

Physical Characteristics and Somotype of Myanmar National Hockey Players

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Resumen

Introducción: El rendimiento en hockey sobre césped depende de diferentes factores. Las características físicas junto con la forma y el tamaño del cuerpo de los jugadores son uno de ellos. El presente estudio tuvo como objetivo descubrir las características físicas, así como los somatotipos de los jugadores nacionales de hockey sobre césped de Myanmar. **Métodos:** Se midió la altura, el peso y el somatotipo de veinte jugadores nacionales de hockey sobre césped durante su visita a un país vecino para una gira de amistad. Se siguió el método Health-Carter (1967) para calcular los componentes del somatotipo. Resultados: La edad, la altura y el peso promedio de los jugadores de hockey sobre césped de Myanmar del presente estudio fueron 21,7 ($\pm 1,1$) años, 164,8 ($\pm 4,6$) cm y 56,5 ($\pm 5,1$) kg respectivamente. Se observó un somatotipo promedio de 1,7 ($\pm 0,5$) - 3,8 ($\pm 0,9$) - 2,9 ($\pm 0,8$) para el presente estudio. **Conclusiones:** La mayoría de los jugadores (55 %) tenían un tipo de cuerpo mesomorfo ectomorfo, mientras que el 30 % de los jugadores tenían un tipo de cuerpo mesomorfo ectomorfo. El resto tenían un tipo de cuerpo mesomorfo equilibrado, mesomorfo endomórfico y mesomorfo ectomorfo. En comparación con otros países, los jugadores de hockey de Myanmar eran más bajos que sus homólogos internacionales. Por lo tanto, la altura de los jugadores debe tenerse en cuenta durante la selección de jugadores en una etapa temprana de la identificación de talentos para un buen rendimiento en hockey sobre césped.

Palabras Clave: Hockey Sobre Césped, Somatotipo, Endomorfia, Mesomorfia, Ectomorfia

Abstract

Introduction: Performance in Field Hockey depends on different factors. Physical characteristics along with the Body shape and size of the players are one of them. The present study was aimed to find out the physical characteristics as well as Somatotypes of Myanmar National Field Hockey players. **Methods:** Twenty national Field Hockey players were measured for their height, weight, and Somatotype during their visit to a neighbor country for a friendship tour. Health-Carter method (1967) was followed to calculate the Somatotype components. **Results:** The average Age, Height, and Weight of the Myanmar Hockey players of the present study were 21.7 (± 1.1) yr, 164.8 (± 4.6) cm, and 56.5 (± 5.1) kg respectively. An average Somatotype of 1.7(± 0.5)-3.8(± 0.9)-2.9(± 0.8) was observed for the present study. **Conclusions:** Most of the players (55 %) were with Ectomorphic mesomorph body type, whereas 30 % of players were with Mesomorphic ectomorph body type. Rest were with Balanced mesomorph, Endomorphic mesomorph, and Mesomorph ectomorph body type. Compared to other countries, Myanmar Hockey players were shorter than their international counterparts. Thus, the height of the players should be considered during the selection of players at an early stage of Talent identification for good performance in Field Hockey.

Keywords: Field Hockey, Somatotype, Endomorphy, Mesomorphy, Ectomorphy

Introduction

Field hockey is a team sport with a stick and ball where the performance of a sportsman depends on Body shape and size along with muscularity besides personal skills and techniques. Anthropometric aspects of a Hockey player are very important factors for better performance. Being taller and with a longer arm reach is advantageous

for a hockey player, giving the player greater reach in tackles and reaching for the ball. Similarly, for goalkeepers, a good height is more advantageous than a short height. Hockey players need good muscularity to create sufficient strength during running and tackling on AstroTurf hockey ground. Running on Astroturf requires more energy and strength than running on a natural grassy field. As modern Hockey competitions are played on Astroturf, players need more strength with good muscularity. The present study was done on the Myanmar National Hockey players to identify their Somatotype characteristics and compare them with international Field Hockey players.

Material and Methods

Participants

Twenty National Level hockey players who played in Myanmar National Team were measured during a visit to a neighbouring country for a friendship match. Consents were taken from each player before their measurements.

Anthropometric Measurements

All the measurements were done by following the standard methods of the International Society for Advancement of Kinanthropometry (ISAK manual 2019). Stretched stature was measured with a stadiometer and body weight was measured with a standard digital weighing scale. Skinfold thicknesses of four skinfold sites (Triceps, Subscapula, Supraspinale, and Medial Calf) were measured with a Harpenden Skinfold caliper (Baty International, UK). Bi-epicondylar bone breadths (Humerus and Femur) were measured with a small Sliding caliper (CESCORF, Brazil). Flexed and Tensed upper Arm girth and Medial calf girth were measured with an Anthropometric Tape (CESCORF, Brazil).

