

The Formation of Cuban Track and Field Champions

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ABSTRACT

Although it has a relatively small population base, Cuba has consistently been an athletics power for more than half a century and its athletes have won Olympic and World Championship medals in 26 events. The nation's success has been achieved with the support of a well-planned and scientifically-based athlete development process, which has made international researchers, professionals and specialists wonder about the Cuban secret for producing champions. This case study provides a generic description of the Cuban high-performance system, with concrete examples of the organisational and methodological foundations underlying the formation of elite athletes. Three main components are covered: 1) the pyramidal approach of the athletic development process; 2) the timely specialisation of athletic talents; and 3) the methodologies for achieving success in high-performance athletics. The author concludes by stating that appropriate specialisation of at each step of the athlete's development are essential to reach the culminating point in the training and preparation process.

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Introduction

The successful participation of Cuban performers on the world athletics stage can be traced back to sprinter Enrique Figuerola, who after placing fourth in 1960 Olympic Games in Rome, took the 100m silver medal at the 1964 Olympic Games in Tokyo and four years later led the national team to a silver medal in the 4 x 100m relay at the Games in Mexico City.

At the 1976 Games in Montreal, Alberto Juan-torena Danger raised Cuba to the top rank of athletics nations when he won Olympic gold with a brilliant world record of 1:43.50 in the 800m and then came back to take a second gold with his 44.26 in the 400m.

In the decades since, other Cuban athletes have consolidated the country's position by becoming Olympic and world champions and winning a host of medals in top-level competition. The success of Cuban athletes over the

last half-century can be summarised in the following three points:

- 1) In the Olympic Games, outdoor and indoor World Championships in Athletics and World Junior Championships, Cuban athletes have won a total of 219 medals, 73 of which have been gold.
- 2) Medals have been won in 26 disciplines covering the five event groups at the World Championships in Athletics and Olympic Games.
- 3) Nine Cuban athletes have set 14 world records in the following six events:
 - 100m: Enrique Figuerola, 10.0, Budapest, 17/06/1967 and Silvio Leonard, 9.9, Ostrava, 05/06/1975;
 - 800m: Alberto Juantorena, 1:43.50, Montreal, 25/07/1976, 1:43.44, Sofía, 21/08/1977
 - 110m/h: Alejandro Casañas, 13.21, Sofía, 21/08/1977 and Dayron Robles, 12.87, Ostrava, 12/06/2008);
 - High Jump: Javier Sotomayor, 2.43m, Salamanca, 09/09/1988, 2.43m (indoor), Budapest, 04/03/1989, 2.44m, San Juan, 29/07/1989, 2.45m, Salamanca, 27/07/1993;
 - Triple Jump: Pedro Pérez Dueñas, 17.40m, Cali, 05/08/1977, Aliecer Urrutia, 17.83m, Sindelfingen, 01/03/1977;
 - Javelin Throw: Osleidys Menendez, 71.54m, Rethimno, 01/07/2001, 71.70m, Helsinki, 14/08/2005.

Keeping in mind that Cuba has a relatively small population base compared to the world's other top athletics nations (in 1960 there were approximately seven million inhabitants and this figure has grown to about 11.5 million today), its success has been achieved with the support of a well-planned and scientifically-based athletic development process, which has made international researchers, professionals and specialists wonder about the so-called Cuban secret for producing champions.

From that perspective, and in the framework of appropriate "disclosure", it is worth

while describing the organisational-methodological foundations underlying the sustained development of athletics in Cuba. Three main questions lead to the answers of the most common and important concerns of those wishing to know the key to Cuban success.

- 1) How has the formation of Cuban athletics champions been maintained for Olympic cycles and even decades?
- 2) What particularities and guarantees identify the long-term preparation process of the Cuban talents in athletics?
- 3) How are high-performance athletes trained for success in the top-level competitions?

Foundations for the Formation of Champions

It is important to mention that Cuban athletics, for its particular identity, reflects a genuine development adjusted to the socio-cultural characteristics of the Cuban population. Even though success is mainly the country's own achievement, the contributions the Polish, German and Soviet schools made during the 1960s and 1970s must be acknowledged. These schools provided their technical force and support for the training of coaches and for the waking-up of a particular philosophy of athletic development.

From then on, Cuba started to develop independently, to innovate and to identify both our potential and the organisational-methodological requirements required to improve the efficiency and efficacy of the athletic training and preparation processes. As a result of this, we can mention today as our main basis of success, the following:

- 1) A comprehensive pyramidal approach to the athletic development process.
- 2) Timely specialisation of athletic talents.
- 3) Methodologies of success in high-performance athletics.

