

Marius Bakken Online
El Guerrouj/Marroccan training

The Training of the Moroccan World Class athletes
This information on the Moroccan training system in this article comes mainly from lectures by Kada, the coach of runners such as Hicham El'Guerrouj (World Rec. 1500 m.) Salah Hissou (ex-World Rec at 10 000 m. with 26.38), Zahra Ouziz, Said El Wardi and many more. Most of the content is provided by Mr. Marco Velediaz, after giving an appreciated permission to mariusbakken.com to publish it. But in this article, I will also try to incorporate the training of the other successful "school" in Morocco, the one of Khalid Skah (Olympic 10000 meter champ in 92 and World Champ in cross), Khalid Bouhlami (12.53 5000 meters) and many others. This will be based on information from Khalid himself, who is the roommate (!) of one of my best friends Henrik Sandstad (always together with me on training camps in Kenya.) The information is also based on talks with Michael Dykes, a good friend of mine who spend 4 months in Morocco last year training with the El Guerrouj and Bouhlami groups and who is fluent in French. It has to be added that the Moroccans are extremely smart in their training, and I can not guarantee that 100 % of the info in this article is 100 % correct (as Kada also has pointed out about the Velediaz article). But it will give you a very good idea of most of the training they are doing.

Training of the Mens 1500m World Record Holder
Hicham El Guerrouj
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Over the last few months I have been putting together information about the training methods and systems from several countries and trying to find out the reasons behind the success of any group of athletes in the middle and distance events. After spending several nights trying to put the following article in a logical sequence, finally it is done. Please excuse me for the probable orthographic mistakes (my native language is the Spanish).

THE MOROCCAN TRAINING SYSTEM.

Whereas the Kenyans owe their astonishing success to living at altitude, the desire to escape poverty among other factors, the Moroccan secret is more scientific, they operate one of the most meticulous and scientifically advanced training programs in the world. Their athletic results are the product of a structure and a training system, this structure comes from an organization in their national athletics federation and new training concepts.

Technical Organization of the Moroccan Athletics Federation.

It is organized in "Compartments" or "Directions" that are complementary each other and are involved from the beginning until the end on the development of the athlete.

I. Direction of Talent Spotting (Detection).

"The success is due to a deliberate selection process" says Aziz Daouda, the technical director of the national federation. The talent-spotting system is done with young men and women between 12 and 16 years old. They use caravans that travel throughout Morocco with equipment for the tests application's and it has two phases, in the first phase the aspirants are put to 3 tests:

1. short run (they do not say the exact distance) with low start,

2. a middle distance race and,
3. standing long jump.

With these simple 3 tests they get a girl/boy's profile: 1. reaction speed, 2. endurance and 3. explosive strength. In the second phase when they have finished these 3 tests, they put them to another 3 medical tests like on treadmill and blood test. The more gifted athletes then are sent to what they call "Preparation Local Units" where they are attended by athletics coaches in their 1st phase of development (12-16 years) practicing a multilateral development. These sport centers are sponsored by a phosphate industry and the coaches are paid by the government and the national federation. In the 1995-1996 period, the 60% of the Moroccan territory was covered and inspected.

II. Youngsters Technical Direction.

After this first development phase the best ones are sent to what they call "Perfecting Local Unit" or "Training Development Center" which hosts about 60 youngsters between the ages of 16 and 19. The selection of the athletes for this center is done under a more complex criterion: tests results, biometrical parameters, physiological, etc. The ones who display the most potential are sent to Ifrane to the National Institute of Athletics, where their training is worked out, their running style scientifically analyzed and their diet checked. They know that Morocco does not have the depth of talent that Kenya can call upon, nor the tradition. That is why so much time and money is invested in the system. "for us, it is the training methods and the atmosphere created around the athletes that is important" Daouda says.

III. National Technical Direction.

At this level they work with the national and world class athletes, these athletes, of course are professionals, they do not have any other activity than preparing for the major competitions and live at the National Institute of Athletics. The institute thrives thanks to financial backing from government and the King Hassan II. The athletes are provided with food, housing and a salary to meet their basic needs. The provisions, while affording valuable security and stability, are not luxurious by any means. But financial incentives and public interest alone do not win races: the athletes themselves display an extraordinary level of commitment. How did they conceive this System?

