement	Pretest		Posttest		Calculated t value	Tabulated t value	Significance of difference
		Mean	SD	Mean	SD			
Agility test	s	16.72	2.10	13.69	1.43	2.44	1.774	Significant
Coordination test	s	10.70	1.20	7.15	0.95	8.37	1.774	Significant
Dynamic flexibility test	Count	22.9	3.50	31.6	2.61	7.18	1.774	Significant

The results in Table (3) above show statistically significant differences at the (0.05) level between the mean pretest and posttest scores of the experimental group, in favor of the posttest mean, for the motor abilities under investigation (agility, dynamic flexibility, and coordination). This confirms improvement in the experimental group's posttests for all motor abilities under investigation.

The researchers attribute these differences and improvements in motor abilities to the effect of the proposed, regulated Pilates exercises based on modern scientific methods used in the training program. These exercises had a clear and effective impact on the motor abilities under investigation (agility, dynamic flexibility, and coordination). The variety of Pilates exercises also prevented boredom among the wrestlers and increased enthusiasm and serious engagement, because varied exercises make wrestlers eager to perform physical and motor activities. In addition, the regulated distribution and gradual progression of training load

suited the level of the specialized school athletes, while the appropriate exercises used in the training sessions effectively raised the wrestlers' proficiency in different motor abilities.

This agrees with Saleh Atris (2023), citing Ihab Mansour (2013), whose study found that a training program incorporating Pilates exercises produced a marked improvement in certain aspects of physical and motor fitness, including muscular power and dynamic and static flexibility (14: 157). It also agrees with Karon Karter (2001), who indicated that athletes' physical and motor qualities developed without producing hypertrophy of different body muscles, thereby giving the athlete's body a better shape, posture, and movement. (17: 23)

The researchers also consider that the proposed Pilates exercises improved the motor ability of the trunk muscles more than conventional training, as shown by the results of certain motor ability tests, such as dynamic flexibility and agility. The scientifically determined intensities and repetitions of the prepared exercises, number of weekly training sessions, and duration of each session, appropriately matched to the abilities and type of research sample, contributed substantially to the experimental group's development in the variables under investigation.

The study by Saleh Abdul Qader (2023), citing Ahmed Hussein (2016), indicates that Pilates exercises may increase muscular power, particularly in the trunk muscles, because controlled Pilates movements recruit more muscle fibers in the exercised region, increasing its muscular and motor capacity in particular. (14: 157)

This agrees with Saleh Atris (2023), citing King Michael (2006), who stated that the Pilates method is a comprehensive program for training the body's muscles through particular movements intended especially to develop deep trunk muscles, such as the back and abdominal muscles and those acting on the hip joint, which are responsible for muscular control and stabilization and improve posture, balance, and coordination. These movements (Pilates exercises) also depend on neuromuscular coordination between the hands, eyes, and legs. (14: 158)

In light of the foregoing, the first research hypothesis is supported: "There are statistically significant differences between the mean pretest and posttest measurements in the motor abilities under investigation, in favor of the posttest mean for the research sample."

7-2 Presentation and Discussion of the Sample's Pretest and Posttest Skill Performance Results for Wrestling Holds:

Table (3)

Shows pretest and posttest skill performance results

Name of hold	Units of measurement	Pretest		Posttest		Calculated t value	Tabulated t value	Significance of difference
		Mean	SD	Mean	SD			
Hold (roll)	points	2.50	0.30	6.22	1.10	12.74	1.774	Significant
Hold (Shal)	points	2.20	0.21	6.42	0.85	22.10	1.774	Significant

a								
Roll)								
Hold (front roll)	points	2.80	0.7 0	8.1	0.7 9	25.76	1.774	Significant

The results in Table (4) above show statistically significant differences at the (0.05) level between the mean pretest and posttest scores of the experimental group, in favor of the posttest mean, for technical performance of offensive Greco-Roman ground wrestling skills (the turning hold, lift, and reverse lift). This confirms the experimental group's improvement on posttests for all the holds under investigation.

The researchers attribute the improvement in the performance of the wrestling holds under investigation to the use of the Pilates exercise program. Its exercises combined movements and motor abilities affecting wrestling skill performance. The exercises were designed according to regulated scientific principles appropriate to the research sample and specialized sporting activity, and were directed toward specific objectives.

These results agree with the studies by Nahed Khairy (2010) and Saleh Atris (2023), which stated that a training program based on scientific principles and suited to the students' levels and abilities improved their physical and skill performance. (12), (14: 159)

They also agree with the study by Amal Salim (2016) (3), whose results indicated that the proposed training program using Pilates exercises and movements played a positive and effective role in improving performance of the skills under investigation.

