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# Development of Agility and Speed Through Fundamental Phase LTAD Training in Young Girls: A School-Based Experimental Study

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**Abstract**
The current research investigated the impact of a 12-week fundamental phase Long-term Athlete Development training program on agility and speed of young girls between 6 and 9 years in Punjab Pakistan. Randomized pretest- posttest controlled experimental design was used. A sample population of 40 participants was randomly selected into the experimental group (n = 20), and control group (n = 20). The experimental group was involved in a structured intervention based on LTAD, and the control group provided normal school operations. The Illinois Agility Test and 20-meter dash test were used to measure agility and speed, respectively. Independent samples t-tests did not reveal any significant differences between the groups at baseline ($p > .05$). Paired-samples t-tests showed that speed ($t = 23.19$, $p < .001$, $d = 5.19$) and agility ($t = 49.83$, $p < .001$, $d = 11.15$) were significantly improved in the experimental group as compared to the control group. Repeated measures ANCOVA demonstrated significant Time × Group interaction effects for speed ($F = 269.04$, $p < .001$, $\eta^2 = .876$) and agility ($F = 1241.33$, $p < .001$, $\eta^2 = .970$). It shows that Fundamental phase LTAD training is effective in enhancing performance of young girls with the use of physical literacy.
**Keywords:** Child; physical literacy; motor skills; agility & speed training.

## INTRODUCTION

It is believed that early childhood is a very crucial development period when you can develop competence in movements, physical fitness and lifelong involvement in physical exercise. This is a time when a child undergoes rapid events in neuromuscular and motor development, which is why a structured movement-based intervention that enhances physical literacy and athletic competence is best currently (Clark and Metcalfe, 2002; Gallahue et al., 2019). Scientists have highlighted that those children who acquire good primordial movement skills at a young age are more inclined to join the sphere of sport, stay physically active,


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and display more impressive health-related fitness in their adult life (Lubans et al., 2010; Robinson et al., 2015). As a result, movement skills development in childhood has emerged as a significant field of study across sports sciences, pediatric exercising studies as well as physical education.

In this respect, the Long-Term Athlete Development framework has received a lot of international acceptance as a progressive model with which to develop athletic potential at various phases of development and maturity. According to the LTAD model, children are supposed to go through developmental stages of age that are planned based on biological readiness, motor learning potential and psychological maturity (Balyi et al., 2013; Ford et al., 2011). The Fundamental stage, which mostly concerns children of the age 6–9 years, is one of the most crucial stages of this framework that is geared toward the development of a basic set of movement skills through fun and entertaining developmentally specific activities (Lloyd et al., 2015). The Fundamental stage focuses on locomotor, stability, and object-control skills acquisition which provides the foundations of future sports participation and development of physical literacy.

Agility and speed are among the key elements of physical literacy that have been the core performance-related skills in childhood. Agility is defined as the ability to shift direction rapidly and remain balanced and in control of the body and speed is the ability to move or travel something over some distance in the shortest time possible (Sheppard & Young, 2006). Such skills are directly linked to neuromuscular coordination, response, motor control, and athletic preparedness which emerge at a high rate in early childhood (Myer et al., 2013). Past studies have shown that structured movement-based training programs can have a significant beneficial effect on the performance of children in terms of agility and speed in situations where interventions are developed and in a systematic manner (Logan et al., 2012; Tompsett et al., 2017).

Moreover, physical activity interventions in schools have been a growing concern due to the availability of growing environments in schools to facilitate the development of motor skills among children. It was suggested that school-based movement programs may have a positive impact on the results of motor competence, physical fitness, and physical literacy outcomes, provided that the activities are structured based on developmental principles as opposed to the traditional models of repetitive exercise (Hulteen et al., 2018; Cairney et al., 2019). Childhood agility and speed enhancements can also help to increase sports participation, movement confidence and moderate-vigorous physical activity engagement in the long-term (Stodden et al., 2008).