They realized that in the 70's there was a results' increase at world class level. A gap was opened between the rich countries and the less developed ones, specifically in the technical events: jumps and throws. Then they had to adopt a decision that was influenced mainly by the country's economical situation. They decided to focus on the middle and long distance events since the practice of this events require very little infrastructure, this choice gave result to what they call Athletes' Preparation National System. The system is influenced by the following factors:

1. Social and economical conditions.
2. Climatic and geographical environment.
3. Cultural traditions.
4. Physiological parameters.
5. Available means.
6. Competitions' goals.
7. Political objectives (country's sport strategy).

Over the last few years there has been an excessive proliferation of competitions at world class level, which has forced them to choose the major championships. For example: in Morocco's case they have 3 commitments: African, Arab and World. Their choice is certainly aimed to the world class level.

MOROCCAN TRAINING PRINCIPLES FOR MIDDLE AND LONG DISTANCE.

Maximal effort, intensive and continuous principle. Nowadays this principle is determined by the level of the competitions. "These days the major competitions have reached such level of intensity that we can not think we can prepare the athletes like they used to train in the 60's". Individualization principle. "People sometimes confuse personalizing training with following an individual training program", says Daouda. "We do not have two athletes training the same way, but we have a method we adapt to each athlete. We are not creating anything new, but we are making improvements to something that already exists by utilizing scientific data". In Brussels in 1995, when Hissou broke Skah's Moroccan 10,000m record with 27:09.30, we thought he should have run much faster in the last two km, but he got tired, so we analyzed him thoroughly and now he runs with more economical style. The movement of his arms is different from a biomechanical perspective, and his stride is more efficient". Systematic Principle. It comes from the need to prepare a training plan for the group (about 30 athletes), respecting each athlete's individualism . It is a compulsory behaviour line for the group. An example: They run by time, 20, 30 40 minutes., but Salah Hissou never runs more than one hour of continuous running, and Khalid Skah runs very often over 1h15min-1h20min, same event, same level of performance, different loads. Multilateral Development Principle. It is included in the training program due the lack of proper Physical Education in their school system. This multilateral development is compulsory in all the chosen athletes. Conscious Preparation Principle. In order to get the results the athlete must be aware of the program, must trust in their coach, the training environment and the system.

PREPARATION FOR THE ATHENS 1997 WORLD CHAMPIONSHIPS

The 1996 - 1997 season was divided in 5 parts: Preparatory Period. It is the most important. Lasted from October 15, 1996 to May 15, 1997. This period has been divided in 2 phases. (1) October 15, 1996 to February , 1997. They have done a multilateral preparation in all aspects. Objectives: development of aerobic endurance, strength and power. (2) February 21 to May 10, 1997. Objectives: development of aerobic endurance, strength and power, specific endurance and race pace. Competition Direct Preparation. May 11- 30 ,1997. The objective is obtaining the athletic shape for the first minor competitions. They took part and the end of May and the beginning of June 1997. They worked on: race pace, specific speed and aerobic endurance 1st. Competition Period. May 31 to June 10. 2nd. Preparation Phase. June 11-30, 1997. Objectives: race pace, speed, aerobic endurance. 2nd. Competition Period. July and August. Training organization.

The training base was distributed as follows:

- 6 weeks training at sea level in Rabat.
- 3 weeks training at altitude in Ifrane 200 km from Rabat. (1600m) and the cycle was repeated. They have been training at altitude at different places like Davos, Saint Moritz and here in Mexico City.

They train in groups, each group is leaded by one the great athletes that they have available:

- Bidouane group
- El Guerrouj group

- Hissou group
- Boulami group
- Benhassi group
- Steeplechase group

Each group is composed between 8-10 athletes, with one or two that are being used as "rabbits" sometimes, most are elite athletes but also have junior athletes.

