



MEDIR EL ÉXITO DE UNA POLÍTICA NACIONAL DE DEPORTE DE ÉLITE

MEASURING SUCCESS OF A NATIONAL ELITE SPORT POLICY

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RESUMEN

Los investigadores, los medios y los gestores deportivos emplean la tabla de medallas olímpicas para medir el éxito de las políticas de deporte de élite. Sin embargo, dicho ranking tiene algunas limitaciones, de las cuales las tres más importantes son:

1 – La superioridad de una medalla de oro sobre cualquier cantidad de medallas de plata y bronce lleva a la inferencia falaz de que un país con un atleta sobresaliente capaz de conseguir una medalla de oro es superior a otro que cuente con varios atletas que han quedado en segunda y tercera posición.

2 – Al no tener en cuenta el número de países que participan en cada competición, la tabla de medallas no considera el nivel de competición de cada deporte. Por ejemplo, 115 países compiten en vela, mientras 215 lo hacen en baloncesto.

3 – Solo el 42% de los Comités Olímpicos Nacionales ha ganado medallas si combinamos las tablas de medallas de los juegos de verano de 2016 y de invierno de 2018. Esto no permite un correcto análisis comparativo del éxito de los países en el deporte de élite.

Para superar estas deficiencias, Nassif propone un nuevo índice, denominado “Ranking Mundial de Países en el Deporte de Élite”, cuya metodología pretende crear una

medición más precisa de los resultados de cada país en deportes de élite. Al incluir a todos los países, los estudios comparativos que midan el éxito de las políticas de deporte de élite serán más precisos.

PALABRAS CLAVE:

medición; éxito; élite; deporte; políticas.

ABSTRACT

The Olympic medal table is used by researchers, media and sports administrators to measure the success of national elite sport policies. However, this ranking has some limitations, the three most important being:

1- The superiority of a gold medal over any number of silver and bronze creates the false inference that a country with one outstanding athlete capable of winning a gold medal is superior to another one which has several athletes who finished second and third.

2- By not taking into account the number of countries participating in each event, the medal table does not consider the level of competition of each sport. For example, sailing is practiced by 115 countries while basketball is played in 215.

3- Only 42% of the National Olympic Committees won medals if we combined the 2016 Summer and 2018 Winter Olympic medal tables. This will prevent an



adequate comparative analysis of the countries' success in elite sport.

To overcome these shortcomings, Nassif has proposed a new index, entitled "World Ranking of Countries in Elite Sport" whose methodology aims at creating a more precise measure of the performance of each country in elite sport. By ranking all countries, comparative studies measuring the success of national elite sport policies will be more accurate.

KEYWORDS:

Measuring; success; elite; sport; policy.

INTRODUCTION

Although, according to the Olympic Charter, the International Olympic Committee (IOC) shall not draw up any global ranking per country², economists³, political scientists⁴ and scholars in sports management⁵ mainly refer to the Olympic medal table when they want to measure the performance of a country in sport. Because the Olympic medal table computes only the medals won by the top three competitors in each event, includes a limited number of sports (35) and does not consider the popularity and universality of each discipline, we will propose a new

model that comprises the following features:

a) A weighted points system that replaces in any event, discipline, or sport the three-medal Olympic system.

b) The introduction of universality and popularity coefficients for each sport.

c) A computation model that attributes to each country its share of points in at least one sport and consequently its ranking based on the total number of points that this country would have acquired in all sports recognized by GAISF (Global Assembly of the International Sport Federations).

By proposing an accurate measurement of the performance of all the countries in elite sport, we will be able to better identify the factors that explain the success or failure of their elite sport policies.

METHOD

Nassif⁶ presented this methodology in the first International Society for Sports Sciences in the Arab World (ISAW) congress organized in 2015 in Oran, Algeria. In 2017, this ranking was named the World Ranking of Countries in Elite Sport (WRCES), a title that was trademarked and copyrighted⁷

² See Olympic Charter, article 57.