Although there is an increasing global interest in the LTAD and development of physical literacy, few studies have specifically appreciated the effectiveness of Fundamental phase LTAD interventions in the context of young girl in developing nations like Pakistan. The Pakistani educational environment of physical education in most schools still depends on the traditional system of teaching that may not feature pre-developed evidence-based movement training to meet children's developmental requirements. Furthermore, Pakistani girls often experience sociocultural, environmental, and institutional restrictions limiting the chance to engage in arranged sports and formalized physical exercises. This can have adverse effects on the growth of key movement skills like agility and speed in earlier childhood.

The other weakness of the literature available is that numerous past studies



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concentrated on generalized physical literacy constructs by measuring a few variables at a time, such as balance, coordination, flexibility, and muscular fitness (Barnett et al., 2016; Whitehead, 2010). Whereas these studies are useful at giving an understanding of motor development in general, many times they would complicate the process of establishing the efficacy of Fundamental based interventions on agility and speed separately. As agility and speed are crucial parameters of readiness to athletics, the skill of its movement, concentrated research of these parameters could give more objective practical keys to the efficiency of the LTAD-based training in childhood.

The Fundamental phase of LTAD offers a certain theoretical and practical approach to enhancing agility and speed as it is characterized by the focus on having fun during movement, multidirectional movement activities, sprints, reaction-based exercises, and locomotor skills development that is adequate to young children (Balyi et al., 2013; Lloyd et al., 2015). These interventions can improve neuromuscular responses, movement efficiency, and motor learning and at the same time boost motivation and engagement of children in physical activities. Also, integrating Fundamental-oriented training in schools can present a feasible approach to enhancing physical literacy achievements in young girls in the context of Pakistani schools.

Hence, the purpose of the present study was to investigate the efficacy of 12-week Fundamental phase LTAD training intervention on the attainment of agility and speed in young girls aged 6 to 9 years in Punjab, Pakistan through a school-based experimental design. The research results could present meaningful information in the form of evidence to teachers of physical education, coaches, policy makers, and curriculum designers on the relevance of well-structured interventions about support of physical literacy and early athletic maturation in women children using LTAD based interventions.

## Theoretical Framework

Long-Term Athlete Development, physical literacy and theories of motor development are theoretical frameworks upon which the present study will be based. These models all suggest that during early childhood, the structured interventions involving movement phenomena can have a strong positive impact on athletic skills, movement dexterity, and future engagement in physical exercise by children. In particular, the present research is dedicated to the discussion of the Fundamental stage of LTAD and its impact on agility and speed development in young girls aged 6 -9 years.

The initial LTAD model, being the work of Balyi and his team, states that the development of discipline should proceed with age-based stages of maturity and preparedness in motor skills (Balyi et al., 2013). In this model, the Fundamental stage can be regarded as a decisive stage of development since children are more prone to enhanced neuromuscular development, the development of coordination, and the ability to learn the different motor skills in their early childhood (Ford et al., 2011). This stage is mainly concerned with the building of basic movement skills based on fun, structured, and developmentally correct physical activities in lieu of early sport specialization.

The theoretical framework of the Fundamental stage is significantly connected with the notion of physical literacy that involves motivation, confidence, physical aptitude, knowledge, and awareness to participate in physical activity throughout the whole lifetime (Whitehead, 2010). According to



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the physical literacy theory, children who gain movement competence in their early years are better placed to experience active lifestyles and succeed in sports and other recreational activities in later life (Cairney et al., 2019). Agility and speed are regarded as critical movement skills in the context of physical literacy in that they are among the competencies that create movement efficiency, reaction ability, locomotor mastery, and athletic preparedness.

Motor development theory, especially the theory of the Mountain of Motor Development, posited by Clark and Metcalfe (2002) supports the study too. In this theory, the acquisition of movement skills is the same step by step beginning with the simple reflexive movements, progressing to the very basic movement patterns and finally to the specialized sport skills. Early childhood is a sensitive period of development where children learn and perfect locomotor skills which include: a child learning how to run, accelerate, decelerate and change direction. The theory also describes that poor movement experiences at this stage can be a source restricting future athletic competence and engagement in physical activities.

