



LONG TERM ATHLETE DEVELOPMENT



BERMUDA BOWLING FEDERATION
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1. INTRODUCTION

Long-Term Athlete Development (LTAD) is a multi-stage training, competition and recovery pathway guiding an individual's experience in sport and physical activity and is a new concept for the sport of bowling in Bermuda. It considers growth, maturation and development, trainability and sport system alignment to enable optimal participation for every child, youth and/or adult. The LTAD framework recognizes that both high performance and lifelong engagement are built on the same foundation as physical literacy and understands that an effective sports system builds a solid foundation before moving toward sports specificity. Long-term athlete development understands that optimum development and success in sport is a long-term process that is achieved over the course of time through specific and well-planned programming.

The Bermuda Bowling Federation (BBF) and its members have embraced the Long-Term Athlete Development (LTAD) philosophy. They have collaboratively designed a model to address the developmental requirements of their athletes. The BBF firmly believes that implementing their LTAD plan provides a comprehensive developmental roadmap for bowling enthusiasts in Bermuda, capturing the distinct essence of the sport. This LTAD framework establishes a consistent and suitable structure, supporting both competitive athletes striving for medals and recreational players across various life stages.

LTAD is important for many reasons as it forms the foundation for national sport development by providing a framework and pathway for the progression of athletes, programs and related activities, and is closely linked to the successful implementation of five goals of the Bermuda National Sport Policy.

1. Increase participation

- It helps the participants make better choices of sport and activity that suit their interests, abilities, and goals.
- It promotes happier and healthier people who are active for life and contribute positively to society.

2. Achieve sporting excellence regionally

- It enhances the sporting achievements and performance of the athletes by providing optimal training and competition opportunities at each stage of development.

3. Improve access to sports facilities

- It reduces the chance of injuries and burnout by providing appropriate training and recovery based on the athlete's stage of development and individual differences.

3. Increase the value of sport

- It reduces the dropout rate from sport and physical activity by making it more fun, enjoyable, and diverse for the participants.
- It builds trust and confidence in the sports clubs and coaches that follow the LTAD framework and principles.

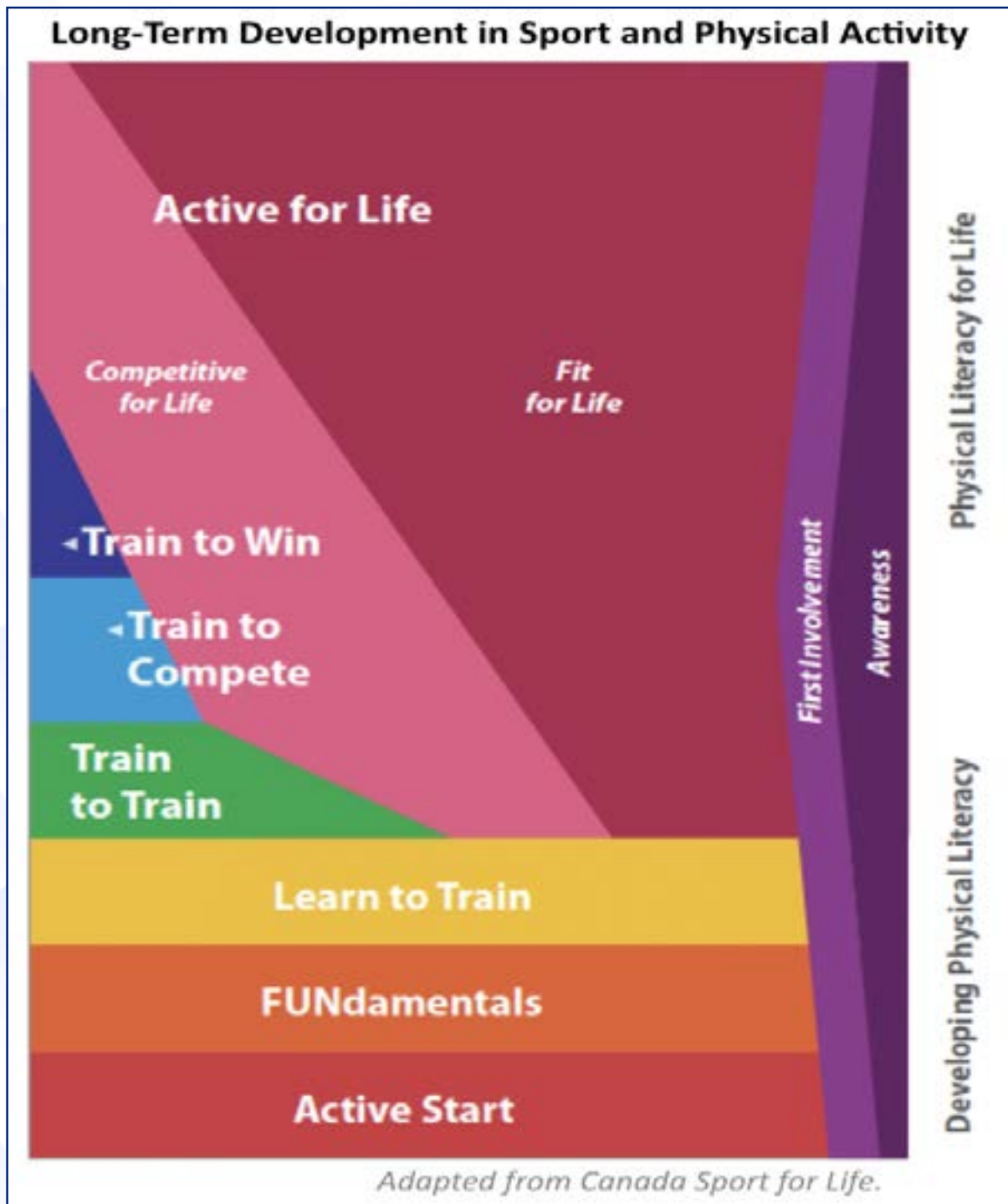
4. Establish a framework for talent development

