Integrated Training Plan for Youth Soccer Players: Focus on SABC
*Universitas Negeri Yogyakarta (Indonesia), **STKIP Taman Siswa Bima (Indonesia)

Abstract. Structured and effective physical training is the primary key to unlocking their full potential on the field. SABC can help young football players improve their reaction speed to on-field situations, enhance ball control with greater accuracy and effectiveness, and make more precise and timely passing decisions. Furthermore, it helps improve the ability to create goal-scoring opportunities and enhance high-speed running and dribbling skills, enabling them to attack the opponent's defense more effectively. This research aimed to design an integrated training program focused on Speed, Agility, Balance, and Coordination. The study's respondents consisted of 30 young football players aged 15.5 ± 0.5 years. The experimental training program was conducted twice a week for 12 weeks, with initial and final measurements taken. This training included various exercises focused on Speed, Agility, Balance, and Coordination. The data analysis results indicated that the SABC training had a significantly positive impact on player skill improvement. This training program helps develop more comprehensive and high-quality players in various aspects of the game. The findings of this research have important practical implications for coaches, football organizations, and young players looking to improve their SABC skills. In future research, there may be room to further understand the role of each aspect of SABC in improving the performance of young football players.

Keywords: Performance improvement; Speed; Agility; Balance; Coordination.

Introduction
Improving the performance of young soccer players is a goal constantly pursued by coaches, players, and soccer organizations. Structured and effective physical training is the primary key to unlocking their full potential on the field (Georgiy Polevoy et al., 2024). Speed, agility, balance, and coordination (commonly abbreviated as SABC) are critical skill elements in modern soccer (Barrera et al., 2020; Sulistiyono et al., 2022). SABC can assist young soccer players in improving their reaction speed to on-field situations, enhancing more accurate and effective ball control, and making more precise and timely passing decisions (Robertson et al., 2015). It also helps in increasing the ability to create goal-scoring opportunities and enhances the skill of running and dribbling at high speeds, enabling them to attack the opponent's defense more effectively (Fernández-Cortés et al., 2022; Gaudion et al., 2017; Chalmers & Magarey, 2016; de Macedo et al., 2022). Speed is an individual's ability to perform continuous movements in a short amount of time (Wang & Shi, 2021). It involves changing positions rapidly in various directions (Sandera et al., 2022). In soccer, speed is utilized to dribble the ball past the opponent's defense, chase down opponents disrupting the game strategy by returning to their initial positions, or engage in sprint duels to quickly close down the opponent's space (Bate & Ian, 2015; Yildiz et al., 2018). Agility, on the other hand, allows for quick changes in direction while maintaining balance without losing speed (Pokrajčí et al., 2018). Agility can be defined as the ability to perform relatively short movements with nimbleness (Altman et al., 2022). In other words, agility is the capacity to swiftly change direction while in motion without losing balance, along with an awareness of one's body position (Pamungkas et al., 2023; Wibowo Eko Yulianto et al., 2019; Fiorilli et al., 2017).

Balance in soccer is a player's ability to maintain their body position stably while performing various movements such as dribbling, running, dribbling the ball, or in game
situations like dueling with opponents (Michie & Oughton, 2015). Good balance enables players to remain in control and responsive to changes in direction or pressure from opponents, allowing them to carry out their tasks more effectively in the game (Gerrard & Kringstad, 2022). Balance also plays a crucial role in maintaining stability when taking shots or attempting to defend or gain possession of the ball from opponents (Naghshbandi et al., 2011), in conjunction with proper coordination.

Coordination is one's ability to combine various movements into a single unified motion (Sudirman et al., 2022). In soccer, coordination is the ability to harmonize various soccer-playing skills by utilizing several components of physical fitness to deliver optimal gameplay (Rodriguez et al., 2019; Bojkowski et al., 2022). Generally, coordination related to soccer involves eye-foot coordination (Ghorpade et al., 2021). The relationship between eye-foot coordination, speed, agility, and dribbling skills leads to a series of synchronized movements in dribbling the ball. This means that players can utilize their speed in dribbling the ball to penetrate the opponent's defensive third (Sari et al., 2024; Nur-kadri et al., 2021). The four aspects or SABC mentioned above enable players to perform well.