The studies by Ghaida Abdul Shakour and Walid Jabr (2009), and Saleh Atris (2023), likewise confirmed that the proposed training program using Pilates exercises had a substantial positive effect on skill performance of the motor skills under investigation. The exercises strengthened major muscles, including those of the legs, back, abdomen, and arms, thereby playing an important and effective role in developing motor performance of the skills under investigation in gymnastics. (8), (14: 159)

The researchers also attribute the link between improved motor abilities and improved skill performance in the wrestling holds under investigation to the effectiveness of the Pilates exercise program they prepared, which played an important role in developing certain motor abilities that strongly affected these skills.

This agrees with Issam Abdul Khaliq (2005), who stated: "Physical and specific exercises prepare the individual for a specialized sport and develop the motor abilities required for that activity so that sporting performance improves in both motor and tactical aspects of the specialized activity." (5: 127)

The researchers therefore consider that an appropriate choice of exercises and movements produced clear engagement during training, reflected in serious and enthusiastic performance without boredom or fatigue. Along with suitable repetitions of the exercises, these factors

effectively developed the holds under investigation (turning hold, lift, and reverse lift). These exercises and movements do not require long training periods, fitting the time allocated to training sessions at specialized wrestling schools.

Thus, the second research hypothesis is supported: There are statistically significant differences between the mean pretest and posttest measurements in the skill performance of the wrestling holds under investigation, in favor of the posttest mean for the research sample.

9- Conclusions:

In light of the research objectives and the study results, the researchers reached the following conclusions:

- 1- The proposed exercise program using Pilates exercises improved the motor abilities under investigation (coordination, agility, and dynamic flexibility) in the research sample.
- 2- The Pilates exercises used in the research effectively developed skill performance of offensive ground wrestling holds (turning hold, lift, and reverse lift).
- 3- Exercises using training methods and means suited to the sample create notable engagement during training through serious and enthusiastic performance without boredom or fatigue.

10- Recommendations:

In light of the research objectives, within the limits of its population and sample, and based on the conclusions, the researchers recommend the following:

- 1- Pilates exercises should be used to improve the skill performance of offensive ground wrestling holds among athletes at specialized Greco-Roman wrestling schools.
- 2- Pilates exercises should be used with junior wrestlers at specialized schools to develop motor abilities (coordination, agility, and dynamic flexibility) within a short period.
- 3- Similar studies using Pilates exercises should be conducted in other sports and specialized schools, such as boxing, judo, gymnastics, and athletics.

Arabic References

- 1-Ahmed Hussein Mohammed: "The Effect of Combining Pilates Exercises and Plyometric Training on Muscular Power and Jump Shot Accuracy in Handball Players," published research article, Scientific Journal of Physical Education and Sports, 2016.
- 2-Aline Wadie Farag: Football: A Guide for Teachers, Coaches, and Players, Alexandria, Manshaat Al-Maarif Publishing, 1990.
- 3-Amal Al-Sayed Salim: "The Effectiveness of a Pilates Exercise Program on Tension, Nervous Stress, and Performance Level in Artistic and Rhythmic Exercises," published research article, Scientific Journal of Physical Education and Sports, 2016.

- 4-Ihab Ahmed Mansour: "The Effectiveness of Pilates Exercises on Certain Physical Variables and Respiratory Functions in Boxers," published research article, Scientific Journal of Physical Education and Sports, 2013.
- 5-Issam Abdul Khaliq: Sports Training: Theories and Applications, Cairo, 2nd ed., Manshaat Al-Maarif, 2005.
- 6-Mohammed Sobhi Hassanein: Measurement and Evaluation in Physical Education, 5th ed., Cairo, Dar Al-Fikr Al-Arabi, 2000.
- 7-Khairiya Al-Sukkari and Mohammed Jaber Bureiq: "Plyometric Training for Young Athletes," Manshaat Al-Maarif, Alexandria, Part Two, 2009.
- 8-Ghaida Abdul Shakour Mohammed and Walid Ahmed Jabr: "The Effectiveness of a Pilates Exercise Program on Certain Physical and Psychological Variables and Skill Performance on the Floor Exercise Apparatus," published research article, Journal of Sports Sciences and Arts, 2009.
- 9-Mohammed Sobhi Hassanein: Measurement and Evaluation in Physical Education and Sport, Vol. 1, 6th ed., Dar Al-Fikr Al-Arabi, Cairo, 2004.
- 10-Mohammed Hassan Allawi and Mohammed Nasr Al-Din Radwan: Motor Performance Tests, 1st ed., Cairo, Dar Al-Fikr Al-Arabi, 2001.
- 11-Ismail Abdul Zaid et al.: "The Effect of Pilates Exercises at Different Levels on the Development of Certain Motor Abilities and Their Relationship to the Accuracy of Football Passing," Journal of the College of Basic Education, Al-Mustansiriyah University, Vol. 23, Issue 99, 2017. Ali Salman Abd Al-Tarfi: Applied Tests in Physical Education (Physical, Motor, and Skill), Baghdad, Al-Nour Office, 2013.
- 12-Nahed Khairy Abdullah: "The Effect of a Training Program Using Pilates Exercises on Certain Physical and Physiological Variables, Self-Confidence, and Skill Performance on the Floor Exercise Apparatus," published research article, Thirteenth International Scientific Conference: Physical Education and the Challenges of the Third Millennium, 2010.
- 13-Wajih Mahjoub: Scientific Research Methods and Approaches, 2nd ed., Baghdad, Dar Al-Hikma for Printing and Publishing, 1988, p. 273.
- 14-Saleh Abdul Qader Atris: "The Effect of a Training Program Using Pilates Exercises on Physical Abilities and the Performance Level of Certain Kicks among Karate Practitioners," New Valley Journal of Sports Sciences, Al-Wadi University, Issue 8, Part 6, 2023.