The technical staff is composed by the technical director (Aziz Daouda), two head coaches, among them is Abdelkader Kada (Hicham El Guerrouj's coach) and 6 assistant coaches. They have a support team of three sport doctors, seven physiotherapists and complementary contracts with one cardiologist, one dentist and a laboratory for their different tests. Besides they have the help of another 30 people to provide all the necessary services to these athletes in order to focus only in their training. They train and compete during 11 months and spend only one month with their respective families.

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"El País" Semanal (magazine) December 1998.

Cuadernos de Atletismo (No. 36), Real Federación Española de Atletismo

MacKay, Dunkan, Runner's World Magazine

Personal conversations with Said Aouita (1987-1988) and Khalid Skah (1994).

Part 2 :

Hicham El Guerrouj's Training

Marco Vele Díaz, Mexico City, Mexico

Hicham El Guerrouj training for the 1997 season.

On April 1994 I was in charge of the Mexican women's team that participated in the 2nd IAAF/ World Road Relay Championships held at the beautiful town of Litochoro, Greece. Upon arrival at Tessaloniki airport we got on the same bus with the Morocco mens team, the team manager then was Said Aouita, among other things he told me was that they were going to win the race and talked a lot about a young skinny and shy athlete named Hicham El Guerrouj. He said that this young man was going to become the best 1500 runner in history. I thought he was exaggerating a little. Two days later the Moroccan team beat Ethiopia (W. Bikila, F. Bayesa and H. Gebresilasie included) and Kenya. El Guerrouj covered the 3rd stage (5000m) in 13:43. Later, during the track season he appeared at world scene with a 1500 mark of 3:33.61 at 19 years of age.

Hicham el Guerrouj was born on September 14, 1974 (1.78m/58 kg) in Berkane, a city located at sea level. He began to practice athletics in 1990 and in 1991 was chosen to train at the National Institute of Athletics in Rabat, joining from the beginning to coach Abdelkader Kada group. He made his debut at international level as member of the Moroccan Junior team for the 1992 World Cross Country Champs finishing 14th, in Junior race and later he got 3rd in 5000m (13:46.79) at the IV World Junior Champs in Seoul 1992. Taking part in cross country races is normal within the Moroccan training system, Said Aouita

followed that path during his early days. Hicham El Guerrouj's later successes are well documented and known.

Training.

His characteristics are of a very disciplined and dedicated athlete, not in the sense of going early to bed or "don't do this", he is very professional in his job and always is focused in his training. When it is time to compete he respects and takes into account the tactical instructions in which he gives his opinion also. He's strong-willed, ambitious, and believes he can run the 1500 m under 3:24 [Note: when this was said in 1997 N. Morceli still had the 1500m WR].

Concrete examples are presented next of El Guerrouj's different training cycles. It can be observed that he does NOT work large volumes, but there is a predominant high level of quality. Besides he does not work too much on the track during the year.

He started to train in middle October 1996, the training means are shown in the next table and the details are explained below:

First preparation cycle (from October 18 to November 7, 1996)

Day

Morning

Afternoon

18

Aerobic endurance
strength work

19

Aerobic endurance
Physical preparation

20

Aerobic endurance
Aerobic endurance

21

rest
strength work

22

Power
Aerobic endurance

23

Aerobic endurance
Physical preparation

24

Aerobic endurance
strength work

25

Rest
Aerobic endurance

26

Aerobic endurance
Power

27

Aerobic endurance
Aerobic endurance

28
Aerobic endurance
strength work

29
Rest
Rest

30
Aerobic endurance
Aerobic endurance

31
Aerobic endurance
Power

1
Aerobic endurance
strength work

2
Rest
Aerobic endurance

3
Aerobic endurance
Aerobic endurance

4
Aerobic endurance
strength work

5
Aerobic endurance
Aerobic endurance

6
Rest
Rest

7
Aerobic endurance
strength work

Aerobic endurance.

He does four types of work:

30-45 min of continuous running

50-60 min of continuous running.