One of the challenges in designing an SABC training program for young soccer players is considering their physical and coordination development. Children or teenagers have the ability to learn and adapt quickly, but they also have physical limitations that need to be taken into account (Ceballos-Gurrola et al., 2020). Another challenge is designing a training program that is engaging and enjoyable for young players, which requires coaches to be more creative (Deborah et al., 2023). The difference in this research compared to other studies is that, up to now, existing studies have mainly focused separately on each of the SABC skills (Martinez-Pérez & Vaquero-Cristóbal, 2020).

Several content analyses of books have already been conducted. Some of these studies have been conducted in various countries. For instance, in India, Arumugam & Suriya, (2018) demonstrated that speed training significantly improves the running speed of young soccer players. In the USA, research by Padron-Cabo et al., (2020) indicated that agility training can enhance the ability of young soccer players to evade opponents. In Germany, Schedler et al., (2020) showed that balance training can improve the body stability of young soccer players. Finally, in Turkey, Köksal et al., (2021) found that coordination training can enhance the ability of young soccer players to coordinate their body movements. However, these studies tend to focus more on the development of individual SABC aspects. Therefore, training programs should be designed progressively and tailored to the players' developmental levels so that all four aspects can be integrated into the training. The objective of this research is to design an integrated training program that focuses on Speed, Agility, Balance, and Coordination (Barrero et al., 2021).

**Method**

In this study, the respondents consisted of 30 young soccer players aged 15.5 ± 0.5 years, with a height of 166.5 cm ± 6.6 cm, and a weight of 40.5 ± 7.9 kg. The respondents were members of a soccer club from Bima Regency, West Nusa Tenggara, in the "U-15" age category. They trained twice a week, and their soccer playing experience ranged from 1 to 2 years.

The experimental training was conducted twice a week for 12 weeks, with initial and final measurements taken one week before or after the treatment. The training sessions were held in an open field, at the main stadium of "Kabupaten Bima," with natural grass. Respondents trained using a size 4 soccer ball, which has a diameter of 25-26 inches (63.5-66 cm) and weighs approximately 0.33-0.36 kg. The treatment period extended from 18 January until 13 July 2023 covering 48 days. Training sessions were held in the afternoon at 14:00. The duration of each training session was approximately 60 minutes, divided into three parts: introductory preparation (25 minutes), the main part (30 minutes), and the final part (5-10 minutes). The SABC program can be seen in Table 1.

This research utilized instruments corresponding to the studied variables, including: 1) sprints, 2) quick change of direction drills, 3) recovery exercises, 4) agility ladder and cones, 5) dribbling drills with change of direction, 6) eye and foot coordination exercises, 7) one- leg balance exercises, 8) defensive drills and small-sided games, 9) core muscle strengthening, 10) passing and receiving drills with a focus on eye-foot coordination, 11) small-sided games that require players to coordinate with their teammates, and 12) field tests to measure improvement in SABC.

| Table 1: SABC 12 week improvement training program. |
|---------------------------------|--------|----------------|----------------|
| **Weeks 1-3 Focus on Speed** | **Technique** | **Arrangement** | **Tools** |
| Sprints | In this sprint training, players will learn the correct sprinting technique, including optimal body positioning, proper starting posture, and the use of arms. They will be given target times to achieve specific distances. | Players are required to cover a distance of 40 meters. Number of sets: 6-8 sets. Rest Interval: 3-5 minutes between sets. Number of Repetitions: 1-5 repetitions per set. They will make several attempts to achieve the predetermined target time. | The coach will use a stopwatch to measure each player's time during the sprint. |
| Quick Change of Direction Drills | Players will practice running quickly while making sudden changes in direction. They will learn techniques for controlling the ball. | No special tools are needed, just a marker as a reference point. |

<table>
<thead>
<tr>
<th><strong>Sprint Arrangement</strong></th>
<th><strong>Tools</strong></th>
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<tbody>
<tr>
<td>The coach will use a stopwatch to measure each player's time during the sprint.</td>
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</table>