English references

- 15-Denise Austin: Pilates for everybody, strengthen, lengthen, and tone with the complete 3- week body make dier, rodale, USA.uvuluvik .tvvt (2002).
- 16-Feza Korkusuz Sabire Akin: " Effects of Pilates exercise on trunk strength, endurance and flexibility in sedentary adult females " Journal of Bodywork and Movement Therapies, October (2007).
- 17-Karon Karter: " The complete Guide to Pilates method ", Designer registered trademarks of pen gum croup (USA) (2001).
- 18-Michael King: " Pilates work book illustrated step-by-step guide to mat work

techniques “, library of congress, USA2001
 19-3- Matviev L.P Teorie ; Adidahlike Telesne Vgchovy, A sport, Paraha Olympic
 .1981, P203.

Appendix No. (1)

Sample Training Session from the Proposed Program in the Third Week

N o.	Exercises	Performance method	Duration	Number of sets	Rest between sets	Rest between exercises
1	Warm-up exercises	– Stretching and preparation of different body parts Light jogging –	10 min			
2	The Hundred exercise: muscular endurance and strengthening of trunk muscles	Lie on the back, bend the knees at a 90-degree angle, raise the head and shoulders slightly off the ground, and move the arms up and down in small, rapid movements while breathing regularly (inhale for 5 beats; exhale for 5 beats).	12 reps	3	30 s	2 min
3	Roll Up exercise: flexibility and strengthening of abdominal muscles	Lie on the back with the legs extended and the arms above the head. Gradually raise the head and shoulders and roll up the spine until seated. Slowly return to a lying position, lowering the back gradually until it touches the ground.	10 reps	4	45 s	2 min
4	Single Stretch exercise: coordination and balance	Lie on the back and lift the head and shoulders slightly off the ground. Hold one knee with both hands while extending the other leg, then alternate legs in a smooth, controlled movement while keeping the trunk stable.	12 reps	3	45 s	2 min
5	Double Leg Stretch exercise: muscular strength and	Lie on the back, raise the head and shoulders slightly off the ground, bend the knees toward the chest, and hold them with the hands. Extend the arms	10 reps	4	30 s	2 min

	motor coordination	backward and the legs forward simultaneously while maintaining abdominal engagement, then return to the starting position and repeat.				
6	Spine Stretch exercise: flexibility of the spine and hamstrings	Sit on the ground with the legs extended forward at shoulder width and the arms extended forward at shoulder level. Inhale, then exhale while bending the head and neck first and gradually rolling the spine forward to reach the hands toward the feet. Slowly return to the starting position and repeat.	12 reps	4	45 s	2 min
7	Swan exercise: strengthening back muscles and improving posture	Lie on the stomach with the legs extended backward, place the palms beneath the shoulders, and tighten the abdominal muscles. Inhale and gradually lift the head and chest using the back muscles; exhale while slowly returning to the starting position, and repeat.	15 reps	4	45 s	2 min
8	Side Kick Series exercise: balance and hip muscle strength	Lie on one side with the body straight and the lower arm beneath the head. Raise the upper leg slightly and move it forward and backward in a controlled movement without moving the trunk; repeat.	15 reps	3	45 s	2 min
9	Shoulder Bridge exercise: strength, stability, and balance	Lie on the back with the knees bent, feet on the ground at hip width, and arms beside the body. Gradually lift the pelvis upward, hold for 5 seconds, then slowly lower it to the ground and return to the starting position; repeat.	12 reps	4	45 s	2 min
10	Relaxation and cool-down exercises	Stretching of body parts + light jogging	5 min			