Pyramid Approach

The development of athletic talents in Cuba is based on a pyramidal structure (Figure 1) that includes a strict definition in relation to the objectives of the different ages and competitive categories. Its comprehensive and unified approach sets the path high-performance athletes are to meet in each level, depending on their age. It also establishes the preparation's indicators of interest in each of the areas, sectors and events.

The pyramid, comprising sports schools that until recently were arranged in four steps or levels, sits above the municipal sports areas. These areas, unlike the schools, have a mass participation nature. National and provincial commissions govern entry to and progression in the sport schools.

The first step refers to the Sports Initiation Schools (EIDE), where the best talents of each province are grouped, with children from 12 to 15-16 years old. The wide, multilateral and demanding preparation that takes place in these schools is essentially addressed to mastering the athletics techniques, and also to creating a basis of motor performance for later specialisation.

This motor performance specialisation takes place at the second level, the Provincial Junior Higher Schools for the Formation of High Performance Athletes (ESFA), which is for athletes from 17 to 19 years old. At the provincial level we also have Academies, whose admission category is more open. Thus, at the Academies, we could also have adult athletes.

The third step includes the National Junior ESFA, where the most outstanding athletes of the country are enrolled. The National High-Performance School Games are the most important events for the selection of athletes. This competition is the top event for the athletes trained at the EIDE.

The National Senior ESFA is the fourth and culminating point of the pyramid. Here, the

best athletes from the junior category are enrolled; these athletes must meet the minimum requirements demanded.

This has been the formation structure underlying the athletic development process over many years. However, in 2010, because of an economic rationalisation, changes were introduced in the EIDE. Now these schools include athletes until the age of 18, and the Provincial Junior Higher Schools ESFA have been eliminated.

In this pyramid, the aims and the programme for training, the choice of the best athletes, the objectives and the attendance to competitions, the analysis on the performance's evolution and the usefulness of the specialised technical strength potential, constitute elements that are regulated, controlled and updated according to national and provincial sport guidelines – to guarantee efficiency and efficacy all over the training and preparation process.



Figure 1: The Cuban high-performance development structure until 2010

Timely Specialisation

Timely specialisation is a key element in the process. The choice of the right moment and procedure to determine the definite specialisation of talented athletes is regulated by elements whose basis relies on the pragmatic vision of the methodological and technical action of coaches.

Nevertheless, a problem that affects Cuban athletics, like athletics in any part of the world, is the control in the application of the ideal training loads by ages. Specialisation in early ages is a phenomenon still to be accurately defined in Cuban athletics. For this reason, methodological strategies have been implemented in order to address the work to the most important objectives, depending on the athletes' stage of development.

This conception must be improved, because studies (MUÑIZ SANABRIA, 1995, 1998, 2005) show that in some disciplines adequate organisation for efficiently achieving the pyramidal approach to athletic development, which could lead to the production of world top athletes, is missing. Unlike the more technical disciplines (jumps, throws, hurdles, combined events), the sprints and endurance races in Cuba have not reach the best development because of the bad use of the pyramidal structure and inappropriate specialisation in a long-term process.

For example, MUÑIZ SANABRIA (1998) shows that 16 (72.7%) out of the 22 best Cuban middle- and long-distance runners started practicing athletics only in the last period of the school category (15-16 years old) and only six (27.3%) of them studied at EIDE schools. The data also show us that just a few of those taking part in all the pyramidal stages are included among the best middle- and long-distance Cuban runners of all times. So, it is important to consider "the champion tendency" as an essential element to be changed by endurance runners. This tendency is the result of an intensive specialisation performed at an early age, which opposes the objectives of the long-term development.

Methodologies of Success

Those athletes who enrol immediately after childhood in the high performance pyramid represent the success of the Cuban model and its comprehensive conception for producing top-level athletes. The performances of these athletes are the result of training methodologies validated by a practical- experimental process and applied to young people and adults for many years. These methodologies are always improved, like those implemented for the throwing events, long jump and 110m hurdles, where the results have been four Olympic champions and two world record holders.

We focus here on the training methodology for 800m, where the event is viewed as a sprint based on the principle of simultaneous or basic complementation specialisation in 400m. Throughout the years, the most important representatives of this approach have been Blas Beato (1980-1990) and Amarilis Hernández (1990-2000). Unlike the methodology normally applied for middle- and long-distances, this methodology has been more effective and has characterised the process that has allowed Cuban 800m runners to be among the world's elite. The main examples of athletes whose results come from this methodology are:

- 1) Alberto Juantorena Danger, double Olympic champion (400m and 800m) in the 1976 Olympic Games and winner at the 1977 World Cup;
- 2) Ana Fidelia Quirot, two-time world champion (800m) in Gothenburg 1995 and Athens 1997, Olympic medallist – silver Atlanta 1996 and bronze in Barcelona 1992 – and two-time double Pan-American champion (400m and 800m) in Indianapolis 1987 and Havana 1991;
- 3) Norberto Téllez, Pan-American champion (400m) in Mar del Plata 1995 (45.38) 4th place (800m) in Atlanta 1996 and silver medal (800m) in the 1997 World Championships in Athletics.