Neuromuscular adaptation and motor coordination processes are closely related to agility and speed development. In childhood, the nervous system is very plastic, and, because of active and systematic training, children can quickly achieve greater efficiency in their movements, reaction time, stride frequency, balance, and an ability to move in one direction or another (Myer et al., 2013). Past studies have indicated that successful movement interventions including sprints, multidirectional running, reaction-based and play movement exercises at a developmentally appropriate stage can have a huge effect on speed and agility in children (Logan et al., 2012; Tompsett et al., 2017).

The proposed framework indicates that the participation in a 12-week Fundamental phase LTAD intervention can be considered as an independent variable, whereas agility and speed represent the dependent variables. The intervention will involve formal locomotor and movement-based exercises aimed at evoking neuromuscular adaptation, motor coordination, reactions capability, and movement efficiency. Motor learning theoretics and LTAD would suggest that exposing children to suitable developmental movement exercises can be geared to enhancing their skills in accelerating, decelerating, quickly reversing direction, and performing locomotor movements more effectively.

Also, school-based intervention settings have theoretical significance as schools offer regular activities of practice movement, socialization and structured physical activities among children (Hulteen et al., 2018). Specifically, to the Pakistani schools, especially in the female population, organized LTAD-based interventions can assist those who have very few chances of participating in organized physical activity due to sociocultural and environmental constraints.

Consequently, the theoretical framework of the current study suggests that attendance at Fundamental phase LTAD training is positively correlated with agility and speed development among young girls because they can learn to improve motor learning, neuromuscular coordination, movement competence, and physical literacy through formal and age-related movement experiences.


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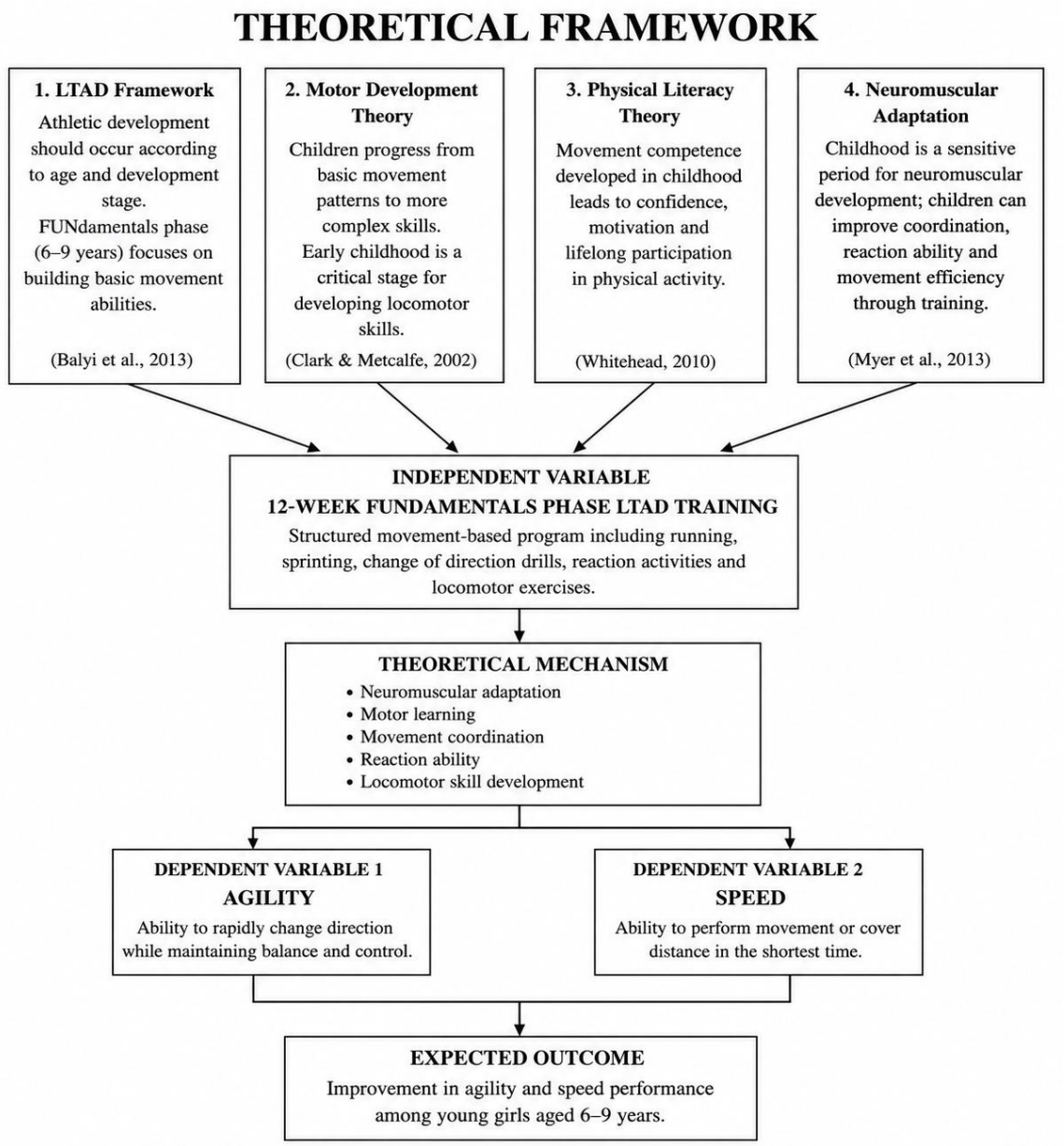


