順天堂大学大学院スポーツ健康科学研究科 和文抄録
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日本人一流フェンシング選手の体格および体力特性に関する研究

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【目的】
本研究では、日本人男子一流フェンシング選手の体格および体力を学生フェンシング選手と比較し、その特性を競技レベル、種目、ラテラリティの観点から明らかにすることを目的とした。

【方法】
2024パリ五輪金メダリスト1名と、銀メダリスト1名を含む、シニア男子日本代表選手20名と、シニア日本代表選手の経験がない男子大学生選手28名の合計48名(フルーレ種目:13名、エペ種目:18名、サーブル種目:17名)を対象とし、形態測定(身長、体重、BMI、上・下肢長、上・下肢周囲径)と体力測定(握力、上体起こし、長座体前屈、反復横とび、20mシャトルラン、立ち幅とび、立ち二段とび、立ち三段とび)を実施した。左右の測定が可能なものは、剣を持つ手を利き手側、持たない手を非利き手側とし、脚はそれぞれに対応する脚を利き手側、非利き手側として測定した。測定の結果は解析ソフトSPSS ver.29を使用し、競技レベル×種目の比較、種目ごとに競技レベル×ラテラリティの比較をするために、二元配置分散分析を行なった。事後検定には、種目間の比較にTukeyの多重比較検定を、ラテラリティの比較に対応のあるt検定を行なった。

【結果】
身体計測において日本代表群は学生選手群より身長、体重、利き手および非利き手の上腕周囲径、利き手および非利き手の前腕周囲径、非利き手の大腿周囲径が有意に大きかった($p<0.05$)。サーブル種目はBMI、利き手および非利き手の上腕周囲径、非利き手の前腕周囲径、利き手側および非利き手側の大腿周囲径が他の種目より有意に大きかった($p<0.05$)。体力測定においては、日本代表群は学生選手よりも利き手および非利き手の握力が有意に強かった($p<0.05$)。

【結論】
日本人男子一流フェンシング選手は、上肢が体格的にも体力的にも発達しており、また利き手側の上肢、特に前腕が発達している。種目では、サーブル種目の選手が、上肢、下肢ともに体格的に最も発達しているが、体力的には顕著な差が見られない。

Juntendo University, Graduate School of Health and Sports Science 英文抄録（Abstract）
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Morphological and Physical Characteristics of Elite Male Japanese Fencer

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[Purpose]
This study clarified the morphological and physical fitness characteristics of elite Japanese male fencers by comparing competition level, weapons, and laterality with non-professional fencers.

[Methods]
A total of 48 fencers (13 in the foil, 18 in the epee, and 17 in the sabre events) were targeted, including one gold medalist and one silver medalist from the 2024 Paris Olympics, 20 senior male Japanese national team athletes, and 28 male university students with no experience as senior national team athletes. Measurements were taken of their physical characteristics (height, weight, BMI, upper and lower limb length, and upper and lower limb circumference) and physical strength (grip strength, sit-ups, forward bending, repeated horizontal jumping, 20m shuttle run, standing long jump, standing double jump, and standing triple jump) were measured. For tests that were performed on both sides, the hand holding the sword was defined as the dominant hand and the hand not holding the sword was defined as the non-dominant hand, and the legs were categorized as the dominant and non-dominant sides, respectively. Measurements were analyzed using SPSS ver. 29 software, and a two-way analysis of variance was performed to compare the level of competition × event and the level of competition × laterality for each event. For the post-hoc test, the Tukey multiple comparison test was used to compare between events, and the paired t-test was used to compare laterality.

[Results]
In the morphometric measurements, the elite fencer group had significantly greater height, weight, dominant/non-dominant upper arm circumference, dominant/non-dominant forearm circumference, and dominant/non-dominant thigh circumference than the student fencer group ($p < 0.05$). In the saber events, BMI, dominant and non-dominant upper arm circumference, dominant and non-dominant forearm circumference, and dominant and non-dominant thigh circumference were significantly larger than those in the other events ($p < 0.05$). Regarding physical fitness measurements, the elite fencer group had significantly stronger dominant and non-dominant hand grip strengths than the student fencers ($p < 0.05$).

[Conclusion]
Compared with student fencers, elite Japanese male fencers had more developed upper limbs, in terms of morphology and function, and their grip strength in their dominant hand was significantly higher; however, there was no functional difference in lower limb muscle strength. In addition, elite fencers had greater morphological laterality in their upper limbs than student fencers. Regardless of the level of competition, sabre fencers had the most developed upper and lower limbs in terms of morphology; however, there was no functional difference.