Table 1: Summary of the competitive activity of Alberto Juantorena, Anna Fidelia Quirot and Norberto Téllez

Indicators	Juantorena (1972-1984)	Quirot (1976-1997)	Téllez (1992-2003)
Years competed in The 400m and 800m	9	11	8
400m races	134	237	152
800m races	72	174	113
Race proportion 400-800m (%)	53.7% - 46.3%	63.3% - 36.7%	57.4% - 42.6%
4x400m races	34	68	30

Table 2: Comparison of the training of Alberto Juantorena and Norberto Téllez in Olympic seasons

Indicators	A.Juantorena, 1976	Norberto Tellez, 1996
Beginning of the macro-cycle	November 3rd, 1975	September 18nd,1996
First competition	April 16th,1976 (800m) April 17th,1976 (400m)	March 1st 1996 (800 m) March 2nd1996 (400m)
400m competitions	9	4
400m races	17	6
800m competitions	7	12
800m races	9	23
4x400m races	3	5
Olympic Final	July 25th, 1:43.50 (1st)	July 31st, 1:42.85 (4th)



Yargelis Savigne and Mabel Gay, Berlin 2009.

Table 3: Athletic development and progression of Yoelvis Quesada

Age	School	Performance	Competitive Achievements
13 (86)	Sports Initiation School	60m (8.5), Long Jump (4.91m), High Jump (1.30m), 80 c/v (14.0), Pole Vault (1.90m), 1000m (3:19)	– Participation at the High Performance School National Games (JENAR, Spanish abbreviation)
15 (88)		14.77m	– Champion of the JENAR
16 (89)	National Junior Higher School for Athletes Formation	16.11m	– Champion of the JENAR (15.73m), – World Junior Runner-up
17 (90)		16.68m	– Junior and Senior Pan-American Champion.
18 (91)		17.13m	– World Championship Finalist
19 (92)		17.23m	– World Junior Champion and World Cup Champion. Olympic Finalist
20 (93)	National Senior Higher School for Athletes Formation	17.68m	– World Championship Finalist
21 (94)		17.61m	– World Coup Champion
22 (95)		17.67m	– World Runner-up
23 (96)		17.75m	– Olympic Bronze Medallist
24 (97)		17.85m	– World Champion

Another methodology of specialised high-performance success is addressed to bringing triple jumpers into the world elite. In this event, Cuba has had champions at all competitive levels, as well as two world record-holders: Pedro Pérez Dueñas, 17.40m in 1971 and Aliecer Urrutia, 17.83m (indoor) in 1997.

The methodology's efficiency has been proved as 20 male athletes have exceeded 17m and 15 female athletes have gone over 14m.

We also have to mention that in four world championships we have seen two Cuban athletes placed among the medallists:

- at the 1997 World Indoor Championship in Paris, Yoel Garcia (17.30m) and Alicer Urrutia (17.27m) became champion and runner-up respectively;
- at the 1997 IAAF World Championship in Athletics in Athens, Yoelvis Quesada (17.85m) became the champion and Alicer Urrutia (17.64m) obtained a bronze medal;

- at the 2009 World Championships in Athletics in Berlin, Yargelis Savigne (14.95m) and Mabel Gay (14.61m) were the athletes who climbed to the top of the podium at the awards ceremony;
- at the 2010 World Indoor Championships in Doha, Yoandri Betanzos (17.69m) and Arnie David Girat (17.36m) obtained the silver and bronze medals respectively.

In this event, the 1997 world champion Yoelvis Quesada is an example of the superior model, which shows the formation of a champion starting from the organizational and methodological bases ruling the Cuban athletes' long-term process.

Conclusions

1. The sustained development of Cuban athletes in the training of champions is based, among other aspects, on the comprehensive pyramidal approach linked to the preparation of talented athletes, consistent with the long-term preparation objectives. With this approach, timely specialisation is essential for the athletic development of the talented athletes, in order to improve their performances and goals in the different age categories.

2. Appropriate specialisation at each step of the athlete's development are essential to reach the culminating point in the training and preparation process. The use of authentic methodologies leads to results that guarantee the inclusion of athletes in the world elite. This has been the basis of the outstanding results by Cuban athletes across a variety of disciplines in the world's top athletics competitions

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