³ Such as Andreff, W. (2013). Economic development as major determinant of Olympic medal wins: predicting performances of Russian and Chinese teams at Sochi Games. *International Journal of Economic Policy in Emerging Economies*, 6(4), 314-340.

⁴ Such as Reiche, D. (2016). *Success and failure of countries at the Olympic Games*. Routledge.

⁵ Such as De Bosscher, V., Shibli, S., Westerbeek, H., & Van Bottenburg, M. (2015). *Successful elite sport policies: an*

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⁶ Nassif, N. (2017). Elite Sport Ranking of the "International Society of Sports Sciences in the Arab World": An Accurate Evaluation of all Nations' Performances in International Sports Competitions. *Athens Journal of Sports*, 53-64.

⁷ See registration certificate number 2553 signed on August 17th 2017 by the Lebanese Ministry of Economy and Commerce.



in 173 countries. The starting point of this methodology is a pointing system in any event, discipline, or sport (see glossary in Table 1).

Table 1. *Glossary*

Term	Definition	Examples
Sport	A group of disciplines or events that belong to the same international federation	Aquatics (FINA)
Discipline	A branch in a sport comprising one or more events	Swimming
Event	A competition in a sport or discipline that gives rise to a ranking	Men 50 M freestyle

Since, as of 2017, the number of National Olympic Committees 206, any winning team or athlete participating in an event whether it is in a team sport (basketball) or individual sport (athletics) gets a basic score of 206, the second getting 205, the third 204, and so on. To reward the top eight participants in every event, we introduced a weighting coefficient inspired by the formula 1 scores between 2003 and 2009⁸. So, the winner of the event will have his basic points multiplied by 10, the second by 8, the third by 6, the fourth by 5, the fifth by 4, the sixth by 3, the seventh by 2, and the eighth by 1, as summarized in Table 2.

Table 2. *Points Classification within an event, discipline or sport*

Rank in an event	Basic Number Points granted on basis of number of Olympic committees	Weight (Formula 1 2003-2009 scale)	Weighted basic number of points:
1	206	10	2060
2	205	8	1640
3	204	6	1224
4	203	5	1015
5	202	4	808
6	201	3	603
7	200	2	400
8	199	1	199
9	198	1	198
10	197	1	197
11	196	1	196
.....
.....
206	1	1	1

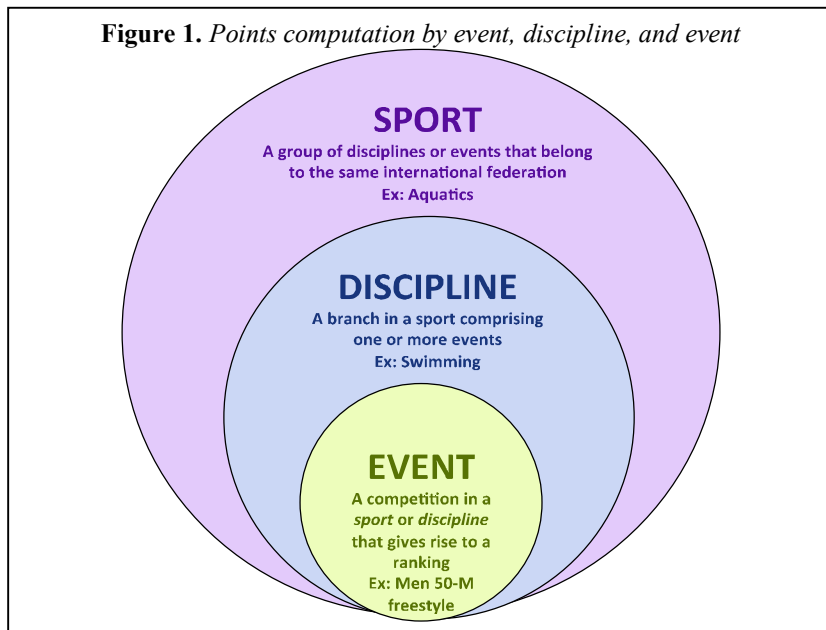
As Table 3 shows, in the case where an individual sport with more than one competitor from each country, a total number of points per event for each country is obtained by summing up the points

⁸ Formula 1 2003 results archives website.