- It increases the levels of physical literacy and fundamental movement skills in youth, which are essential for lifelong participation in sport and physical activity.

The lifelong pathway of LTAD can be outlined in seven progressive stages:

- **Stage 1:** Learning to Bowl
- **Stage 2:** Fundamentals
- **Stage 3:** Learn to Train
- **Stage 4:** Train to Train
- **Stage 5:** Train to Compete
- **Stage 6:** Train to Win
- **Stage 7:** Bowl for Life

THE RECTANGLE OF LONG-TERM ATHLETE DEVELOPMENT:





Ten Key Factors of LTAD

- 1. Physical Literacy** – Children will not stay active with recreational activity or develop into high performance athletes if they don't have physical literacy, and they will not have physical literacy if they do not get the FUNdamentals. The FUNdamentals include a wide variety of fundamental movement skills and fundamental sport skills that should be learned at young ages (before the onset of the adolescent growth spurt) in four different environments: ground, water, air, and snow and ice. With these basic skills, children gain the ability, competence and confidence to practice any sport or physical activity they choose.
- 2. Specialization** – There are right times and wrong times to specialize in any one sport or physical activity. Specialize too early, and the athlete may limit their development and success at older ages. Specialize too late, and the athlete may miss key developmental opportunities. In most sports, athletes should not specialize until they are between the ages of 12 to 15. Prior to that age, they should participate in a wide range of sports to ensure they become competent, well-rounded athletes who have acquired physical literacy.
- 3. Age** – Children grow and develop at different rates. Sport and physical activity need to take each child's stage of growth and development into account when designing training, competition, and recovery programs.
- 4. Sensitive Periods** – As children grow and develop, there are times when practice and training will have the greatest effect. These "sensitive periods" provide a special opportunity to train and develop important skills and physical abilities that will impact athletic performance through the lifespan.
- 5. Intellectual, Emotional, and Moral Development** – LTAD addresses the complete physical, mental, cognitive, and emotional development of athletes – not just physical characteristics and performance qualities. Training, competition, and recovery programs need to consider the mental, cognitive, and emotional development of each athlete.
- 6. Excellence Takes Time** – Research has shown that it takes 10,000 hours of quality training for athletes to achieve their full potential and perform at an elite level. In most examples of top-ranked athletes and other star performers, their 10,000 hours are usually accumulated over at least 10 years of training and competing.
- 7. Periodization** – Simply put, periodization is time management. It outlines all annual and seasonal training within a logical schedule to bring about optimal improvements in athlete performance at the right times, while minimizing injury and burnout. Periodization plans connect the LTAD stage of the athlete with the training and development requirements of that stage.
- 8. Competition** – Athletes need to train and compete according to training-to-competition ratios that develop skills and fitness while preventing injury and burnout. As well, the quality of competition and the timing of competitive events need to serve the needs of the athlete – not the needs of coaches, parents, and administrators.
- 9. Sport System Alignment and Integration** – Based on Sport for Life's principles, LTAD promotes system alignment and integration between sport clubs and national sport organizations. Sport for Life addresses the overarching system and structure of sport and physical activity in Canada, including the relationship between school sport, physical education, and high performance sport at all levels from policy to program delivery.