Somatotype

The Heath-Carter Somatotyping rating method (1967) was followed to predict the Endomorphy, Mesomorphy, and Ectomorphy components.

Results

Table 1. Physical characteristics, Somatotype components and Body fat % of Myanmar Hockey players.

*Endo denotes Endomorphy, Meso denotes Mesomorphy and Ecto denotes Ectomorphy

Players	Age (yr)	Ht (cm)	Wt (kg)	Endo	Meso	Ecto	Categories
NM	21	177.4	66.4	1.1	2.8	3.5	Mesomorphic Ectomorph
AMH	23	160.7	46.9	1.4	2.3	4.1	Mesomorphic Ectomorph
TZO	23	158.1	54.3	2	4.3	2	Balanced Mesomorph
KKH	24	159.1	56.8	2	4.8	1.8	Balanced Mesomorph
AKL	21	163.5	58.4	1.8	3.9	2.3	Ectomorphic Mesomorph
KSH	20	168.8	59.4	1.8	3.6	3.1	Ectomorphic Mesomorph
WKO	22	162.2	57.7	1.5	4.7	2.2	Ectomorphic Mesomorph
MHA	22	158.8	48.8	1.1	3.2	3.3	Mesomorph Ectomorph
NWM	20	158.8	50.5	2.3	4.1	2.9	Ectomorphic Mesomorph
ANW	21	165.5	56.8	2.4	3.5	3	Ectomorphic Mesomorph
ZMH	23	170.0	54.3	1	2.5	4.3	Mesomorphic Ectomorph
MKKN	23	166.6	60.2	1.8	3.8	2.6	Ectomorphic Mesomorph
TH	21	159.8	57.2	3	5	1.8	Endomorphic Mesomorph
ST	22	162.0	55.8	1.8	3.9	2.6	Ectomorphic Mesomorph

THW	21	170.2	60.3	1.3	4.1	3.2	Ectomorphic Mesomorph
ZH	21	168.3	54.2	1.2	3.4	4	Mesomorphic Ectomorph
TTW	21	166.3	59.3	1.4	4.1	2.7	Ectomorphic Mesomorph
HMZ	23	166.2	51.6	1.6	2.6	4.1	Mesomorphic Ectomorph
TK	21	162.7	63.3	1.3	5.6	1.5	Balanced Mesomorph
HLA	21	170.5	57.9	1.7	3.1	3.7	Mesomorphic Ectomorph
$\bar{X}$	21.7	164.8	56.5	1.7	3.8	2.9	Ectomorphic Mesomorph
SD	1.1	4.6	5.1	0.5	0.9	0.8	

* $\bar{X}$ denotes mean and SD denotes Standard Deviation

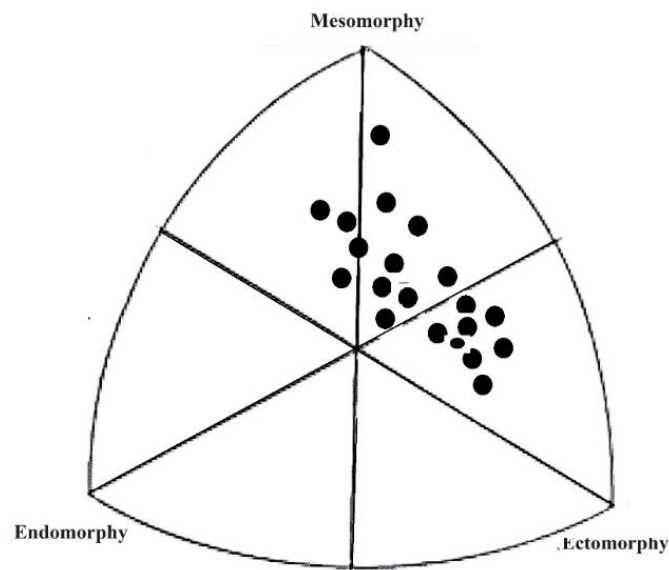


Figure 1. Somatotype of Myanmar National Hockey players.

Table 2. Physical Characteristics and Somatotypes of Hockey Players of different countries in Average

Studies	Country	Height (cm)	Weight (kg)	Endo	Meso	Ecto
Demuth et al.(2007)	China	171.9	70.9	3.0	3.9	1.9
Demuth et al.(2007)	Poland	177.2	73.6	3.4	3.6	2.4
Demuth et al.(2007)	Malaysia	170.5	70.4	3.5	3.8	1.8
Demuth et al.(2007)	Switzerland	179.2	75.0	3.8	3.5	2.6
Holway & Sera (2011)	Argentina	176.4	70.7	2.0	4.5	2.7
Eler & Eler,2018	Turkey	177.6	70.8	3.2	5.0	2.2
Choudhary et al. 2019	India	172.3	63.7	2.6	4.2	2.8
Lalifah et al.,2019	Java	NA	NA	0.5	4.2	2.3
Martín et al. (2020)	Spain	178.0	78.3	4.3	5.3	2.1
Present Study	Myanmar	164.8	56.5	1.7	3.8	2.9