**Weeks 1-3 Focus on Speed**
Weeks 4-6: Focus on Agility

<table>
<thead>
<tr>
<th>Exercise</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye and Foot Coordination Exercises</strong></td>
<td>Players will practice using an agility ladder and cones on the field. They will train leg flexibility and agility by performing movements such as jumping, cone hopping, and other agility exercises quickly and precisely.</td>
</tr>
<tr>
<td><strong>Drills Dribbling with Change of Direction</strong></td>
<td>Players will practice dribbling the ball while making sudden changes in direction based on the coach's instructions or signals given. They will sharpen their dribbling skills while improving their ability to respond to changes in direction quickly.</td>
</tr>
<tr>
<td><strong>Balance Exercises on One Leg</strong></td>
<td>Players will practice maintaining balance on one foot while performing tasks like ball catching or dribbling. They must maintain their balance effectively while doing these tasks.</td>
</tr>
<tr>
<td><strong>Recovery Exercises</strong></td>
<td>After the high-intensity sprint training, players will engage in recovery exercises to reduce the risk of injury and muscle fatigue. This includes light massage, stretching, and other recovery exercises. Players will perform leg and back muscle stretches, light massage using a foam roller, and breathing exercises to aid in recovery.</td>
</tr>
</tbody>
</table>

Weeks 7-9: Focus on Balance

<table>
<thead>
<tr>
<th>Exercise</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td><strong>Defensive and Small Game Drills</strong></td>
<td>Players will participate in defensive drills and small-sided games that require body balance. They must maintain balance while defending against opponents or participating in small-sided games.</td>
</tr>
<tr>
<td><strong>Core Muscle Strengthening</strong></td>
<td>Players will engage in core muscle strengthening exercises such as planks and abdominal muscle workouts to enhance their body's stability. This will help strengthen the core muscles essential for maintaining balance.</td>
</tr>
</tbody>
</table>

Weeks 10-12: Focus on Coordination

<table>
<thead>
<tr>
<th>Exercise</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td><strong>Drills Passing and Receiving with a Focus on Eye and Foot Coordination</strong></td>
<td>Players will practice passing and receiving the ball with a focus on eye-foot coordination. They must ensure that their eyes are always on the target player or the player they are passing the ball to, while their feet must play the ball accurately.</td>
</tr>
</tbody>
</table>

**FOOTBALL TRAINING EXERCISES**

- **Recovery Exercises**: After the high-intensity sprint training, players will engage in recovery exercises to reduce the risk of injury and muscle fatigue. This includes light massage, stretching, and other recovery exercises. Players will perform leg and back muscle stretches, light massage using a foam roller, and breathing exercises to aid in recovery.

- **Eye and Foot Coordination Exercises**: Players will practice using an agility ladder and cones on the field. They will train leg flexibility and agility by performing movements such as jumping, cone hopping, and other agility exercises quickly and precisely.

- **Drills Dribbling with Change of Direction**: Players will practice dribbling the ball while making sudden changes in direction based on the coach's instructions or signals given. They will sharpen their dribbling skills while improving their ability to respond to changes in direction quickly.

- **Balance Exercises on One Leg**: Players will practice maintaining balance on one foot while performing tasks like ball catching or dribbling. They must maintain their balance effectively while doing these tasks.

- **Weeks 4-6: Focus on Agility**: In this exercise, players will be instructed to run to the right or to the left whenever the coach shouts or signals. This aims to train their understanding of the necessary changes in direction that may occur in a game situation. The exercise is conducted over a distance of 20-30 meters, including changes in direction as an integral part of the drill. It is recommended to complete 4-6 sets of the exercise, with a recovery break of about 2-3 minutes between sets. Each set consists of 4-6 repetitions, providing players with the opportunity to sharpen their change of direction skills with the appropriate intensity.