10. Continuous Improvement – The concept of continuous improvement, which permeates LTAD, is drawn from the respected Japanese industrial philosophy known as Kaizen. By applying a willingness to always seek improvements in our understanding and practice, LTAD will continuously evolve to accommodate new breakthroughs in sport science research, new innovations in technology, and evolving best practices in coaching.

How is LTAD connected to the National Sport Policy?

LTAD forms the foundation for national sport development by providing a framework and pathway for the progression of athletes, programs and related activities, and is closely linked to the successful implementation of five goals National Sport Policy.

- **Increase participation.**
- **Achieve sporting excellence regionally.**
- **Improve access to sports facilities.**
- **Increase the value of sport.**
- **Establish a framework for talent development.**

2. PHYSICAL LITERACY

Physical literacy is the ability to move with competence and confidence in a wide variety of physical activities in multiple environments that benefit the healthy development of the whole person¹.

Physical literacy is important for children today because it helps them develop fundamental movement and sport skills, which are essential for lifelong participation in sport and physical activity. Physical literacy also enhances the physical, emotional, social and cognitive well-being of individuals and contributes to their personal and social development.

There are many ways we can contribute to developing physical literacy in ourselves and others.

Some suggestions are:

- Be active role models for children and encourage them to join us in physical activities like bowling
- Play with children and expose them to a variety of physical activities that are fun, enjoyable, and challenging.
- Provide opportunities and spaces for children to be physically active, both indoors and outdoors, and in different environments.
- Support children’s learning and development of fundamental movement and sport skills and give them positive feedback and encouragement.
- Advocate for physical literacy and its benefits in our communities, schools, and sport organizations.

Physical literacy is important for the health and well-being of individuals and society, and we can all play a role in promoting it.



3. STAGE 1: LEARNING TO BOWL

The Learning to Bowl stage is the initial stage of the LTAD pathway and focuses on introducing young athletes to the fundamentals of the sport. In Bermuda, this stage includes introductory programs for children ages 4-8 that emphasize fun, participation, physical literacy and fundamental movement skills. Activities should include basic instruction in the fundamentals of bowling, such as grip, approach, balance, targeting and release and as well as games and activities that promote physical literacy and coordination. Currently, our Warwick Lanes Junior League (WLJL) has about 50-75 kids participating in various age divisions.

1. **Grip:** Learning how to grip the ball properly is essential for a good delivery. There are different types of grips, such as conventional, fingertip, and semi-fingertip grips. The grip affects the control and rotation of the ball.
2. **Stance:** Developing a proper stance is important for balance and consistency. A good bowling stance involves standing with your feet shoulder-width apart, with your non-bowling shoulder facing the pins.
3. Mastering the approach involves taking consistent and controlled steps towards the foul line. A typical approach involves four or five steps, although the exact number can vary based on personal preference and style.
4. **Timing and coordination:** Timing the release of the ball with your steps is crucial for a smooth delivery. Coordinating the movement of your arm, legs, and body is essential for a consistent and accurate throw.
5. **Release:** Learning how to release the ball at the right point in your approach is essential. The release determines the direction and rotation of the ball, which affects its path down the lane.
6. **Follow-through:** A proper follow-through involves extending your arm towards your target and maintaining balance as you release the ball. A good follow-through helps with accuracy and consistency.
7. **Spare shooting:** Understanding and practicing spare shooting is crucial for improving your overall performance. Learning how to pick up spares by adjusting your angle and targeting specific pins is essential for success in bowling.
8. **Equipment knowledge:** Understanding the different types of bowling balls, their coverstocks, weight blocks, and how they interact with lane conditions is important for making informed decisions about equipment.

