

Cognitive Systems Monographs

Volume 2

Editors: Rüdiger Dillmann · Yoshihiko Nakamura · Stefan Schaal · David Vernon

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Complex Sports Biodynamics

With Practical Applications in Tennis

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Preface

What are motor abilities of Olympic champions? What are essential psychological characteristics of Mark Spitz, Carl Lewis and Roger Federer? How to discover and maximally develop motor intelligence? How to develop indomitable will power of Olympic champions? What are the secrets of selection for the future Olympic champions? Does for every sport exist a unique model of an Olympic champion? This book gives a modern scientific answers to the above questions. Its purpose is to give you the answer to everything you ever wanted to ask about sport champions, but didn't know who or how to ask.

In particular, the purpose of this book is to give you the answer to everything you ever wanted to ask about advanced tennis, but didn't know who or how to ask. Its aim is to dispel classical myths of a “biomechanically sound” serve, forehand, and backhand, as well as provide methods for developing *superior tennis weapons*, a *lightning-fast game*, and *unrivaled mental speed and strength* – essential qualities of a *future tennis champion*.

This book *does not* describe a method that was used by Sampras, or Borg, or any other great tennis champion from the past. Nor does it explain current tennis basics as so many other books do. This book takes a totally different perspective, it describes and explains the physical and mental abilities of a champion in future tennis. Weapons of a future tennis game will comprise of *whip-like* tennis serves and strokes, based on the *stretch-reflex*, and using the whole body in a *fluid* and integrated manner, thus manifesting a superb combination of speed and strength. To ensure that these weapons will perform consistently, and under all possible circumstances, phenomenal mental strength and speed are also needed.

Now, full appreciation should be given to the current world number one, Roger Federer. He *is* the present model of a champion (especially when combined with Nadal and Djokovic). Regarding the future tennis champion model that will be outlined in this book, this Federer-model will be taken as a basis: all his abilities, both physical and mental, both technical and tactical, even including his body height and weight. This Federer-model will just be

empowered with tremendously-strong muscles and lightning-fast reflexes, giving him a 300+ km/h serve, a 240+ km/h forehand and a 200+ km/h backhand, together with a visual perception and complex reaction quick enough to anticipate and follow the bullet-like ball generated by the mentioned strokes, with Federer's concentration and anticipation of the opponent.

By combining ex-Russian sport science with today's American wealth and technology, future tennis world champions could easily be produced.

Think! Don't be constrained by anyone. Sport is a science not a religion. Learn the facts, apply the knowledge and believe in your unlimited potential and you can become a tennis champion. Producing a sport champion is a joy, satisfaction and fulfilment; not frustration and suffering. A *brain* also is needed to complete a tennis champion: a *strong & fast brain* would make *strong & fast muscles* invincible.

This myth-buster book gives modern scientific answers to all the questions that must have arisen in your head after reading the past few paragraphs. The book includes 12 chapters on various topics related to complex sports biodynamics, a strong list of references on sports science in general and tennis in particular, as well as a comprehensive index. To make the book more readable for the widest possible audience, the last Chapter on tennis has been written in a popular (non-rigorous) question & answer format.

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Adelaide, October 2008

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