

SPECIFIC TRAINING FOR THE 400-800M RUNNER

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In 1985 the Athletic Congress of the USA honored Alberto Juantorena at its convention in Houston, Texas. During the congress he gave a keynote speech on two topics: The Role of the Sportsman in International Relations and Training Technique Used in the 400 and 800 Meter Races. Below is taken from the author's copy of his original speech.

During my childhood I practiced soccer, volleyball, basketball and swimming. I enjoyed immersion mainly, since I was able to plunge down to 15 meters without any training which, together with the topography of my hometown, Santiago de Cuba, specially contributed to the development of physical abilities and qualities in a multilateral manner.

Curiously, my involvement in sport determined by an exquisite vocation close to the limits of obsession was full of changes from one modality to the other; what I mean is that my first official competition was not precisely in basketball but in athletics at the eastern region technical school games In 1966, where I won the 1200m and 600m races with relative ease and without undergoing systematic training.

My inclination for sports led me to participate in basketball official competitions early in 1969.

Since then, my organized preparation in basketball started. In the 1970-71 school year, the coaches of the national junior team observed my height, mobility and jumping ability and proposed my enrollment in that team.

During the physical preparation exercises my displacement, stride length and posture in the performance of the 200m and 400m races used as general preparation for basketball called more attention than my display of knowledge of the basketball technique.

My natural conditions made the athletics specialists who coached in the same site to center their attention in the way I ran and my phenotype and to start the arrangements for my change to athletics.

Thus I remember that a little over 20 I arrived to the group that was being trained by the Polish coach Zigmund Zabierzowskey, who worked in my country with 400m sprinters. Zabierzowskey knew about a time I had recorded during my

physical preparation as a basketball player of 51 seconds at 400m wearing conventional shoes on a clay track.

The change became final on March 8, 1971 when the Polish coach arranged to meet me at the Pedro Marrero Stadium for a 500m test wearing basketball shoes. I was staking my all and I can assure you that I set my heart on this test. The result: 1:07 and with it I had made true the dream of my life, becoming a member of a Sports National Team of Cuba.

So, I was accepted in his group but for the 1971-72 cycle because the preparation of his pupils was quite advanced - almost at the highest point of the 1970-71 cycle - with the competitive commitment of the VII Pan American Games in Cali, Colombia lying ahead.

Everything hinted that the competitive discipline I was gearing my preparation to would be the 400m race. To that end, the technical structure of the first athletics training cycle consisted of only one macrocycle, with a preparation period up to April, when the competitive distance trials started, and afterwards, late in May-June a competitive tour of Europe.

Given that the 400m distance places an extremely conditioned capacity called endurance in speed and that, moreover, it calls for a good strength level or better for muscular power, which is the strength capacity in terms of time, methods and means were developed aiming specially at the mobilization - with a high level of intensity - of the energetic systems taking part in the performance of the aforementioned distances.

Against the traditional theories concerning the debated topic of the preliminary or basic preparation using the volumes required for a general buildup, the examples that follow exemplify how specific and condensed was my routine plan from the very beginning as devised by Zabierzowsky.

Training session examples during the general preparation period.

1971-72 Cycle

Monday 11/6/71

- Objective: General endurance and rhythm
 1. Warm up + speed gymnasium (calisthenics)
 2. Several progressive 3 x 50m series
 3. 8 x 500m medium speed 1:26.5 (78% of the highest speed reached in the recent trial on that distance.

Tuesday 11/7/71

- Objective: Strength
 1. Warm up + gymnasium (calisthenics)
 2. 4 x 50m. series
 3. Strength (10 tons total)
 4. 10 x 100m extensive interval training with progressive speed.

Wednesday 11/8/71

- Objective: General and special endurance
 1. Warm up + gymnasium
 2. Mixed runs on sand, grass; total: 4 km. (grass 2 km. and sand 150m series) low speed.