Physical Literacy:

- During this stage we want to encourage the bowlers to practice stepping, walking squatting, pushing, swinging and lifting.
- This physical activity in the early stage helps build strong bones and muscles, improves flexibility, develops good form, improves fitness, reduces stress and improves sleep.
- From a safety standpoint, picking up the ball correctly, avoiding the slippery lanes and wearing specialized shoes will ensure the bowler will remain injury free.
- Learning to be a good teammate and having respect for coaches and center staff is taught during Learning to Bowl. Bowlers will encounter ways to show correct lane etiquette, respect for other bowlers and respect for their equipment.

As with any sport, practice and repetition are essential for mastering these fundamentals. Working with a coach or experienced bowlers can also provide valuable guidance and feedback as you develop your skills.



Youth member of the Warwick Lanes Junior League (WLJL) learning how to bowl.

4. STAGE 2: FUNDAMENTALS

The Bowling Fundamentals stage is the second stage of the LTAD pathway and builds on the skills and knowledge developed in the Learning to Bowl stage. In Bermuda, this stage includes programs for athletes ages 7–12 that focus on developing technical skills, physical literacy, and an understanding of the rules and etiquette of the sport. Activities should include instruction on ball speed, hook, and other advanced techniques, as well as games and activities that promote fitness and sport-specific coordination.

- 1. Scoring:** Players aim to knock down all ten pins with each ball. Scoring is based on the number of pins knocked down in each frame, with bonus points awarded for strikes and spares.
- 2. Foul line:** Players must release the ball before stepping over the foul line at the beginning of the lane. Stepping over the foul line results in a foul, and any pins knocked down on that delivery do not count.
- 3. Lane courtesy:** Players should wait for the bowler in the adjacent lane to finish their turn before stepping up to bowl. This helps maintain a smooth and orderly pace of play.
- 4. Equipment:** Players are responsible for using appropriate and well-maintained bowling equipment, including bowling balls, shoes, and any other personal gear. Bowlers should also take care not to damage the lanes or equipment.
- 5. Scoring accuracy:** It's important for players to keep accurate track of their scores and communicate any discrepancies with the scoring system to the appropriate staff or official.

Etiquette:

- 1. Respect for others:** Bowlers should show respect for their fellow players, as well as the facility staff, by being courteous and considerate at all times.
- 2. Pace of play:** Players should be mindful of the pace of play and strive to maintain a reasonable speed when taking their turns. This includes being ready to bowl when it's their turn and refraining from unnecessary delays.
- 3. Lane courtesy:** When it's your turn to bowl, be mindful of the players on the neighboring lanes and avoid any disruptive behavior that could distract them.
- 4. Good sportsmanship:** Whether you're playing casually or in a competitive setting, good sportsmanship is essential. Congratulate opponents on good shots and maintain a positive and respectful attitude throughout the game.
- 5. Safety:** Be mindful of the safety of yourself and others. This includes using appropriate footwear, being aware of your surroundings, and following any safety guidelines provided by the facility.