For this type of work there are not precise conditions, he is not asked any specific pace, however. he is demanded that he runs at his maximum at that moment, this varies from one day to another and has nothing to do with the season. So, this means that El Guerrouj can run one day between 3:00-3:10/km pace and sometimes at 2:50/km.

4 x 2000 m in 5:10 with 2 min recovery

6 x 1000 m in 2:30 with 2 min recovery

The distances of the repetitions have been standardized because his coach considers important to set a "work rhythm" with high intensity (around 70% for him). For this reason, when El Guerrouj can not finish a certain training session, he repeats the workout the following day, instead of seeking a different solution.

Strength work.

He works on the main muscle groups, but the coach believes in work the small ones as well, those that have major influence in the posture, in a varied way, through the utilization of free weights and special gym apparatus. During this stage he has done the following exercises:

Half-squat 6 x 20 reps with 25 kg bar

Half-squat 4 x 16 reps with 30 kg bar

Squat 4 x 16 reps with 20 kg bar

In machines/apparatus:

Hamstrings 4 x 16 reps

Quadriceps 4 x 16 reps

Abductors 4 x 16 reps

Adductors 4 x 16 reps

Lunges 4 x 20 reps with 25 kg bar

Step-up 1 x 20 reps with 30 kg bar with each leg

Abdominal 300-400 reps

Back 300-400 reps

Power.

He does once a week up-hills 10 x 300 m

besides horizontal jumps and vertical jumps over hurdles.

Physical preparation.

This type of work includes general exercises, drills, stretching and back and abdominal exercises. The stretching exercises are always present in all training sessions during the warm-up and the end of session.

After this first cycle he competed in some indoor races, which resulted in 2 world records:

1500 m 3:31.18 WR indoor Stuttgart, Germany, February 2, 1997.

1Mile 3:48.45 WR indoor Gent, Belgium, February 12, 1997.

1500m..1st_3:35.31 World Indoor Champs, Paris, March 8, 1997.

Second preparation cycle (March 30 to April 19, 1997)

This cycle started after the World Indoor Champs. During this stage high intensity parameters are added.

Day

Morning

Afternoon

March 30, 1997

Aerobic endurance

Strength work

31

Rest

Race Pace

April 1st, 1997

Aerobic endurance

Aerobic endurance

2

Aerobic endurance

Power

3

Aerobic endurance

Race Pace

4

Aerobic endurance

Rest

5

Aerobic endurance

Power

6

Aerobic endurance

Race pace

7

Aerobic endurance

Aerobic endurance

8

Aerobic endurance

Power

9

Aerobic endurance

Aerobic endurance

10

Rest

Aerobic endurance

11

Aerobic endurance

Race pace

12

Aerobic endurance

Rest

13
Aerobic endurance
Strength work

14
Aerobic endurance
Aerobic endurance

15
Aerobic endurance
Aerobic endurance

16
Aerobic endurance
Power

17
Aerobic endurance
Rest

18
Aerobic endurance
Aerobic endurance

19
Aerobic endurance
Race pace

Aerobic endurance.

30-45 min of continuous running at 2:50-3:00 or 3:10/km

30 min of continuous running as recovery.

Race Pace

Fartlek: 6-5-4-3-2-min fast running.

Track session: 1 x 1600 - 1200 - 800 - 600 - 400 m with short recovery starting with 1 min going down to 30 seconds!

Power

200-300 Multi-jumps.

Up-hill reps: 10 x 300m with jog back recovery.

Up-hill reps: 5 x 150 m

(Extra comment: He works with plyometric training doing jumps over low hurdles and several types of multijumps over grass, "about 300" but that is not an exact figure, but the main work is done the gym for leg development, with half squats, quadriceps, isquios with machines, the abdominal and back exercises they do them almost everyday several reps with medicine balls.)

Strength work

The work is very similar to the previous cycle. The only difference is that the coach sets the total duration of the session:1h 30 min, but El Guerrouj chooses the exercises, using free weights and machines.