Thursday 11/9/71

1. Day off

Friday 11/10/71

2. Repetition of Tuesday's routine

Saturday 11/11/71

3. Repetition of Wednesday's routine and later on as special work.

1971-72 Cycle

Monday 4/3/72

4. Objective: Special training on grass
 1. Warm up + gymnasium
 2. Several 5 x 80m progressive series + standing starts 5 x 20m.
 3. Slope skipping (uphill) 10 x 40m.
 4. Uphill runs 10 x 30m.

5. Rhythm special endurance 5 x 300m.

Tuesday 4/4/72

- Objective: Special training on track
 1. Warm up + gymnasium
 2. Several 5 x 80m progressive series
 3. Starts with blocks 6 x 30m
 4. Strength with light weights
 5. Special endurance 2(3 x 300m) medium speed 39.15 sec.

Wednesday 4/5/72

- Objectives: Special training on track
- Warm up + gymnasium
- 5 x 80 progressive series
- Special endurance (rhythm) 4 x 500m medium speed 1:15.3

Thursday 4/6/72

- Day off

Friday 4/7/72

- Objective: Special training on track
 1. Warm up + gymnasium
 2. 4 x 100m series
 3. Starts 4 x 30m
 4. Endurance in speed 2(4 x 200m) medium speed 24.5 sec.

Saturday 4/8/72

- Objective: Special training on grass
 1. Warm up + gymnasium

2. 5 x 80m series
3. Special endurance 2(5 x 250m)

As I said before, it is evident that there are no large volumes of kilometers and that the main feature of the whole training program is the application of distances very close to the competition distance with a high relative intensity from the very beginning.

The successful evolution of the results obtained enabled me to make the Cuban selection that was to represent the country at the Munich Olympic Games.

The evolution of the results in 1972 was as follows:

Table # 1

DATE	COMPETITIONS	VENUE	RESULTS	SERIES	PLACING
04/22	Qual. Universiade	Habana	47.1	Final	1st
04/28	Confrontation Matches	Habana	47.7	4	1st
04/28	Confrontation Matches	Habana	46.8	Final	1st
05/12	Barrientos Memorial	Habana	47.6	1	1st
05/12	Barrientos Memorial	Habana	46.9	Final	1st
06/14	Nelzava Cup	Budapest	46.3	Final	2nd
06/21	Rozixky Memorial	Prague	46.6	Final	2nd
07/01	Cuba - Italy Match	Florence	46.6	Final	2nd
07/08	Int. Meet	Bucarest	46.9	1	1st
07/08	Int. Meet	Bucarest	46.4	Final	1st
08/09	Poland - France	Warsaw	45.9	Final	1st
09/03	XX Olympics	Munich	45.94	4	1st
09/04	XX Olympics	Munich	45.96	QF-1	2nd
09/04	XX Olympics	Munich	46.07	SF-2	5th

Finals Won: 7 Lost: 2 $\bar{x}X = 46.6$ $S = 0.41$

Of course, these achievements, despite their quick evolution, did not place me among the leaders of the world ranking which was covered up to the 10th-11th places by North Americans, with some exceptions, whose marks were in the 44-45 second order.

That year, the Italian Marcelo Frasca, a master of this distance did not appear among the top men, and although for me these were premature aspirations, the assimilation of training and the quick evolution of results encouraged me to seek higher goals. A decisive factor for the obtention of higher rewards for my people was my nomination as the Beginner of the Year in 1972 and receiving this trophy, in Cuba, from the outstanding North American defender of Human Rights, Angela Davis.

But let's go on to the main part of the requested topic: Montreal 76 and the characteristics of the preparation for that event.

During the 68-72 Olympic four year period, there were top level results in the 400m race, as shown by the range I mentioned before referring to the 1972 ranking. With the contribution of Sciences Applied to Sports, especially in the 1970-80 decade with specific progress as regards research and practical applications on the field, many criteria on the theory of training were enriched, chiefly concerning intensity work.

Taking into consideration the limitations imposed on the preparation work by the injuries I suffered in 1974 as a consequence of which I was operated on twice, December '74 and January '75, it was necessary to repeat the 75-76 cycle - Montreal Cycle - with the conception of only one training macrocycle.