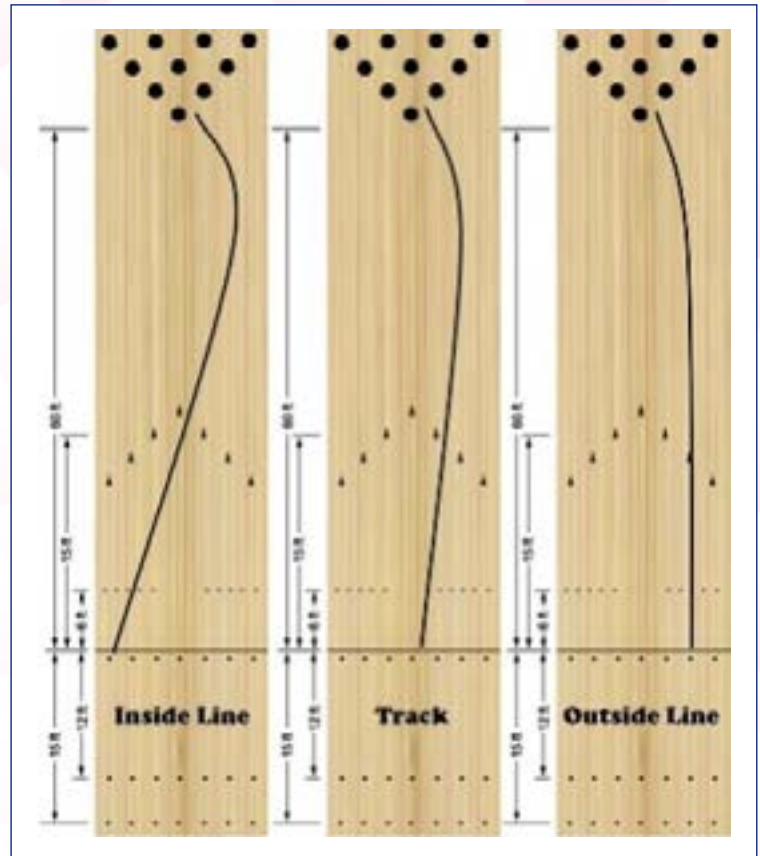




5. STAGE 3: LEARN TO TRAIN

The Learn to Train stage is a phase of the Long-Term Athlete Development (LTAD) model, which is a framework for developing athletes' physical, mental, and technical skills. The Learn to Train stage is appropriate for boys aged 9 to 12 and girls aged 8 to 11, and it focuses on learning the basic skills and tactics of a specific sport, such as ten pin bowling.

In ten pin bowling, the Learn to Train stage involves developing the athlete's bowling technique, such as stance, approach, release, and follow-through. It also involves learning the rules, scoring, terminology and etiquette of the game, as well as practicing different types of shots, such as strikes, spares, splits, and hooking the ball. The Learn to Train stage also emphasizes fun, fitness, and participation, and encourages athletes to compete in local tournaments.



6. STAGE 4: TRAIN TO TRAIN

The Train to Train stage is the fourth stage of the LTAD pathway and focuses on building a foundation of physical and technical skills that will prepare athletes for more advanced training and competition. In Bermuda Bowling, this stage includes programs for athletes ages 13-15 that focus on developing strength, power, and endurance, as well as refining technical skills and developing strategic thinking. Activities should include strength and conditioning training, advanced technical instruction, tactical training and competition. In Bermuda, this is a critical stage because it is here where most kids will know if they wish to take bowling seriously and start converting their talent into competition level standards.

- The Train-to-Train stage emphasizes the importance of developing aerobic capacity, speed, strength, flexibility, and coordination, which are also essential for ten pin bowling.
- The Train-to-Train stage requires bowlers to balance their training and competition schedules, as well as their academic and social commitments, which is also a challenge for ten pin bowlers.
- The Train-to-Train stage encourages bowlers to specialize in one sport, but also to participate in other complementary sports to enhance their overall development.



National Team training at Warwick Lanes to prepare for an international tournament

7. STAGE 5: TRAIN TO COMPETE

The Train to Compete stage is the fifth stage of the LTAD pathway and focuses on preparing bowlers for high-level competition. In Bermuda bowling, this stage includes programs for our bowlers that focus on developing advanced technical skills, tactical and strategic thinking, and mental toughness. Activities should include high-intensity training and competition, mental skills training, and opportunities for international competition and exposure.

Coaches will have training for bowlers that compete at the national and international levels at Stage 5 – Train to Win Nationals and Stage 6 – Train to Win Internationals. Here is where a coach can help improve your skills, technique, and performance in the game. A coach can also provide feedback, guidance, and support to overcome challenges and achieve your goals. Coaches analyze personal equipment as products develop and as athletes become more technically proficient and competitive. Bowlers should be encouraged to practice independently through single pin practice and lane play. Coaches should be internationally certified. Coaches should encourage bowlers to enjoy activities outside of bowling and also be able to listen to athletes and parents' concerns and find solutions.

