S-1 Sensibility in sports research and athletic intuition

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Research activities are objective and analytical, but hypotheses often begin with a flash of insight or intuition based on experience. Also, when athletes put knowledge of sports science into practical performance, they must translate data as brain knowledge into their individual language of athletic sensibility. The basis of both research and sports may be intuitive perception. Unlike other symposia, this symposium has not been organized on the basis of rational relationships among the contents of the symposium's presentations. It is my hope that the audience feels the sensibility and intuitiveness that flow through apparently different presentations.

S-1 Running technique of Kenyan distance runners

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It is well known that Kenyan runners have achieved the high performance in various distance running events. Physiological studies have revealed the physiological factors related to distance running performance. However, it is difficult to explain the difference between Kenyan and Japanese distance runner's performance using only physiological factors, especially the recent acute improvement in performance for Kenyan top runners. This study intended to show the running technique of the Kenyan runners compared to the Japanese using kinematic and kinetic variables resulted from biomechanical analysis of their running motion during the races. Results were summarized as follows; 1) One of the most significant characteristics of the Kenyan runner was the forward lean of the torso during running. 2) Mechanical work at the hip joint for the Kenyan was greater than that for the Japanese. 3) The mechanical energies of the support leg for the Kenyan and Japanese were almost same, but the mechanical energy of the swing leg for the Kenyan was much greater than the Japanese. It would be useful for a distance runner to swing both legs forward and backward coordinately in order to transfer energy between legs. These results suggest that the Kenyan runner swung the leg once backward and then forward faster so as to in- and out-flow much energy of the swing leg in order to keep the higher running velocity efficiently.

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