Third preparation cycle, May 11 - 31, 1997

Day
Morning
Afternoon

11
Aerobic endurance
Aerobic endurance

12
"warming-up"
speed work

13
Aerobic endurance
Aerobic endurance

14
"warming-up"
Race pace

15
Aerobic endurance
Aerobic endurance

16
"warming-up"
speed work

17
"warming-up"
Rest

18
"warming-up"
Race pace

19
Aerobic endurance
Aerobic endurance

20
"warming-up"
speed work

21
Aerobic endurance
Aerobic endurance

22
"warming-up"
Race pace

23
Aerobic endurance
Aerobic endurance

24
Rest
Rest

25
"warming-up"

speed work

26

Aerobic endurance
Aerobic endurance

27

"warming-up"
Aerobic endurance

28

Aerobic endurance
Race pace

29

Aerobic endurance
Aerobic endurance

30

"warming-up"
"warming-up"

31

Rest
Adrian Paulen M.

1st_ 1500m 3:29.51

Aerobic endurance.

30 min of continuous running at 3:00-3:10/km

40 min of continuous running as recovery.

"Warming-up" (the original word is "échauffement").

Consists of 30 min easy running and 30 min of several general exercises. The aim is to get an active rest.

Race Pace

10 x 400m between 53-54 seconds with only 30 seconds recovery. He gets help from a "rabbit" the last 200 m in each repetition.

Speed work

10 x 300 m in 35-36 seconds with surges and help from a "rabbit".

6 x 500 m with surges and help from a "rabbit" the first 300 m in each repetition.

From this moment the help from the "rabbit" becomes very important, because he is approaching to the competitive period. He likes this type of sessions, they make him feel like in a race: with unexpected changes of pace, he improves his reaction every time that the "rabbit" accelerates.

Results 1997 season.

He had an almost unbeaten season with the Athens World title in 1500 m_3:35.83. Among his best results were the 3:28.91 in Zürich (August 13, 1997) and Brussels (August 22, 1997) 3:28.92.

Progression at 1500 m

1994 3:33.61

1995 3:31.16

1996 3:29.05

1997 3:28.91

1998 3:26.00

Another PR

800m 1:47.18 (95) ; 1000m 2 :16.85 (95)

Some notes about:

Altitude training.

He trains several times a year at Ifrane, 1650m altitude, at least 3 weeks in each period, although his coach does not consider an indispensable way of training, he always seeks for quality no matter the altitude. They don't believe in going to higher altitudes like Font Romeu (1800m) and Mexico City (2240m) although have been in these places in the past.

Ifrane.

According to British distance athlete Jon Wild who spent 3 weeks training in 1998 "Ifrane is a holiday town for Moroccans. It is quite lively in the summer with festivals and fairs. A very small place of 1500 (without tourists) and seems to attract people from all over. Gabriella Zabo was there in 1998, Julius Achon (Uganda) and the Qatar national team have been training there as well. There are several training places like

The Forest. This is a huge area 5 min jog from the downtown through the streets and up a very steep hill into the trees. The paths are of light fine sand and not too soft or too hard but rocky in places. There are many loops to run one called the "Skah loop".

The "Lake". It is in fact an old dry lake bed it seems, across a larger grassy area one can find this flat bed with a path beaten around it a stones to mark the way, it's completely clear of trees and 2 km around it has stones to measure the distances, so repetitions can be run here.

The Park. This is an area near the downtown which has some dirt paths, they run a loop through the park up the road and into the park again.

The track is a little exposed out on a plain and caught the wind. They had to pay off the army guards to let them run there with no hassle. "They did not like us to be there when it was the Moroccans sessions, but sometimes it just happened that we were there at the same time, most we had just finished....."

by

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Daouda, Aziz. (Morocco). Lectures at National Coaching School, Caceres, Spain. October 31st, November 1,2, 1997.

Wild, Jon., (UK). Letter via e-mail (April 29, 1999)

Comment by Marius : This system of training is extremely hard. Kada has pointed out that there are some errors in this article, but the main ideas of it is correct.