Parents are reminded to respect the coach and to communicate with their child/children to ensure that they are enjoying bowling. It is important that parents remain levelheaded while bowlers are in competition and refrain from giving advice; this is the coach's responsibility.

Some of the strengths and conditioning considerations for the elite ten-pin bowler at this stage are: developing power, speed, agility, and balance; improving core stability and mobility; preventing injuries and enhancing recovery; and implementing individualized and periodized training programs. To further maximize our potential, we travel to bowling camps overseas, to enhance our skills and techniques.

- The Train to Compete stage is the stage where bowlers need to develop their psychological skills, such as coping with stress, anxiety, and distractions, as well as enhancing their confidence, motivation, and concentration.
- The Train to Compete stage is the stage where bowlers need to optimize their nutrition, hydration, and supplementation strategies, as well as their recovery and regeneration methods, to support their health and performance.
- The Train to Compete stage is the stage where bowlers need to establish their individual style and preferences, such as their ball selection, delivery technique, lane reading, and spare shooting.

Some indicators that a bowler is ready to move to the next stage (Train to Win) are; striking at least 50% of the time, single pin spare conversions of 80%, overall spare making of 75%, bowling a minimum of 15 games per week to develop endurance to compete in tournaments as they can be very fatiguing and having an understanding of bowling equipment and proper application to lane play.



Kegel Training Center located in Lake Wales, Florida. This training facility is where recreational bowlers and elite level bowlers go to improve their skills and knowledge of the game. Bermuda's National Team has visited this training center on multiple occasions due its proximity to the island to enhance skills in preparation for major tournaments.



The International Training and Research Center in Arlington, Texas. Here is one of the few training campuses where bowlers and elite athletes go to improve their skill and knowledge of the game. Bermuda's National Team has visited this center before to enhance skills in preparation for major tournaments.

8. STAGE 6: TRAIN TO WIN

The Training to Win stage is the sixth stage of the LTAD pathway and focuses on preparing athletes for elite-level competition. In Bermuda bowling, this stage includes programs for athletes who have achieved a high level of technical, tactical, and mental skill and are competing at the highest levels of the sport. Activities should include advanced training as well as opportunities for international competition and exposure.

Parents are reminded to respect the coach and to communicate with their child/children to ensure that they are enjoying bowling. It is important that parents remain levelheaded while bowlers are in competition and refrain from giving advice; this is the coach's responsibility.

Bowlers in this stage are striking at least 60% of the time, single pin spare conversions of 90%, overall spare making of 80%, bowling a minimum of 20 games per week to develop endurance to compete in tournaments as they can be very fatiguing and having an understanding of bowling equipment and proper application to lane play.

Experienced bowlers should be role models for younger bowlers, promote bowling as a sport, be committed mentally, physically prepared and trained to compete. They should be aware of how outside activities like sleep, nutrition and other life stressors can impact training and competition. Bowlers should be able to identify performance goals and strive to achieve these targets. They should also look to engage in outside activities that will provide relaxation when not bowling.

Bowlers should try their best to simulate tournament conditions as best as possible (i.e. lane conditions, tournament atmosphere and exercises to test mental capacity).

Some examples of ten pin bowling within the Train to Win stage are:

- **The World Bowling Tour (WBT)**, which is a series of international tournaments that attract the best bowlers from around the world. The WBT features events in different regions, such as Asia, Europe, and America, and culminates in a final event where the top-ranked players compete for the title of WBT champion.
- **The Professional Bowlers Association (PBA)**, which is the major professional bowling organization in the United States. The PBA hosts several tours, such as the PBA Tour, the PBA50 Tour, and the PBA Regional Tour, where the top bowlers compete for titles, trophies, and prize money. The PBA also organizes the PBA World Series of Bowling, which is a multi-event tournament that showcases the best bowlers from different countries and disciplines. Bermuda over the years has had multiple bowlers represented in the PBA tour. The tour sees some of the best bowlers in the world competing weekly.
- **The Commonwealth Tenpin Bowling Championships (CTBC)**, which is a biennial event that features teams from the Commonwealth nations. The CTBC consists of singles, doubles, trios, teams, and all-events competitions, as well as a master's event for the top individual performers. The CTBC aims to promote the sport of ten pin bowling and foster friendship and cooperation among the Commonwealth countries. Team Bermuda won a silver medal at the 1998 event.



