

1970 World Cup

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Exactly 50 years ago, Brazil won the 1970 Soccer World Cup, held in Mexico, establishing the talent of its players, and also revealing the value of Sports Sciences, which were rarely taken into consideration at the time.

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The fact that Brazil became a three-time World Champion in 1970 reinforced the myth of Brazilian player superiority which originated a long while back and was constantly reinforced by the press and by renowned nationalist intellectuals. In the 1960s and 1970s, the extraordinary dexterity of the stars then known as “immortal stars”, Garrincha and Pelé, consolidated the myth of Brazilian soccer.

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Pelé, particularly, stood out from the constellation of Brazilian players from the 1970s and previous years, becoming an international sports myth. His athletic capabilities were broadly

and indisputably recognized in the following decades, which also contributed to reinforcing the image of Brazilian invincibility in soccer.

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The 1970 Mexico World Cup included host cities located in elevated regions, which brought up the challenge that had previously appeared in the 1968 Olympic Games, which were held in the same country: scientifically controlled physical preparation focusing on altitude adjustment to protect athlete health. In Brazil, since the beginning of the 1960s, questions were appearing regarding sports that had more to do with natural athletic talent than with physical preparation, in direct opposition to the desired adjustment to altitude. This worry had already been presented in 1967 with the publication of the technical-scientific book written by Lamartine DaCosta, a researcher dealing with physical activities in tropical climates and at high altitudes since 1963.

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The matter of confronting the myth of Brazilian soccer superiority with the scientific recommendations for dealing with physical effort at high altitudes was taken up at the end of 1969 by Brazilian soccer team coach João Saldanha, who partnered with Lamartine DaCosta to give the physical preparation for the Mexico Cup the importance it deserved. Although the coach, then known as “Fearless João” (João sem medo) also included Brazilian soccer traditions, he was pragmatic when considering the “scientific war” which was already apparent among the countries vying for the 1970 Cup.

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The unprecedented partnership between Brazilian soccer and scientific research promoted by João Saldanha had strong justifications backing it up, as Lamartine DaCosta had published three books in Portuguese between 1963 and 1969, an operational manual in English, and two

scientific articles in international journals about sports training in tropical climates, at high altitudes, and biometeorology. The subjects of the studies were military athletes, and the experimental observations were conducted in elevated regions of the Tijuca and Agulhas Negras National Parks (RJ).

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In 1968, Professor DaCosta was one of the scientific observers present at the Mexico Olympic Games. During this opportunity, he identified areas that would be favorable for altitude adjustment geared towards Mexico City (2200 meters) and Guadalajara (1500 meters), future hosts of the 1970 Soccer World Cup. The chosen location was Guanajuato (2000 meters) a city that had very limited infra-structure at the time but represented the variety of micro-climates present in the Mexican highlands.

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The accumulated scientific knowledge on sports competitions at high altitudes pertaining to Mexico was summarized during Saldanha's first meeting with DaCosta in the beginning of 1970 through scribbles on a restaurant napkin. This "plan" served as a general guideline for the scientific preparation for Mexican conditions. In 1972, the artifact became historic after being formally transcribed in the FIFA book about the 1970 World Cup.

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The protocols João Saldanha received from Lamartine DaCosta included a requirement that was vital to the team's success in Mexico: a three-week stay at Guanajuato in order to adjust to the higher altitude that would be a part of the World Cup games. This true athletic "quarantine" in an uncomfortable location was, however, fulfilled under various pressures against it that stemmed from various origins and interests. However, at the end of the competition, with the World Cup victory and title of three-times World Cup Champions, the validity of Altitude Training was confirmed.

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Although Brazil won its third World Cup title in Mexico, the preparation of scientific bases for the 1970 Team was hindered by issues that were political in nature. The main confrontation occurred between João Saldanha and the Brazilian President, General Medici. There was an attempt to influence which players were chosen for the team and Saldanha rejected the attempt, so he was removed from his position. Thus, along with the myth of Brazilian soccer invincibility, there were also the governing power's interests, which increased the risks of diluting the scientific proposals.

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The removal of João Saldanha, who was replaced by Mario Zagallo, another icon of Brazilian soccer, did not, however, lead to any interruptions of the original plan. This happened because the trio of physical preparation coaches were able to maintain the established protocols, including the altitude training in Guanajuato. This team was composed of Admildo Chirol, Carlos Alberto Parreira, and Claudio Coutinho. The latter improved the part of the plan that predicted higher physical resistance gains for the players upon adopting the proposals for physical training with a higher consumption of oxygen idealized by Kenneth Cooper, a researcher with whom he established a partnership after the 1970 Cup.

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The 1970 squad's physical training coaches' feelings regarding the scientific approaches overall repeated another collective study, involving five doctors and 4 physical education professionals, which was published in 1969 (L. DaCosta, Editor), which reorganized the Science of Sports Training. The procedures which guided the physical preparation for the Brazilian team in both Brazil and Mexico followed the system created in 1969, being also cited in the Fifa book (1972) about the Mexico World Cup. In conclusion, the 1970 title was a typical result obtained by scientific cooperation, which had never been seen in Brazilian sports before.

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Lamartine DaCosta speaks with Armando Nogueira about the Brazilian team's huge victory in the 1970 Cup and the scientific solutions for beating the Mexican altitude. They also talked about the attitudes of sports scientists when dealing with difficulties for developing the field.

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