

## **The advantage of black runners**

They ran the last edition of the Berlin Marathon together and, although Dennis Kimetto defeated Manuel Mutai for a few seconds, both broke the world record.

Kimetto comes from outer space and Mutai of the same planet: East Africa. In fact, this region of the universe since 2003, it has gathered all the world's records. Paul Tergat, Haile Gebrselassie, Patrick Makau, Wilson Kipsang and now Kimetto.

What are these alien athletes made of? The common place: they are made to run, they have runner genes, there is no one to win them, it is trap. But the scientific question moves away from speculation and tries to go deeper into the knowledge that is woven around this phenomenon: what are the physiological differences, kinematics, environmental and biological between these exceptional corridors and the rest of the world? What are the numbers that support the notion that these runners are special and are out of league? It is easy to say that African athletes are genetically privileged. It is true that some physiological studies suggest that these runners have less cost in metabolic currency to run at 20 K/ h However; it turns out extremely difficult to prove it.

We do not know exactly what aspects of the Biology of this human group is based their talent. What are the genetic variants, if do they exist, that grant that incredible resistance? A promising clue is in the mechanical properties of muscles and tendons. Now is knows that the cost of running (the oxygen that is spent for each kilometer) depends to a great extent of the elasticity of these structures. The more elastic energy is stored and released in every stride, less oxygen to move. In other words, with rigid springs and jumping organism the organism needs to invest less energy in the movement. Recent studies show that there are genetic variants of collagen, the protein that gives elasticity to tissues, and suggest that some phenotypes are associated with better career economies, the protein that gives elasticity to tissues, and suggest that some phenotypes are associated with better career economies.

On the other hand, a comparison of the main anthropometric characteristics indicates that the African runners have lighter legs, with their concomitant contribution to the career economy. The competitive marathon runs at high rates, 180-190 steps through minute. Clearly, large muscle legs (hypertrophied twins, for example) are more difficult (more expensive) to move than thin ones. And those of the African runners are without doubt the thinnest ones. However, no matter how reasonable this hypothesis sounds, it has not been found in the scientific literature clears data of the cost of undulation of lower limbs that support this idea. It is also not known which genetic variants are involved in the development of legs of this type, a work, by the way, of titanic proportions.

The environmental factors are added to the intrinsic factors of the organism. Where they live? How train? What do they eat? What is the source of your

motivation? In countries where poverty reigns extreme, the sociological factors are not negligible; the African athlete runs by necessity and does in community. If one achieves success, many benefit; in a village of 5000 inhabitants, 3500 run with maximum desire for improvement; they are competitive in sports, but they help each other in daily life; In addition, the great talents are honored as national heroes.

Athletics has become a real development alternative for these peoples. There is still a lot of fabric to cut to unveil the mysteries of athletic excellence, a path full of knowledge and lessons. It is true that the plasticity and flexibility of human forms fills us with fascination and scientific curiosity. But it is also true that the humble stories of overcoming behind these champions are hopeful. The African phenomenon is an example of a possible beauty, one that everyone, regardless of our origin, can reach.