

原著論文

サーブ速度の高い車いすテニス選手の上肢関節運動に関する キネマティクスの研究

Kinematics study of the upper limb joint movement in the wheelchair tennis
players with high serve velocity

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Abstract

The purpose of this study was to clarify the mechanisms to develop the racket velocity for wheelchair tennis player. The subjects were ten wheelchair tennis players and four able-bodied tennis coaches. This study used a motion capture system to obtain the three-dimensional coordinates of markers attached to subjects and the tennis racket during the serve. The findings are summarized as follows.

- 1) Wheelchair tennis players with high racket velocity served using shoulder internal rotation and wrist palmar flexion in the same way as able-bodied tennis players.
- 2) Wheelchair tennis players with high racket velocity increased the maximum angle of shoulder external rotation by restricting shoulder horizontal flexion as much as possible during the first half of the forward swing, and used the rebound movement to develop the angular velocity of shoulder internal rotation.
- 3) In wheelchair tennis, it is important to abduct the shoulder and to extend the elbow as far as possible in order to obtain a higher hitting point. However, in order to increase the racket velocity, the elbow has to be bent slightly so that the angular velocity of shoulder internal rotation is effectively transferred to the racket velocity.

キーワード 肩の内旋, 手首の掌屈, 肩の水平内転, 肘の伸展
shoulder internal rotation, wrist palmar flexion, shoulder horizontal
flexion, elbow extension

1. 緒言

近年, 日本の障がい者スポーツは著しく発展しており, パラリンピックをはじめとする各種スポーツの世界大会において, 日本人選手の活躍が数多く報告されている。なかでも

車いすテニスにおいて, 男子シングルの世界トップ30に5名の選手が, また女子ではシングルの世界トップ30に4名の選手がランキングされており(2017年5月1日現在), 東京パラリンピックでの日本人の活躍が期待さ

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