***Figure 1. Theoretical Framework Pathway***

## Methodology

### Research Design and Setting

The current research design featured a randomized, pretest, post-test, controlled experimental design to analyze the effects of a 12-week Fundamental phase Long-Term Athlete Development training program on agility and speed in young girls aged 6-9 years old. The research was done in the selected schools of Punjab Pakistan that are primary schools. The entire pretesting, post testing and intervention procedures were done at school playgrounds and sports grounds with an environment that was like reducing any external variability and measurement bias. Preferably, testing was done at the same time of the day with standardized testing procedures and the same testing equipment. The study independent variable was 12 weeks Fundamental phase LTAD training intervention and the dependent variables were agility and speed.


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**Participants of the Study**

Forty (40) young girls, aged 6-9 years, were used in the current study. By means of purposive sampling based on the specific inclusion and exclusion criteria, which fit the Fundamental phase of Long-Term Athlete Development, participants were recruited. Informed consent by parents or guardians was obtained in writing beforehand whereas official permission was granted by the respective school administration. A priori analysis of statistical power was done using GPower to find out the required minimum sample size needed to do the research. It was analyzed at an alpha level (Type I error probability) of 0.05, statistical power (1 102) of 0.80, and an intermediate effect size (d =0.50) which showed that the chosen sample size was adequate to identify statistically significant intervention effects. To address the possibility of a participant dropout at the time of the interventions, an extra recruitment margin was taken at first; nevertheless, none of the participants dropped out of the research regime and were able to enter the end analysis. The participants were randomly divided into two equal groups, experiment (EG, n = 20) and control (CG, n = 20). The experimental group underwent the 12 weeks interventional Fundamental phase LTAD training, but the control group remained on their regular school based physical activity, with no specifically designed activities. The following criteria were used to select the participants: girls aged between 6 and 9 years, seemingly healthy, at regular school, not enrolled in formal sports academy or organized physical training and athletics, physically fit to entertain the movement exercises, informed consent by parents or guardians. The individuals could not take part in the study when they sustained musculoskeletal injuries, physical disabilities, and neurological or cardiovascular factors that could limit physical activities or they were participating in organized sports training, missing the pretest or posttest, and did not complete the intervention protocol.