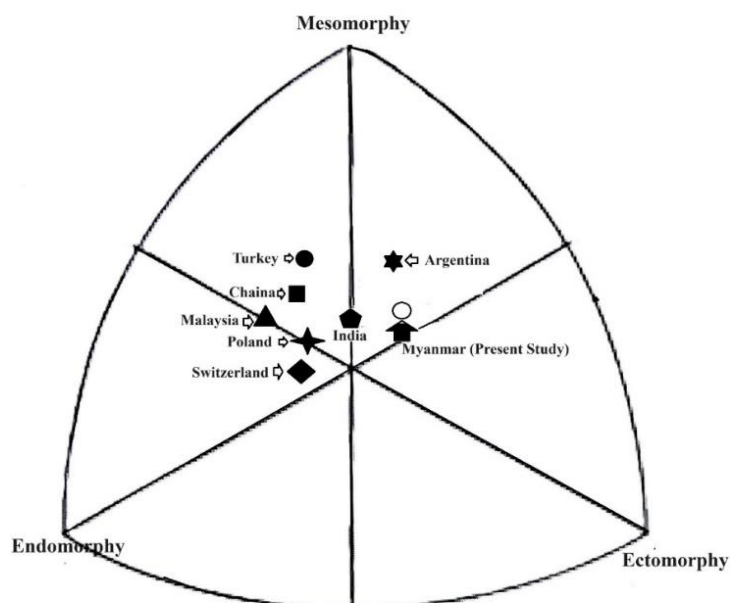


Figure 2. Somatotype of Field Hockey players of different countries

Discussion

Field Hockey is an Olympic sport played all over the world. Field Hockey is a sport where players need agility, balance coordination, and skill besides other Physiological and Psychological aspects. A high degree of leanness is also an important requirement for good performance (Scott, 1991; Reilly, A Borrie 1992; Spencer et al.,2004; Holway & Searab, 2011, Chaeroni et al 2024). Hence, Physical characteristics like height, weight, shape, and size of the body play an important role in good performance.

In the present study average height of the Myanmar Hockey players was 164.8 (± 4.6) cm with a range between 158.1 and 177.4 cm. The tallest Hockey player was observed for Switzerland with an average height of 179.2 cm, followed by Spanish and Turkish Hockey players with average values of 178.0 cm and 177.6 cm for Spanish and Turkish respectively (Table 2). Chinese and Indian Hockey players had very similar heights of 171.9 cm and 172.3 cm respectively. In contrast, the Malaysian Hockey players were slightly shorter by 170.5 cm than their counterparts in China and India. However, all these players of China, Malaysia, and India were shorter than their European and Argentine counterparts (Table 2). But the average 164.8 cm height of Myanmar Hockey players was shorter than all countries even shorter than Indian, Malaysia, and Chinese players though all these countries belong to the South East Asian region. The minimum height of the Myanmar Hockey player of the present study was 158.1cm whereas the maximum height was 177.4 cm. So, during the selection of players, the Myanmar Hockey Federation should select sportsmen with higher height than average height during talent identification at the early stage of training.

Somatotype is the description of the shape and size of the human body. The characteristics of physique are associated with success in sports (Carter & Heath 1990). Somatotype is an important factor for good performance according to the requirements of the game. As a Hockey player needs fast movement with a stick and a ball on AstroTurf with speed and endurance, an Ectomorphic mesomorph body type is preferable body type for better performance. In the present study, the body type of the Myanmar Hockey players was Ectomorphic mesomorph on average (Table 1 and Fig 1). 55 % of Myanmar Hockey players were with Ectomorphic mesomorph body type, whereas 30 % had a Mesomorphic ectomorph body type(Table 1). The average mesomorphy component of the Myanmar Hockey players of the present study was 3.8 ± 0.9 which was low in the moderate category. It should be High with a value above 5.5. Thus, the Myanmar Hockey players had moderate muscularity which was very similar to Chinese, Polish, Malaysian, and Swiss Hockey players but less than Indian, Javan, Argentine, Turkish, and Spanish Players (Table 2, Fig 2). Low Fattiness in terms of Endomorphy was observed in the Myanmar Hockey players of the present study which was very close to Argentine Hockey players (Table 1 and Table 2).

Conclusion

Thus from the above study, it was observed that the Myanmar national Hockey players were shorter than their international counterparts. Body shape and size in terms of Somatotype was Ectomorphic mesomorph which was perfect for good performance but muscularity was less which should be increased with proper nutrition and training. As a height concern, tall players should be selected during talent hunt at the beginning of training.

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Data availability

Full access to data on request.

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Conflicts of Interest

The Authors have no conflict of interest to declare

Informed Consent Statement

All the athletes included in the study provided written informed consent.

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