The unique nature of this conception allowed us to have a long general preparation period (12 weeks), four weeks of transfer or conversion from general to special preparation (8 weeks) which ended up with a 12 week competitive mesocycle. It is possible that this special competitive term may seem odd, but according to our standpoint the priority granted to an activity in a given period of time - as for example, a competitive mesocycle - defines its denomination and gives a direction to its content. Let's see what I am referring to:

The competition frequency of the period which lasted from 04.17.76 to 07.29.76. behaved in such a way that the days between competitions ranged between 8 and 20 making it possible to carry out special training sessions in the various countries using intensive interval training and/or high intensity repetitions.

To be sincere, I don't know when nor how, with a great pedagogical knowledge, Zabierzowsky started to introduce in our program the necessary means to make an attempt on the next higher distance, the 800m. With the pretext of the injury and recovery circumstances, he searched for a "family" of distances to be used as base work and to allow for a milder training.

In such a way, the largest increase in the training structure took place in the preparatory distances for the 800m, without overlooking the special means for the 400m.

Taking as reference the last period of fulfillment of the Plan in the 1973-74 cycle, I present the following table:

Table # 2

DISTANCE LENGTH	REPETITIONS		VOLUME IN KM		TRAINING TIMES AVERAGES	
	1974	1976	1974	1976	1974	1976
1000	22	23	22,0	23,0	2:47,5	2:32,4
600	2	28	1,2	16,8	1:22,3	1:20,7
500	44	16	22,0	8,0	1:00,3	1:03,2
400	4	15	1,6	6,0	48,9	47,26
350	28	8	9,8	2,8	41,45	40,55
300	2	12	0,6	3,6	36,05	33,9
250	18	--	4,5	--	--	--
200	137	144	27,4	28,8	23,40	22,8
150	41	--	6,15	--	--	--

This table shows that the extreme stretches of 1000m and 200m are stressed. The latter meant – mostly due to their intensity - adequate incentives for endurance in speed and special endurance. The purpose of the 500m work was to achieve a better agreement between the distance and the special training stretch, for which we increased from the 1,200m of 1974 (2 x 600) to 16.8 Km (28 x 600) by the end of the special meso (6 last weeks).

Example of general preparation training sessions, last macro of the Olympic Cycle - Montreal '76:

Monday 11/9/75

1. Warm up + gymnasium
2. Special cross (Fartlek with pre-programmed accelerations). Total: 13km.

Tuesday 11/10/75

1. Warm up. gymnasium. grass run game
2. Strength in apparatus. 15 tons.
3. Relative speed 3(5 x 200m). Medium speed 23.84 sec.

Wednesday 11/11/75 (Track)

1. Warm up. gymnasium
2. Progressive series, 3 x 100m.
3. Rhythm endurance 4 x 1000m. Medium speed 2:35.15

Thursday 11/12/75

1. Warm up, gymnasium on grass.
2. 2 km cross (3 series of 3 x 400m) + cross-2km.

Friday 11/13/75

1. Warm up, gymnasium on grass
2. Strength in apparatus, 15 tons
3. Relative speed 3(5 x 200m) mean speed - 23.63 sec.

Saturday 11/14/75 (Track)

1. Warm up, gymnasium
2. 3 x 100m progressive series
3. 1000m + 500m + 1000m + 500m.
 - Mean speed 1000m = 2:41.35
 - 500m = 1:04.35

To this we added a power task (skipping) carried out with consecutive jumps uphill, on grass using the body weight only. This work made a total of 89km in 1976 and was very important for the technical performance of my runs and for the stride length of 3 meters I was able to average after going beyond the 100m following the start off the blocks. This resulted in my compensating for the shortcoming I had at the start, which was always slow.

Another factor I believe contributed, to a large extent, to the shape I reached in Montreal was the 4 week stay for training purposes in Mexico's intermediate altitude (2,400m above sea level) where the partial oxygen pressure decreased by altitude made my organic system develop compensating mechanisms to make up for the deficit during work and recovery. My hemoglobin and the metabolic capacity for oxygen consumption increased, as well as the possibilities of assimilation of the toxin produced by the 200m interval work of which I did the highest volumes in altitude.