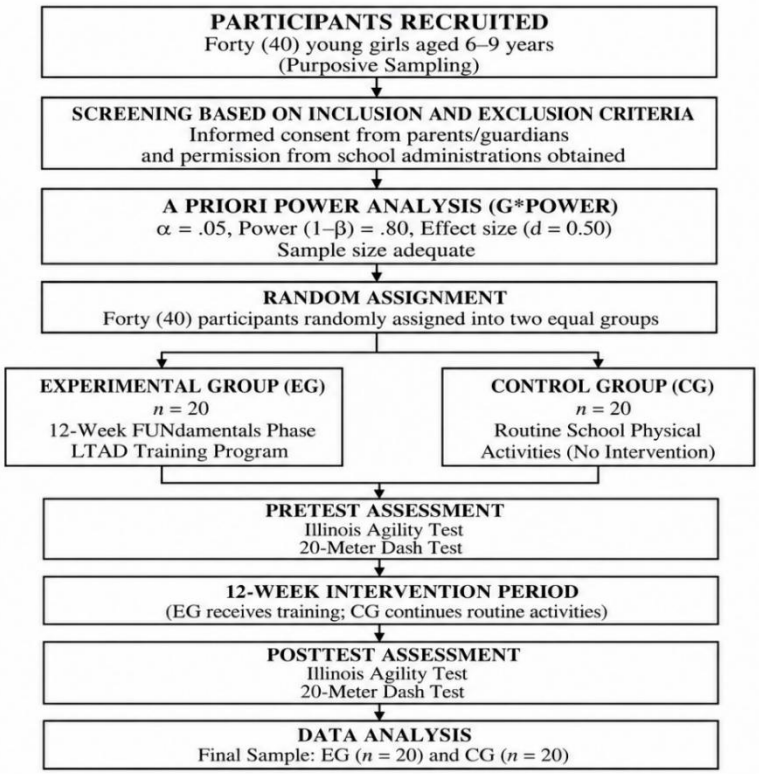


***Figure 2. Flowchart of the Participants through Trial***



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**Intervention Protocol**

The experimental group had a structured Fundamental phase LTAD training program of 12 consecutive weeks. Training was done three times a week on alternate days under the guidance of the researcher and trained assistants. They were about 45-60 minutes in length, comprising warm-up and the main session of activity and cool-down.

The intervention strategy was tailor-made based on LTAD Fundamental concepts regarding fun, developmentally suitable and movement-based activities that are appropriate for those 6-9 years old. The exercises and activities that took place during the training sessions were sprints, multi-directional running, acceleration and deceleration, cone, reaction movement based, locomotor, relay run, chasing games, and agility-oriented exercises.

During the implementation period, the intensity of training and complexity of activity were gradually raised depending on the progress of developmental abilities of participants. Prior to each activity, verbal instructions and demonstrations of movement were given to achieve uniformity and safety when implementing training activities.

The control condition was regular school programs of physical activities and none of the participants were engaged in any organized LTAD- orientated intervention throughout the study time.

**Assessment Procedures**

One week prior to the intervention, pretest assessments were undertaken, and at the end of the 12-week training program, post tests were done. All tests were preceded by the completion of a standardized warm-up. Each test was done in a similar testing and environmental condition.

**Illinois Agility Test**

The Illinois Agility Test was used to test the performance of the participants in terms of agility (Horička et al., 2014). The participants were at a high stance with one of the feet positioned behind the start line. When the signal was given Ready-Set-Go, they sprinted Cone 1 to Cone 2 that was 10 meters away and moved towards Cone 3. The participants then circled cones 3,4, and 5 and went back through cones 4 and 3. Lastly, the participants were allowed to run to Cone 6 and finish the test at Cone 7. A stopwatch was used to record the total time it took to complete the course to the nearest one-hundredth of a second (0.1 s). Every participant has done two trials with proper intervals in between the attempts and the optimum time taken in a trial was taken to analyze.

**20-Meter Dash Test**

The experiment was carried out with the 20-meter dash test to test the speed performance of the participants (Teich et al., 2023). A high standing position was adopted, with one foot behind the starting line. After the word Ready-Set-Go, participants ran as fast as possible in a 20-meter distance. A stopwatch was used to measure the performance time at the closest tenth of a second (0.1 s). Each participant was given two trials separated by adequate rest intervals between sessions and the optimal time was violated to analyze the statistics.

