

テニスのゲームの分析方法に関する研究

— ビデオ録画を用いた打球速度測定を試み —

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An Application of V. T. R. to Game Analysis in Tennis

by

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Abstract

As a method of measuring and analyzing ball speed, placement and other variables in tennis games, video-tape-recording (V. T. R.) technique was applied to following uses:

1. To obtain the whole processes of singles game by setting a camera on the extended line of a net and by putting marks (two meters apart) along the side line to the opposite side of the camera to measure the distance in which ball passed.
2. To measure the time in which a ball passed between two marks by synchronizingly recorded time spots on the tape.
3. The flight distance of a ball was computed by HITAC 8700/8800. through inputting the trigonometrically related values of the place of ball hitting marker, camera, and the bouncing spot of a ball. The ball speed was obtained by dividing this distance (meter) by the time (second) obtained from 2. above.

In order to examine the validity of the ball speed thus obtained, 16 mm high speed motion pictures were taken at the same time. The correlation coefficient between both measures was .974.

This method was found to be applied to the measurements of not only the ball speed but also such factors as the depth and dispersion of a ball to the forside and backside of the court. The present investigators will be intended to analyze the possible relationship between these variables and win or loss of a match.

緒 言

いわゆる稽古場の横綱やブルベンのエースの例を引くまでもなく、多くのスポーツにおいて、練習場面でみせるプレーと、試合場面で発揮できるプレーとは別であるとよくいわれる。テニスにおいても、試合前の乱打の猛スピードによって、経験の浅いプレーヤーがのまれてしまうこともままあるが、試合が始まれば通常その何割かのスピー

ドしか出せないものであり、もし常時100%のスピードを出そうとするプレーヤーがいたら、ミスショットの多発で自滅するのを、相手のプレーヤーはだまって待っていればよい。このように、一般に試合時のパフォーマンスが練習時のそれを下回る傾向があるのは、緊張のために調整力が失われるといった心理的、情緒的要因による面も、もちろん否定できないが、原因は単にそれだけではない。試合中のストロークを例にとれば、それは

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