Always with a view to gain in intensity, the volume in kilometers reached, during the macrocycle of preparation for Montreal (including the competitive special mesocycle of May-June and July) was rounded off in the figure 1,050 Km.

Following, I give you examples of one week of preparation in the special meso and afterwards in the competitive one.

Special Preparation Mesocycle - 1976

Monday 03/15 - Special Training on grass

1. Warm up + gymnasium
2. 2 km cross + special endurance
3. 5 x 350m + speed endurance
4. 6 x 200m + skipping 5 x 200 + cross (uphill skipping) 2 km all very fast runs

Tuesday 03/16 - Special training on track

1. Warm up + gymnasium
2. Progressive series - 3 x 100m.
3. Starts from blocks 3 x 30m.
4. Relative speed 10 x 200m. (mean speed 23.6 sec.)

Wednesday 03/17 - Track special training

1. Warm up + gymnasium
2. Progressive series - 3 x 100m
3. Special endurance 5 x 600m (mean speed 1:25.6)

Thursday 03/18

1. Warm up + gymnasium
2. 9 km cross

Friday 03/19

1. Warm up + gymnasium
2. Strength special exercises, jumps over hurdles
3. 3 x 100m progressive series

4. Starts off blocks – 3 x 30m
5. Relative speed 8 x 200m (mean speed 23.18 sec)

Saturday 03/20

1. Warm up, gymnasium
2. 3 x 100m progressive series
3. Starts off blocks 3 x 100m
4. Special endurance 2 x 600m + 2 x 400m
 - a. Mean speed: 600m = 1:21.9
 - b. 400m = 48.25

Regarding what I said about one of my technical shortcomings, the start, It can be seen in the structure of these examples the reiteration of these workouts and the increase in the distance by the end of the microcycle.

Fulfillment of the Training Plan during the 19 last days of July which include the Olympic participation:

Tuesday 07/13

1. 4 km cross
2. Interval 10 x 150m x 2.
3. 1km cross at the park on grass.

Wednesday 07/14

1. 1 km jogging
2. Series 4 x 100m, 3 x 500m (1:04.6, 1:03.5, 1:03.2)
3. 1 km jogging on tartan.

Friday 07/16

1. 3 km cross.
2. 2 series 10 x 150m.
3. 2 km cross at the park on grass.

Saturday 07/17

1. 1 Km cross.
2. 4 x 100m series.
3. 3x 600m (1:31.6, 1:21.5, 1:19.2).
4. 1 km jogging on tartan.

Sunday 07/18

- 4 Km cross at the park on grass

Monday 07/19

1. 1 km cross.
2. 1 x 200m (21.4sec), 1 x 300m (34 sec) start from blocks with gun signal, on tartan.

Tuesday 07/20

- Warm up like prior to the competition: 600m in 1:19.3, 15 min. pause; 600m in 1:15.9 with gun signal on tartan.

Wednesday 07/21

- 1.5 km. cross

Thursday 07/22

- Day off

Friday 07/23

- 800m competition in 1:47.14, first place in the qualifying rounds.

Saturday 07/24

- 800m competition in 1:45.8, first place in the semi-finals.

Sunday 07/25

- 800m competition in 1:43.5, first place in the finals.

Monday 07/26

- In the morning 400m competition in 47.8, third place in the qualifying rounds.
- In the afternoon 400m competition in 45.92 sec., second place in quarter finals.

Tuesday 07/27

- Day off

Wednesday 07/28

- 400m competition in 45.10 sec., first place in the semi-finals.

Thursday 07/29

- 400m competitions in 44.26 sec., first place in the finals.

Friday 07/30

- 4 x 400m competition: 3:05.9; Fourth place (45.8 sec).

Saturday 07/31

- 4 x 400m competition: 3:03.8; Seventh place (44.0 sec).