- **Weeks 7-9: Focus on Balance**: In this exercise, players will stand on one leg while catching a ball thrown by the coach or dribbling the ball with one foot. The exercise involves tasks such as catching the ball and is performed within a distance of no more than 5 meters. It is recommended to complete 4-6 sets of the exercise, with a recovery break of about 2-3 minutes between sets. Each set consists of 6-8 repetitions, providing players with the opportunity to refine their skills in catching and dribbling the ball with one foot more effectively.

- **Weeks 10-12: Focus on Coordination**: In this exercise, players will pair up, with one player tasked to throw the ball while the other must accurately receive and pass it back. The exercise is conducted within a distance of approximately 10-15 meters, involving the tasks of throwing and receiving the ball. It is recommended to complete 4-6 sets of the exercise, with a recovery break of about 2-3 minutes between sets.

**Practical Equipment**: Soccer ball, practice mats, cones, and markers.

**Soccer Ball and Coach Instructions**: The coach is required to provide instructions and supervision.

**Soccer Ball, Target, and Coach Instructions**: The coach is required to provide instructions and supervision.

**Coaching Notes**: The coach is recommended to monitor players and ensure they maintain the correct technique.

**Soccer Ball, Passing, Receiving, and Dribbling**: The coach is required to provide instructions and supervision.

**Weeks 7-9: Focus on Balance**: In this exercise, players will be instructed to perform 1-5 sets of the exercise, with a recovery break of about 1-2 minutes between sets. Each set consists of 8-12 repetitions, providing players with the opportunity to refine their accuracy skills while in motion, thus developing their eye-foot coordination more effectively.

**Soccer Ball, Target, and Coach Instructions**: The coach is required to provide instructions and supervision.

**Soccer Ball, Passing, Receiving, and Dribbling**: The coach is required to provide instructions and supervision.

**Practice Mats, Coach Instructions, and Coach Monitoring**: The coach is required to provide instructions and supervision.

**Soccer Ball, Passing, Receiving, and Dribbling**: The coach is required to provide instructions and supervision.
Players will participate in small-sided games that require them to coordinate with their teammates. This can include games like small-sided matches or mini-matches where players must work together effectively as a team to achieve specific goals, such as scoring goals or defending.

In the small-sided 3 vs 3 game, players must coordinate in terms of dribbling, passing, and scoring goals. The distance used depends on the type of small-sided game and is adjusted to fit a smaller field. It is recommended to complete 1-4 sets in this exercise. The recommended recovery break is 5-7 minutes between sets and an additional break after the small-sided game. The number of repetitions is adjusted based on the duration of the game, which may vary.

Field Test to Measure Improvement in the SABC

At the end of this period, players will undergo a field test designed to measure their improvement in speed, agility, balance, and coordination. This test may include sprints, agility drills, balance tests, and coordination assessments.

In the field testing session, players will be given time to complete various components of the test, such as sprinting around cones, jumping hurdles, or maintaining balance on one leg. The distance covered will be adjusted based on the type of field test being conducted and may involve various distances. It is recommended to complete 1-2 sets according to the different sections of the field test. Recovery breaks are recommended based on the individual needs of the players. The number of repetitions is adjusted based on the specific section of the field test being performed.

Stopwatch, agility ladder, koni, balance measurement equipment, court and trainer monitoring.

**Linearity Test**

The linearity test is conducted by comparing the calculated L-value from the data with the critical L-value at a significance level of α=0.05. If the L-value is less than the critical L-value (normal), it indicates a significant linear relationship between the training programs and the SABC field test results.

The analysis using F-value involves comparing the variability between groups (training programs) and the variability within groups (field test results). The formula used to calculate the F-value is $F = \text{Between-group Variability} / \text{Within-group Variability}$. In this context, the critical F-value is obtained from a critical distribution table with a significance level of α=0.05. If the calculated F-value is greater than the critical F-value, the conclusion is that there is a significant linear effect from the training programs. Therefore, this analysis provides a deeper understanding of the extent to which the training programs have a meaningful impact on improving the participants’ SABC skills.