**Data Analysis**

IBM SPSS Statistics was the tool employed in data analysis. All the variables


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were used to calculate descriptive statistics mean and standard deviation (Mean ± SD).

Assumptions of normality, homogeneity, and the distribution of outliers were tested before making inferential analysis. Normality of data was determined through the Shapiro Wilk test, and the homogeneity was through the Levene test. Mahalanobis distance was used to test the presence of multivariate outliers to make the data suitable to undergo parametric tests.

Independent samples t-tests were carried out to establish baseline similarity between the test and control groups at pretest. Within groups, pretext and posttest differences were checked by using paired samples t-tests, between groups, an independent samples t-test was applied to analyze the differences in posttest performance.

Moreover, Cohen d effect size was evaluated to identify the intervention effects magnitude and explained using a set of criteria: small (0.20), medium (0.50), and large (0.80). All analyses were established on statistical significance $p < .05$.

## RESULTS AND DISCUSSION

**Table 1:** ***Baseline Comparison of Demographic and Physical Literacy Variables Between Experimental and Control Groups (N = 40)***

| Variable | Group | n | Mean ± SD | Mean Difference | t | p | 95% CI of Difference | Cohen's d |
|---|---|---|---|---|---|---|---|---|
| Height (cm) | EG | 20 | 119.85 ± 1.48 | 0.25 | −0.49 | .620 | [−1.28, 0.78] | 0.15 |
| | CG | 20 | 119.60 ± 1.73 | | | | | |
| Weight (kg) | EG | 20 | 23.02 ± 0.71 | −0.01 | −0.03 | .970 | [−0.51, 0.49] | 0.01 |
| | CG | 20 | 23.02 ± 0.92 | | | | | |
| BMI (kg/m²) | EG | 20 | 16.12 ± 0.20 | 0.06 | 0.99 | .320 | [−0.06, 0.18] | 0.31 |
| | CG | 20 | 16.06 ± 0.18 | | | | | |
| Agility (sec) | EG | 20 | 22.56 ± 0.45 | −0.13 | 1.08 | .289 | [−0.11, 0.37] | 0.34 |
| | CG | 20 | 22.69 ± 0.29 | | | | | |
| Speed (sec) | EG | 20 | 6.25 ± 0.18 | 0.02 | 0.26 | .794 | [−0.10, 0.13] | 0.08 |
| | CG | 20 | 6.24 ± 0.18 | | | | | |

Table 1 showed no significant baseline differences between the experimental and control groups in height, weight, BMI, agility, or speed ($p > .05$), indicating group equivalence before the intervention.


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**Table 2:** ***Pretest and Posttest Comparison of Research Variables Within EG and CG***

| Variable | Group | Pre-test Mean ± SD | Post-test Mean ± SD | Mean Change | t | P | 95% CI | Cohen's d |
|---|---|---|---|---|---|---|---|---|
| Speed (sec) | EG | 6.25 ± 0.18 | 5.69 ± 0.18 | −0.57 | 23.19 | < .001 | [−0.62, −0.51] | 5.19 |
| | CG | 6.24 ± 0.18 | 6.24 ± 0.17 | 0.00 | 0.00 | 1.000 | [−0.05, 0.05] | 0.00 |
| Agility (sec) | EG | 22.56 ± 0.45 | 20.88 ± 0.48 | −1.68 | 49.83 | < .001 | [−1.75, −1.61] | 11.15 |
| | CG | 22.69 ± 0.29 | 22.68 ± 0.32 | 0.00 | 0.00 | 1.000 | [−0.07, 0.07] | 0.00 |

The experimental group demonstrated significant improvements in speed and agility from pretest to posttest ($p < .001$) with very large effect sizes, whereas the control group showed no significant changes ($p > .05$).