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received by its athletes in that

If a sport has several disciplines



event.

Table 3. Example of ranking and scaled points granting for a country in an event A

Ranking of athletes in event A*	Points	Corresponding Ranking of countries in event A	Points
1 USA	2060	1. Brazil 2864 (1640+1224)	2060
2 Brazil	1640	2. USA 2060	1640
3 Brazil	1224	3. France 1209 (1010+199)	1224
4 France	1010	4. Italy 1003 (603+400)	1010
5 Spain	808	5. Spain 808	808
6 Italy	603		
7 Italy	400		
8 France	199		

* Note that the athletes are named here by their countries of origins

(such as aquatics, which includes the disciplines of swimming, water polo, synchronized swimming, and diving), the points won in every event are computed by discipline and the points won in every discipline are computed by sport (see figure 1) following the same pointing system. If a sport does not have any discipline (such as athletics), the points won in every event will be computed by sport.

The points won in the ranking of each sport are then multiplied by coefficients of universality and popularity. Universality takes into account the number of all countries participating in a given sport. Popularity indicates the international media ratings for each sport. For Nassif, more countries participa-



ting will make the event more difficult to win⁹. And a higher media coverage will attract more private and public funding and raise competition's level by engaging the most talented athletes.

The universality coefficient is calculated based on the sport's number of national federations, its presence in the programs of the Olympics, the International School Sport federation, International University Sport Federation, International Sport Military Council, Paralympics, International Master Games Association, World Transplant Games Federation, Special Olympics, Deaflympics, Workers and Amateurs' International Federation, and the International Children's Games Association, all multisport organizations recognized by the IOC.

If within a sport (cycling), there is a difference in terms of universality between the different disciplines (like road cycling) there would be a difference in the universality coefficient between them. Nevertheless, because the same international federation (International Cycling Union) runs them, the universality coefficient of cycling would be equal to the cycling discipline that has the highest universality coefficient (see Table 4).

Table 4. *Universality coefficients of different disciplines within the sport of cycling*

	Universality coefficient
Cycling	14.4
Road Cycling	14.4
Track cycling	8.44
Mountain biking	10.38

For the popularity coefficient, we will first measure in a one-year span, the frequent presence of the different sports in each country's major sport website¹⁰. Since there are many differences in popularity between events within a discipline (between men's football and women's football, for example) or between disciplines within a sport (between football and futsal, as examples), we will look to the most popular sport event. In every country, the most popular sport event would get a score of 100, the second 99, the third 98 and so on...

These points will then be multiplied by a coefficient based on the Gross National Income (GNI) of each country. Every trillion of dollars gives one point for the GNI coefficient. Given that France's GNI is 2.59 trillion, France's GNI's coefficient will be of 2.59. Therefore, the most popular sport event in France would have 259 points (see Table 5). The multiplication of the points by a country's GNI coefficient was done because

⁹ Nassif, N. (2017). Elite Sport Ranking of the " International Society of Sports Sciences in the Arab World": An Accurate Evaluation of all Nations' Performances in International Sports Competitions. *Athens Journal of Sports*, 53-64.

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¹⁰ The identification of the most popular sport websites in each country was done through the website "alexa", which provides commercial web traffic data and analytics (<https://www.alexa.com>).



we consider that a sport that is popular in wealthy countries attracts more funding than a sport popular in developing countries and consequently, a “wealthy sport” will attract athletes that are more talented and thus have a higher level of competition.

Table 5. Total popularity points for sports in France in the 2018 WRCES

Sports events	Popularity rank	Basic number of points	Total number of popularity points in France (Basic number of points * French GNI coefficient ¹¹)
Football (men)	1	100	259 = (100*2.59)
Tennis (no difference between men and women)	2	99	256.4 = (99*2.59)
Rugby Union (men)	3	98	253.8 = (98*2.59)
....

The popularity points won by a sport event in each country are then added to have their total number of points in the world (see Table 6).

