

Title	Proposal for improving: some coaching methods in handball : investigation of a running score from the sense of probability
Sub Title	
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Publisher	慶應義塾大学体育研究所
Publication year	1991
Jtitle	体育研究所紀要 (Bulletin of the institute of physical education, Keio university). Vol.31, No.1 (1991. 12) ,p.49- 50
JaLC DOI	
Abstract	
Notes	Abstract
Genre	
URL	https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=AN00135710-00310001-0049

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Proporsal for Improving :
Some Coaching Methods in Handball

— Investigation of a Running Score from the Sense of Probability —

By *Ken Yamauchi**

“To forecast the opponents plan of operations and executions throughout the game.”

This would be the best way to lead victory, if that plan comes true in the case of having a game.

Finding out for players a few reasonable drills that is based on forecast, and gaining victory in sports is a important matter to the coach.

The purpose of this study is to discuss the competing phenomenon (a phase of the running score) quantitatively and investigate one of some coaching methods qualitatively.

In this analysis, two techniques of mathematical formula are used (Information Entropy = $H(A)$ and expectation value = μ), which are as follows:

$$H(A) = -\sum_{i=1}^t [P_i \log_2(P_i)], \quad (\text{unit=bit}) \quad (\text{I})$$

$$\mu = \sum_{i=1}^t \delta_i \cdot P_i \quad (\text{II})$$

where

δ_i : *random variable*

P_i : *experimental probability*

$$A = \left\{ \begin{array}{l} \delta_1, \delta_2, \dots, \delta_t \\ P_1, P_2, \dots, P_t \end{array} \right\}$$

A : *probability distribution*

Using form (I) and (II), it can be made a help to one of some coaching methods by analyzing the running score. For example, if we try to improve some winning techniques for the players, it would be a better drill to have some short

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games which will last for 5 or 10 minutes successively, and make them gain the points which are determined by the coach, rather than to have one practice game during the same 25 minutes.

