Relationship between lofstrand crutch lengths and sprint speed in male amputee soccer players

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Relationship between lofstrand clutch lengths and sprint speed in male amputee soccer players

（男性アンプティサッカー選手におけるクラッチ長とスプリントスピードの関係）

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Abstract

The purpose of this study was to clarify the relationship between lofstrand crutch length and sprint speed in male amputee soccer players. A total of 21 male amputee soccer players was measured 30m sprint test (30 m sprint speed, maximum speed), distance of standing long jump and medicine ball throw, clutch length, and length of the styloid of the ulna to the heel. The clutch index was calculated from the clutch length and the length of the styloid of the ulna to the heel, and the results were analyzed as the clutch index.

For statistical analysis, the relationship between each sprint speed and measurement items was examined using correlation analysis. Then performed multiple regression analysis to exclude the influence of basic characteristics and physical fitness factors that affect the relationship between crutch index and sprint speed. In addition to the crutch index, add basic characteristics and physical fitness factors as independent variables, and each sprint speed as a dependent variable.

As a result of correlation analysis, it was found that crutch index had a negative correlation with sprint speed ($r = -0.476$; $r = -0.521$) and maximum speed ($r = -0.527$) in the 0-5m and 5-10m sections. The smaller the index, that is, the shorter the leg length relative to the clutch length, the faster the sprint. Additionally, each sprint speed had a negative correlation with age (Max: $r = -0.536$), and a positive correlation with standing long jump (Max: $r = 0.660$) and medicine ball throw (Max: $r = 0.557$). No significant relationships were observed with other measurement items.

In addition to age, standing long jump, and medicine ball throw, which were found to be significantly correlated in correlation analysis, multiple regression analysis using crutch index as an independent variable showed that crutch index ($\beta = -0.486$, $p<0.05$) was significantly related to maximum speed.

In conclusion, Clutch index may be associated with maximum speed in male amputee soccer players.