Table 6. Total number of popularity points for men football in the 2018 WRCES

Countries	Popularity points for men football
France	259
Germany	360
Greece	20.5
...	...
World	7370

The total number of points won by a sport event will be added to the total number of points won by the other sport events of the same discipline. In the case of the discipline of football, for example, we will add the points won by men’s football and women’s football (see Table 7).

Table 7. Total number of popularity points for the discipline of football in the 2018 WRCES

Men’s football event popularity points	7370
Women’s football event popularity points	999
Football popularity points Men’s football event popularity pts + Women’s football event popularity pts	8369 7370+999

The same calculus will be done with all the other disciplines. Since there are 109 sports included in the 2018 WRCES, the most popular sport in the world will get a popularity coefficient of 109. This was done because we consider that the most popular sport will be the first among the 109 choices that present themselves to youth interested to make a career in professional sport. But because the popularity coefficient of a sport is equal to the popularity coefficient of its most popular discipline, the most popular discipline will get a popularity coefficient of 109. The other disciplines will get a popularity coefficient that will be calculated following the rule of three:

¹¹ GNI coefficient = GNI / 1 billion

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For example, in 2018, being the most popular discipline in the world, football, will obtain a popularity coefficient of 109 points. To have the popularity coefficient of volleyball, we will multiply the popularity points of volleyball (2817) by 109 and then divide this product by the popularity points of football:

Volleyball popularity coefficient

(Volleyball total popularity points * 109) / Football total popularity points

$$(2817 * 109) / 8369 = 36.7$$

Table 8 will show the example of the popularity coefficient of the sport of football.

	Popularity coefficient
Football (the sport)	109
Football (the discipline)	109 (96 Men, 13 Women)
Futsal	9.7
Beach soccer	2.9
Interactive football	1.9

Since there is no indication that the universality and popularity of a discipline are correlated, the total coefficients of each discipline in the WRCES methodology will be the sum of its universality and popularity coefficients. The total coefficient of a sport will be also equal

to the total coefficient of its most popular and universal discipline. Table 9 will show the example of the sport of handball. The sport of handball includes the disciplines of handball and beach handball.

	Popularity Coefficient (PC)	Universality Coefficient (UC)	Total coefficient (PC + UC)
Handball (the sport)	21.4	10.41	31.81
Handball (the discipline)	21.4	10.41	31.81
Beach handball	0	1.97	1.97

This methodology has been used to calculate the total coefficient of 109 sports in 2018. The points won by each country in each of the sports after the coefficients multiplications were added to obtain their total amount of points (see Table 10 with the top three countries). The final ranking was done according to the “summed” total amount of each country.

	USA	Germany	France
Sum of the 103 sports*	983220	524689	523440

*103 sports were taken in consideration in 2017

For the competitions chosen, the WRCES uses the official ranking prepared by the international federation of each sport. When a sport that does not have an official



world ranking, the results of the last world championships and/or the Olympics¹² to date are used.

RESULTS

In the 2017 WRCES edition (last edition completed to date), 206 countries were ranked instead of the 87 that were only ranked by the combined 2016-2018 Olympic medal table. The WRCES also proposes an annual evaluation of countries performances in more than 100 sports (103 in 2017 and 109 in 2018) instead of one done once every 4 years in only 35 by the combined Winter and Summer Olympic medal table. It also rewards countries that succeed in highly popular and universal sports that do not offer a lot of medals (Argentina in basketball and football), and scale appropriately those that win several medals in minor sports that have a multitude of events (Norway in winter sports and Hungary in canoe-kayak), as shown in Table 11.

Table 11. Comparison between Argentina, Norway, and Hungary's results in the WRCES and the Olympic medal table

Countries	2014-2016 Combined Olympic Medal Table	2016 WRCES
Argentina	36 th	11 th
Norway	11 th	22 nd
Hungary	15 th	28 th

CONCLUSION

The WRCES was first created to measure the performance of all the countries in all the sports recognized and/or applying for

GAISF membership. But its main goal is to open the door for researches on factors and strategies leading to countries' successes in elite sport.

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¹² If it is an Olympic sport.

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