1998 Commonwealth Games silver medalist Antoine Jones and Conrad Lister held in Hong Kong.



- **The Central American and Caribbean Games (CAC)** are a regional multi-sport event that features athletes from countries in Central America, the Caribbean, and parts of South America. Bowling is one of the sports that has been contested at the Games since 1974. Bermuda bowling medaled twice in this event in 2010 and 2018 with a Bronze in the Singles and Silver in the Trios.

- **The Pan American Games** is a continental multi-sport event held in the Americas and occurs every 4 years similar to the Olympics. They have included the sport of bowling since 1991. It attracts talented bowlers from various countries to participate.

- **The United States Bowling Congress Open Championships** is a prestigious annual event held both in Bermuda for local league and recreational bowlers as well as internationally in the United States. It has a rich history starting in 1904 and caters to all bowlers around the world to showcase their skills and talents on the international stage. This international tournament lasts for 5 months and serves approximately 47,000 bowlers. Bermuda consistently has representation in this yearly tournament with multiple bowlers of all skill ranges participating. The only prerequisite is that the bowlers must be a member of the USBC.

- **The International Bowling Federation (IBF)** acts as the international sporting body for bowling. One of the main purposes is to develop the sport of bowling as well as other variations of it globally and to push the sport to be eligible for Olympic status. The major event that the IBF runs is the IBF World Championships, which attracts countries from around the world to compete. Bermuda has been represented at the IBF's tournaments in numerous countries, namely Hong Kong, Brisbane Australia, Reno Nevada, Abu Dhabi U.A.E and Dubai U.A.E. The IBF brings out the best bowlers from all over the world to compete.



Silver Medalist Damien Matthews, Rickai Binns, and David Maycock at the 2019 CAC Games in Cali, Colombia.



Team Bermuda at the 2018 IBF Men's World Championships held in Hong Kong



Team Bermuda at the 2022 IBF World Cup held in Queensland, Australia

9. STAGE 7: BOWL FOR LIFE

The Bowl for Life stage is the final stage of the LTAD pathway and focuses on lifelong participation in bowling and physical activity. At this stage, bowlers have completed their competitive careers and want to maintain their health, wellness, and physical activity levels. For Bermuda bowling, the Bowl for Life stage includes programs that promote socialization and physical activity, such as recreational leagues and programs, charity events, and open bowling opportunities.

The goal of this stage is to provide opportunities for individuals to maintain their involvement in the sport and to reap the benefits of a lifelong active lifestyle. Some examples are coaches, officials, volunteers or mentors.



National Team member assisting with coaching juniors in the Warwick Lanes Bowling League (WLBL) program

10. CONCLUSION

In summary, the LTAD pathway is an important framework that outlines the progressive stages and activities of Bermudian bowlers as they develop over the course of their career. It includes seven stages, beginning with the Learning to Bowl stage for young children and culminating with the Bowl for Life stage for lifelong sports participation. Each stage builds on the skills and knowledge developed in the previous stage and is designed to provide a structured framework for bowler development at all levels in the sport of bowling.

LTAD is a valuable tool for guiding the long-term development of ten pin bowlers, and for ensuring that they have positive and rewarding experiences in the sport, whether they pursue recreational or competitive pathways.

The LTAD pathway aims to enhance the quality and quantity of participation and performance in ten pin bowling, by providing developmentally appropriate and evidence-based programs that address the physical, technical, tactical, psychological, and social aspects of the sport. The LTAD also recognizes the individual differences and needs of the bowlers, and the environmental and organizational factors that influence their development. The LTAD is not a rigid or fixed model, but a flexible and dynamic framework that can be adapted and modified according to the changing needs and circumstances of the bowlers, coaches, and stakeholders.

* Some members of the Bermuda National Team leaving for an International Tournament

11. REFERENCES

<https://www.canadabowls.ca/pdf/ltadplanforbowling.pdf>

Sport for Life – sportforlife.ca





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