**Regression Test**

Linear regression analysis is employed to assess the impact of Speed, Agility, Balance (SABC), and Coordination, respectively. In this equation, $\beta_0$ is the constant, and $\beta_1, \beta_2, \beta_3, \beta_4$ are the regression coefficients, which will be estimated to measure the influence of each independent variable on the dependent variable.

The research data for analysis comprises scores from SABC tests, including sprinting, quick change of direction drills, recovery exercises, agility ladder and cones, dribbling drills with change of direction, eye and foot coordination exercises, one-leg balance exercises, defensive drills and small-sided games, core muscle strengthening, passing and receiving drills with a focus on eye-foot coordination, small-sided games requiring coordination among players, and field tests to measure improvement. The description of the research data is presented in the table below.

Table 2 provides a statistical overview of the linearity test results between training programs and field test outcomes measuring improvement. Each training program involves 30 participants. The Speed program has an average time of 5.79 (standard deviation approximately 0.4), indicating low variability. The Agility program has an average of 17.85 (standard deviation 0.85), with slightly higher variability compared to the Speed program. The Balance program has an average of 17.45 (standard deviation 0.45), while the Coordination program has an average of 14.67 (standard deviation 1.45), showing slightly higher variability compared to other programs. The SABC field test results have an average of 10.4 (standard deviation 1.61).

**Results**

From Table 3, the calculated L-value is smaller than the
critical value ($\alpha=0.05$) for all variables (Speed, Agility, Balance, Coordination, and Y). This outcome indicates a significant linear relationship between the training programs

Table 3.
Test Results of Speed, Agility, Balance, and Coordination (SABC) Test Results

<table>
<thead>
<tr>
<th>Programs</th>
<th>Variable</th>
<th>Analysis Results</th>
<th>L Table Value (0.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed</td>
<td>X, Y</td>
<td>0.610</td>
<td>0.116</td>
</tr>
</tbody>
</table>

Table 4 indicates that the training programs have a significant linear relationship, measured through the field test results represented by variable Y. In each training program, the calculated F-value (indicating variability between and within groups) is greater than the critical F-value at a significant level of $\alpha=0.05$. This signifies a significant linear effect of the training programs on the improvement of SABC. In other words, these training programs significantly contribute to the positive development of SABC skills in the participants of this study.

Table 5 presents the results of linear regression analysis in this study, indicating that the training programs have a positive and significant impact on the improvement of SABC skills. The coefficients indicate the magnitude of the influence of each variable on the improvement of SABC. Specifically, the constant ($b_0$) is 33.40, while the coefficients for Speed ($b_1$), Agility ($b_2$), Balance ($b_3$), and Coordination ($b_4$) are 0.29, 0.39, 0.40, and 0.28, respectively. These coefficients reflect the change in the dependent variable (SABC) for a one-unit change in the respective independent variable, indicating that the improvement in agility, balance, and coordination of a soccer player is associated with an increase in the value of the SABC training program.

Table 5.
Improved SABC skills of Speed, Agility, Balance and Coordination (SABC)

<table>
<thead>
<tr>
<th>Models</th>
<th>Unstandardized Coefficients</th>
<th>B</th>
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Table 6
Correlation between Independent Variables and Dependent Variables

<table>
<thead>
<tr>
<th>Programs</th>
<th>Variable</th>
<th>rcount</th>
<th>rtable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed</td>
<td>X, Y</td>
<td>0.213</td>
<td>0.361</td>
</tr>
<tr>
<td>Agility</td>
<td>X, Y</td>
<td>0.326</td>
<td>0.361</td>
</tr>
<tr>
<td>Balance</td>
<td>X, Y</td>
<td>0.330</td>
<td>0.361</td>
</tr>
<tr>
<td>Coordination</td>
<td>X, Y</td>
<td>0.318</td>
<td>0.361</td>
</tr>
</tbody>
</table>

Table 7
Summary of Regression Analysis Results

Based on table 7, it shows that all independent variables in this study have a significant relationship together with the dependent variable.