**Table 3:** ***Posttest Comparison Research Variables Within EG and CG***

| Variable | EG Mean ± SD | CG Mean ± SD | Mean Difference (EG−CG) | t | p | 95% CI | Cohen's d |
|---|---|---|---|---|---|---|---|
| Speed (sec) | 5.69 ± 0.18 | 6.24 ± 0.17 | −0.55 | 23.19 | < .001 | [−0.60, −0.50] | 3.12 |
| Agility (sec) | 20.88 ± 0.48 | 22.68 ± 0.32 | −1.81 | 49.83 | < .001 | [−1.88, −1.74] | 4.47 |

Posttest comparisons revealed significantly better speed and agility performance in the experimental group compared with the control group ($p < .001$), with large effect sizes favoring the intervention group.

**Table 4:** ***Repeated Measures ANCOVA for Physical Literacy Variables Controlling for Height, Weight, and BMI***

| Variable | Effect | Df | F | p | Partial $\eta^2$ | 95% CI Partial $\eta^2$ |
|---|---|---|---|---|---|---|
| Speed | Time | 1, 19 | 537.97 | < .001 | .966 | [.93, .98] |
| | Group | 1, 38 | 0.07 | .794 | .002 | [.00, .05] |
| | Time × Group | 1, 38 | 269.04 | < .001 | .876 | [.79, .93] |
| Agility | Time | 1, 19 | 2482.65 | < .001 | .992 | [.98, .99] |
| | Group | 1, 38 | 1.16 | .289 | .030 | [.00, .12] |
| | Time × Group | 1, 38 | 1241.33 | < .001 | .970 | [.94, .98] |

Repeated measures ANCOVA revealed significant Time × Group interaction effects for both speed and agility ($p < .001$), indicating that the 12-week Fundamental phase LTAD intervention significantly improved performance after controlling for height, weight, and BMI.


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**Discussion**

The current research investigated the impacts of 12 weeks Fundamental phase Long-Term Athlete Development training program on the agility and speed in young girls between 6 and 9 years old. The results showed there was a significant improvement in agility and speed of the those who turned up in the experimental group as compared to the control group. These results indicate that well-designed LTAD-based movement programs can be effective in improving performance capabilities of physical literacy in early childhood.

The observed huge enhancement of agility among the experimental group confirms the theoretical premise of LTAD, that the Fundamental stage is a crucial phase of development that involves developing locomotor skills, as well as coordination and movement proficiency, in the form of age-related activities (Balyi et al., 2013; Lloyd et al., 2015). Neuromuscular coordination, ability to react and efficiency in multiple directions are closely linked with agility development in childhood (Sheppard and Young, 2006). The current results suggest that, when done regularly, sprinting, change-of-direction, and movement-based games can have a significant beneficial effect on the ability of children to quickly switch the direction of their bodies, without losing control of the movement.

Equally, the substantial change in speed performance after the intervention is in line with the past evidence where childhood is a delicate stage in developmental changes in speed and motor learning adaptations (Ford et al., 2011; Myer et al., 2013). The increase in the sprint performance seen in the experimental group could have been explained by the increasing neuromuscular efficiency, coordination of the strides, and acceleration capacity and development of locomotor skill values due to systematic movement training. The results complement the available information indicating that organized movement programs have a positive impact on sprinting, and locomotor performance in children (Logan et al., 2012; Tompsett et al., 2017).

The present results are further in line with motor development theory of Clark and Metcalfe (2002) that postulates that children develop out of primitive movement patterns to more advanced motor competence by means of organized movement experiences. Such a developmental process could have been promoted by the activities applied during the Fundamental phase used in the current study whereby the repeated practice of locomotor movements, reaction activities, and coordinated motor actions could have been achieved.

Lack of major differences in the control group is also a supporting factor to the effectiveness of the intervention program. The control group members maintained regular school physical activities and did not have organized and LTAD-based movement training and did not show any statistically significant shifts in agility and performance in speed. This observation emphasizes the need to use systematic and developmentally suitable movement-based interventions, instead of using standard school physical activities as the sole interventions to enhance physical literacy outcomes.

The identified results are also justified by physical literacy theory that movement competence acquired in childhood helps to become confident, motivated, and physically active throughout life (Whitehead, 2010; Cairney et al., 2019). Agility and speed enhancements can thus do more than just provide athletes with improved performance but could also lead to increased sports participation and active lifestyles in later stages of development.



