

方向転換走能力を決定する要因の探索

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Investigation on the Determinants of Sprint with Change of Direction

by

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ABSTRACT

The purpose of this study was to examine the association of determinants of the change of direction sprint. In relation with leg extension power and selective reaction time. Subjects were collegiate male soccer players. Sprint times with or without change of direction (turning backwards, right or left side) were performed either in unanticipated or preplanned conditions in which the instruction of turning direction was known or hidden to the participants prior to the trial. Maximal Leg extension power and reaction times in the preplanned and unanticipated conditions were also measured using an isokinetic strength measurement system and a visual stimulus system, respectively. Both sprint times with or without change of direction in the unanticipated condition were longer than those in the preplanned condition directions. Cronbach's α was less than 0.70, indicating that sprint times in the unanticipated condition were

not interchangeable with those in the preplanned condition. The differences in the sprint times between both conditions were not significantly related to the selective reaction times. Sprint times with or without change of direction in the unanticipated condition were significantly associated with leg extension power relative to body mass, and the corresponding relationships differed from those in the preplanned one. The current results indicate that (1) the determinants of change of direction in the unanticipated condition differed from those in the preplanned condition, and (2) sprint time with change of direction in the unanticipated condition was associated with leg extension power, but not with selective reaction time.

要 旨

本研究は、方向転換走能力の決定要因について、方向転換走タイムと脚伸展パワーおよび選択反応時間との関連から明らかにすることを目的とした。被検者は大学サッカー選手であった。方向転換走は転換する方向（前後左右の4方向）が事前に指示されない条件（予測不可条件）および事前に指示される条件（予測可能条件）の2条件で行った。両条件での直線走および方向転換走タイムを光電管で測定した。さらに、等速性最大脚伸展パワーおよび全身反応による単純および選択反応時間も測定した。予測不可条件での走タイムは、方向に関係なく予測可能条件よりも遅かった。測定値間の内部整合性を示すCronbach's α は0.70よりも小さく、各条件における走タイムは互いに代替することができないことが示唆された。予測不可条件での走タイムと体重当たりの脚伸展パワーとの関係は有意であり、予測可能条件でのそれらの関係とは異なった。また、両条件間の走タイムの差と選択反応時間との間に有意な相関関係は認められなかった。以上の結果から、1) 予測不可条件での方向転換走能力の決定要因は、予測可能条件でのそれと異なること、および2) 予測不可条件の方向転換走能力は脚伸展パワーと関連するが、選択

反応時間とは関係しないことが明らかとなった。