



Complex Training in Youth Handball

Ladies and gentlemen,

In my presentation "Complex Training in Youth Handball" I shall demonstrate that the use of complex exercises contributes considerably towards improving individual factors of handball which determine positive performance both as to their technical – tactical and physiological relevance .

First of all we have to consider why complex thinking is necessary. There are two main reasons :

1. The development of the game in handball both in the offense and the defense requires anticipation of actions and further consequences in the development of the game, an ever increasing ability to make the right decision, and a high degree of creativity of the individual player.
2. Furthermore, the development of the means of information in itself creates an increasing complexity in the character of the game.

Complex forms of exercises are therefore, logically, a possible reply to the new challenges of the training process.

What does complex training mean?

We understand the term complex training to mean:

- Including various different elements/tasks into one exercise
- Combining technical, tactical and intellectual tasks
- Memorising
 - o Paths of players
 - o Additional tasks
 - o Consecutive actions
- Repetitive paths of balls and players
- The possibility of adding or reducing elements (according to level of performance), without altering the basic structure.
- The use of as many competition-identical elements as possible.
- Frequent change of the general set – up of the exercises (transfer).
- The possibility of correcting a player whilst the exercise continues.
- Room for creative behaviour
- Varying intensity of the exercises (pressure training)



Why train in a complex way?

The necessity of complex training results from the nature of the process of learning movements required in sports. Learning a movement means ever more closely approaching a generally accepted ideal movement (e.g. jump shot). By constant repetition and feedback a general basic movement is established. If we understand the learning process like that, it is primarily the construction of an imagined internal model of a movement which is by and by complimented, checked, and brought into being¹. Subsequently this basic form is consolidated into a personal movement. For this constant repetition and correction are necessary, which finally lead to the construction of an internal/mental model of the movement.

In addition, a further reason for using complex exercises can be seen when analysing a movement more closely. Each sports movement consists of five parts: 1 Drive – 2 Orientation – 3 Planning – 4 Execution – 5 Evaluation.

In part 1 emotional factors such as motivation, pleasure etc. influence to a high degree the readiness to carry out a movement. **In part 2** the brain as the central steering organ collects those pieces of information from the outside world which are necessary to prepare a plan of action for the relevant movement (1:1 action, goal shooting, etc.). For that purpose it uses five analysers: optical-visual = sight, acoustic = hearing, tactile = feeling, vestibular = equilibrium, and kinaesthetic = muscle and movement. **In part 3** the relevant plans of action are set up (every movement is connected with a thought process). **Part 4** is the only visible part of a movement. **In part 5** comparison is made between the actual movement and the ideal or the previous movement. The result is transmitted to the brain in the form of a "loop input", and is taken into consideration when executing the next movement.

Thus it is evident that complex exercises which force the brain to adapt, act as motivators, permit frequent repetition, and are therefore ideal for constant correction and feedback, are particularly suited for the training of young players.

Beside the nature of the learning process the **time management factor** plays an important role. In the case of youth training generally speaking there are too short training sessions, too few training units/week, and too little intensity and volume of training units. Complex exercises help to compensate for the above deficits.

In addition to the factors **nature of the learning process** and **time management** the **"round character"** of the exercises has proved itself to be a definite advantage. The trainer can correct individual players whilst the others continue with the exercise, and the required volume and intended intensity are maintained.

¹ Weineck, J.: Optimales Training, Beiträge zur Sportmedizin, Erlangen 1984, SS49ff

**Structure of a complex exercise**

Every complex exercise has a basic level/pattern according to the intention of the exercise. Depending on the performance level of the training group this basic pattern is augmented

STEPS FROM SIMPLE TO COMPLEX							
	L1	L2	L3	L4	L5	L6	L7
Paths of the ball	E	M	M	M	C	C	C
Paths of the players	E	E	M	M	M	C	C
Timing	E	E	E	M	M	M	C
<ul style="list-style-type: none"> - constant variation and augmentation at various levels - adaption to technical performance standard, peripheral vision, capability of player to analyse. 							
E = elementary M = medium C = complex							

by further elements and additional tasks. A diagram of the structure might look as follows. Here three crucial elements within a complex exercise have been utilized – paths of the ball - paths of players – timing.

Diagram

Guidelines for complex exercises as far as the learning process of motor activity is concerned

- During exercises these should be slightly varied (use of the other hand, way of passing the ball etc.).
- Conditions of the exercises (number of players, size of field, size and structure of balls etc.) should also be altered in order to offer a new stimulus, to enable players to vary the execution of movements, and to force the brain to adapt constantly.
- To inform players about the training target fosters the learning process and the element of transfer.



- Frequent correction by the trainer (feed back, loop input) facilitate and accelerate the learning process.
- The use of different information systems (language, video, audio etc.) also facilitate and increase the learning process.

Ten principles to optimize the perception of movements¹

- Optimizing the perception of movement is not possible without conscious practise and evaluation of experienced movements.
- Conscious repetition (analysis, comparison, visual check) is decisive in improving the perception of movements.
- Effective means of learning are: demonstration, explanation and doing.
- Only by actual doing can the **space**, **time**, and **dynamics** parameters of a movement be **best** understood.
- The perception of movements as a cognitive basis for orientation enable a check of the actual stage in the learning process at any given time.
- The more analytical the perception of movement is, the more effective the mental training.
- Clearly defined targets, praise, and correction facilitate the mental construction of movements.
- The earlier and the more precise optimum perception of movement is formed, the less is the danger of having to "relearn".
- Verbalizing a movement contributes essentially towards optimising its regulation.
- The mastering of a movement can only be achieved by combining practical and mental training.

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¹ Weineck, J.: Optimales Training, Beiträge zur Sportmedizin, Erlangen 1984,SS49ff