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Similar positive associations of movement competence and participation in physical activities among children have also been reported in previous studies (Lubans et al., 2010; Robinson et al., 2015; Sheehan et al., 2021). The current findings are a continuation of this literature by offering experimental evidence in the context of Pakistani school environments, specifically in relation to young girls, whose access to structured interventions based on movement has only been reported to be limited in the past. Considering the sociocultural and environmental obstacles that interaction by girls into structured physical activity is, in most cases, inhibited by, the introduction of school-based LTAD interventions can be one of the potential tools of promoting physical literacy and athletic development among this group.

Moreover, the effect sizes and Time × Group interaction effects of the repeated measures ANCOVA are extremely large, showing that the intervention had a significant practical effect that could not be influenced by demographic covariates like height, weight and BMI. These results indicate that the positive performance change observed could be mostly ascribed to a well-organized Fundamental phase LTAD intervention instead of a natural growth-related improvement.

On balance, the results of the current study confirm the usefulness of Fundamental phase LTAD training to enhance the agility and speed of young girls aged 6-9 years. The paper shows the significance of physical literacy and early athletic development programs in schools through the means of organized, entertaining, and developmentally free movement programs that are underway.

## Conclusion

The current research concluded that the Long-Term Athlete Development training program (12 weeks of Fundamental) had a significant positive effect on agility and speed in young female athletes (6-9 years). The experimental group exhibited significant differences in the two variables of physical literacy in comparison to control group, thus providing evidence to the validity of structured, developmentally appropriate, movement-based training in early childhood.

Results indicate that Fundamental phase LTAD interventions have the potential to positively improve locomotor performance, movement efficiency and neuromuscular coordination in young children when implemented systematically in the school. Conversely, the physical activities in schools (without structured LTAD-oriented programming) resulted in small improvements in the agility and speed performances.

In general, the research paper shows the necessity of having structured Fundamental phase LTAD training as a part of the school physical education programs, which would foster physical literacy and early athletic development of young girls. The results can be a useful intervention in practicing physical education teachers, coaches, curriculum developers and policymakers aiming to enhance movement competence and participation of children in long-term physical activities.

## Limits and Future Prospects

There are several limitations to the current research. First, the sample used in the study was quite low involving only a small group of young girls in a chosen few schools of Punjab, Pakistan, raising doubts on the overall applicability of the


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results to other samples and school education. Second, the research concentrated on variables of agility and speed and other crucial elements of physical literacy like balance, coordination, strength of the muscles and flexibilities were not investigated. Also, the intervention period was not longer than 12 weeks which does not allow gaining deeper insight into the prolonged consequences of Fundamental phase Long-Term Athlete Development training on physical literacy development of children. Future research is suggested to focus on larger and more heterogeneous samples, the introduction of new physical literacy variables, and utilize longitudinal research designs to investigate the long-term impact of the interventions based on the LTAD on various groups of children in different settings.

## Recommendations

1. To enhance physical literacy, agility, and speed in young girls, it is suggested that activities of Fundamental Phase Long-Term Athlete Development should be included in school physical education to help them become agile, fast, and skilled.
2. It is also suggested that the teachers of physical education and youth coaches should be professionally trained in the principles of LTAD and the age-specific movement-oriented training techniques that are useful to adopt in school.
3. In addition, schools are also advised to give systematic movement activities on a regular basis like sprint drills, agility training, locomotor workouts, and movement games to contribute to movement proficiency in the early childhood years.
4. It is also suggested that future research should examine the long-term outcomes of Fundamental phase LTAD interventions using bigger samples, other variables of physical literacy and longitudinal research designs.

## Acknowledgement

The authors wish to extend their special thanks to the school administrations, the participants and parents who befriended and supported the study. All young girls who took an active part in the intervention and testing processes showed appreciation. The authors also recognize the help of physical education staff and research assistants that were used to make the process of training sessions and data collection a success.

## Conflict of Interest

The researchers state there is no conflict of interest about publishing this research study.

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