

## **COORDINATIVE OPTIMIZATION FOR SPORTS SKILLS**

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Technical training for sports skills has always been a complex challenge for coaches and, among others, the coordinative optimization is pointed out as extraordinarily relevant.

After a review of the conception of coordination and the coordinative capacities as an essential support for improving sports techniques, the focus of attention is on coordinative optimization.

Since 1985 professor Seirul-lo developed training methodologies interpreting the athlete as a hyper-complex system that is made up of interactions and retroactive actions among several structures (conditional, cognitive, coordinative, socio-affective, emotional-volitional, expressive-creative, mental, bio-energetic, ...) and proposed the preferential simulator situations for training in which a particular structure is specially prioritized (intra-systemic) and interacted with others (inter-systemic).

### **Methodologies of Coordinative Optimization for Sports Skills**

Based on the coordination capacities defined by Seirul-lo in 1985 (Movement Control: Kinästhetik Discrimination, Segmentary Differentiation, Variability of Movement, Combination of Movements, Guided Control of Movement, Fluidity and Relaxation of Movement, Amplitude of Movement; Spatial Implementation: Orientation, Directionality, Localization, Situation, Static-Dynamic Balance; Temporal Adequacy: Reaction-Anticipation, Rhythmical Differentiation, Rhythmical Variability, Rhythmical Adaptation), the following methodologies for intra/inter systemic coordinative optimization are proposed:

- Preferential interactions within one type of coordination capacity (of movement control, or spatial implementation, or temporal adequacy).
- Preferential interactions between two types of coordination capacities (movement control + spatial implementation; movement control + temporal adequacy; spatial implementation + temporal adequacy).
- Preferential interactions among the three types of coordination capacities (movement control + spatial implementation + temporal adequacy).
- Prioritize the coordinative structure in interaction with others in simulated real competitive situations, inter-systemically, such as: (a) interaction with Conditioning, (b) interaction with Cognitive, (c) interaction with Socio-affective, (d) interaction with Emotional-Volitional, (e) interaction with Creative-Expressive.

### **Conclusion**

The practical methodologies of coordinative optimization proposed by professor Seirul-lo Vargas provide insight into: (1) the identification of coordinative needs of a particular athlete in a structural criterion (motor control, spatial implementation and temporal adequacy), (2) the optimization of all aspects of coordinative structure in depth and in detail, (3) the creation of training methodologies that includes the complexity of the athlete, by intra-systemic and inter-systemic optimizations, and (4) the design of self-control and self-evaluation methods for a personalized proposal of an optimal training process.

### **References**

Seirul-lo Vargas, F. (1987). Technique and its training. Apuntes de Medicina Deportiva, 24, 189-199.  
Seirul-lo Vargas, F (1985-2010). Class notes on movement education-training. Barcelona University.