The things to look at is the incredible development of Mr. Peter Coes multi tier system. Salah Hissou brought this home to Morocco and started working on it in the early/mid 90s. He first copied it (like it is found in the book "Training Distance Runners" by Coe/Martin), then gradually developed it (even though it is still much of the same). Go to page 144 in the Coe/Martin book and look at table B. Here Coe suggests around 4-5 AT (anerobic treshold or lactate ventilatory treshold like he calls it) a week, 2-3 Vo2 max sessions and 1-2 anaerobic tempo sessions for long distance runners.....the El Guerrouj group does 1-2 "race pace" (Vo2 max) a week, 1-2 power workouts (anaerobic tempo sessions) and around 5-6 anaerobic treshold sessions - what they call aerobic endurance. From the information I have El Guerrouj does not do this AT work on all endurance sessions, but at least 5-6 times a week. So as you can see, the training relates a lot to the one Mr. Coe started. This is also something El Guerrouj has said in interviews himself : "In the beginning of the 80s, the British milers dominated distance running. So we simply copied their training system and adapted it to our runners" You see again, how much AT work (which is between 2.50 and 3.10 for El Guerrouj - just like this article says he runs on the aerobic endurance type runs) is done, plus Vo2 sessions and power workouts when the season gets closer. Plus strength work, like Mr.Coe writes about as well. The mileage of El Guerrouj has been recorded to around 200 km a week some weeks in the winter by observers, with an average of around 160. This includes a long single distance run of about 21 km on Sundays at 3.30 to 2.50 up at 2100 meters altitude where they drive up to (takes around 30 minutes). And all with high, high quality in the training.

The other school of Moroccan training

The followers of the Khalid Skah training train a little bit different from the El Guerrouj group. They basically run hard Vo2 max sessions three times (sometimes 4) a week, and endurance sessions the rest. The endurance sessions usually start at a tempo around 4 min/km, and gradually pick up to 3.05-15 where they will continue for a total of about an hour of running (what they call "footing" -start slowly and build the pace). This progressive AT training is where they get their endurance. There is nothing called easy running here either, but the pace on days of AT is somewhat slower than the El Guerrouj group.

Power, in terms of hill running is also emphazied in this group. Khalid Skah runs about 2 sessions of hill work each week, year around. Sometimes 20x400 meter hills in the morning and 20x400 meters in the afternoon on the track in around 58 - 63 seconds. This because he claims the muscles he uses is different in uphill compared to flat running and the restitution will go quicker. The other Vo2 max sessions, is typically one fartlek where they run for example 5-4-3-2-1-2-3-4-5 minutes reps, sometimes times two. This at a blistering pace. Then a last session of longer track reps of either 6-8x1000 meters/3x2000 meters/3000-2000-2x1000-2x500/2000-1000-2x500 meters.

The distance runs are between 45 minutes and 60 minutes and average is around 200 km a week, ranging from 160-70 to around 220. Khalid also builds strength through weight workouts with many reps (to avoid bulky muscles) in the fall/winter period, and says that this together with his extensive use of hill training gives him the incredible kick he has. He has outkicked Gebreselassie, he has run 24.3 in the last 200 meters in a fast race, and 11.8 in the last 100 m. at the end of a 10000 meter, and together with Gebresalassie, Morceli, Aouita

and Yifter the best kicker the world has seen. This, with only a 3.38 1500 meter to his credit. But through his training, he is able to sustain speed at the end of races.

Mohammed Mouhrit (world cross champ 2000/2001/12.49 5000 meter) follows more of the Skah training, with 400 meters in hills at 61-64 seconds and 400 meters on the track at 60 seconds with 40 sec. recoveries, where he is said to just absolutely bury extremely good marathon runners. (more info and details on Mouhrits training would be appreciated ! :-) As you can see again, endurance is needed to run fast in the longer distances, and the way to get great endurance is AT training. Then, power, speed and Vo2 max on top of this, and you can perform at your absolute best. It goes for the Kenyan system, the Maroccan system and the Portugues system. Plus for the training of Grete Waitz.

This article is based on some first hand knowledge though mostly reliable second hand information, and any further details and information would be greatly appreciated if this would correct any of the details published here.

Marius Bakken, 2001.

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