Based on the data analysis results conducted between the independent variable Speed and the dependent variable SABC training program, the correlation coefficient value (r) obtained is 0.233, which is less than the critical value (r-table) of 0.361. Therefore, the null hypothesis (H0) is accepted. Similarly, based on the data analysis results between the independent variable Agility and the dependent variable SABC training program, the correlation coefficient value (r) obtained is 0.330, which is less than the critical value (r-table) of 0.361. Consequently, the null hypothesis (H0) is accepted. Moreover, based on the data...
analysis results between the independent variable Coordination and the dependent variable SABC training program, the correlation coefficient value (r) obtained is 0.318, which is less than the critical value (r_0.05,0.361) of 0.361. Thus, the null hypothesis (H_0) is accepted.

However, when collectively analyzing the data regarding Speed, Agility, Balance, and Coordination with SABC training program, the correlation coefficient (R) obtained is 0.507, which is greater than the critical value (r_0.05,0.361) of 0.361. As a result, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_a) is accepted.

**Discussion**

**Relationship of increased speed to SABC training**

Speed training programs play a crucial role in enhancing player abilities. (Gao, 2023). The data analysis results affirm that the emphasis on speed development has a positive impact on player skill enhancement. It’s not only about physical speed but also aspects such as quick reactions, acceleration, and movement precision. Loturco et al., (2015) in the realm of sports, speed frequently emerges as a determining factor for achieving success, and these findings underscore the significance of incorporating effective speed training programs in the development of players who are more competent and adaptable. In many athletic disciplines, the ability to move swiftly can make the crucial difference between victory and defeat. Therefore, an efficient speed training regimen not only improves physical swiftness but also cultivates quick reactions, rapid acceleration, and precise movements. By honing these skills, athletes can not only outpace their opponents but also respond adeptly to dynamic situations on the field, ultimately contributing to their overall competence and adaptability as players.

**Relationship of increased agility to SABC training**

The agility training program plays a crucial role in producing better football players (Thongnum & Phanpheng, 2022). Data analysis results indicate that focusing on agility development has a positive impact on players’ skill improvement. Agility is not just about physical ability but also involves coordination, quick directional changes, and the ability to adapt rapidly to changing situations on the field. Chaalali et al., (2016) explained that in dynamic football games, more agile players have an advantage in avoiding opponents, retaining possession of the ball, and contributing to both attack and defense. Therefore, incorporating an effective agility training program into the routine of football players is a significant step in optimizing their potential and enhancing overall performance.

**Relationship of improved balance to SABC training**

The balance training program plays an indisputable role in enhancing the abilities of football players (Gioftsidou et al., 2012). Data analysis results reveal that focusing on balance development has a positive impact on players’ skill improvement. Balance is not just about physically maintaining the body but also encompasses the ability to move with control and precision, even in high-pressure game situations. Gioftsidou et al., (2012) stated that in football, where every movement and touch of the ball holds significance, players with good balance can avoid injuries, make better decisions, and enhance their overall performance. Therefore, an effective balance training program is a key component in preparing football players to excel at higher levels and succeed in the game.

**Relationship of improved coordination with SABC training**

The coordination training program plays an undeniable role in enhancing the abilities of football players (Sobko et al., 2021). Data analysis results indicate that focusing on coordination development has a positive impact on players’ skill improvement. Coordination is not only about physical ability but also involves the right combination of muscles, vision, and understanding of game tactics (Gamonales et al., 2022). Tessitore et al., (2011) explained that in fast-paced and complex football games, players with good coordination can control the ball better, make smart decisions, and execute efficient movements on the field. An effective coordination training program is a crucial component in preparing football players to excel at higher levels and becomes a key element in improving their overall performance (Calle-jaramillo et al., 2024).

**Conclusion**

Consistently, the SABC (Speed, Agility, Balance, and Coordination) training program has shown a positive impact on improving players’ skills. These findings support the importance of a holistic approach to training football players. By focusing on key aspects such as speed, flexibility, balance, and coordination, this training program helps enhance players’ abilities in various aspects of the game. Data analysis results illustrate that when these variables are combined, they have a significant influence on overall SABC skill improvement. Therefore, the SABC training program can be considered an effective tool in developing high-quality and more comprehensive football players.

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