

## **POWERED LANDMARKS FORMING INTERNAL MODELS OF REPRESENTATIONS AND CALLING THEM THROUGH MENTAL TRAINING IN HANDBALL PLAYERS**

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**ABSTRACT.** Mental training is enshrined as a method of self-regulation exercises concentrating attention and voluntary change of representation systems. It increases learning efficiency by optimizing the techniques, proofreading recovery after injuries and habituation competitive situations (Holdevici, Vasilescu, 1988). We started from the hypothesis that mental training in order to increase efficiency exceed the status of becoming a form of training method entirely based on "internal representation models" (Paillard, 1971) not only visual images but also reproduce kinesthetic, auditory and tactile. The representations are domestic ones reproducing mental images developed in the absence of external stimuli-visual (Miclea, 2003). Mental images are formed as a double-entry system: perceptions of the external environment and integrative cognitive system-internal environment. To prove this we have developed two tests that targeted training through the two-way representation, consisting of situational representations challenge the model handball court and activate perceptual representations made about the problematic situation (playing schemes) of handball. Analysis of response times from order to evoke record representation showed a positive correlation between the two paths. Mental images are formed more quickly by verbal stimuli that contain information about the shape and spatial configuration of technical and tactical procedures.

**Keywords:** *mental training, representations, mental pictures.*

**REZUMAT. Repere acționale în formarea modelelor interne ale reprezentărilor și apelarea acestora prin antrenament mental la handbaliști.** Antrenamentul mental este consacrat ca metodă de autoreglare prin exerciții de concentrare a atenției și modificare voluntară a sistemelor de reprezentări. Aceasta crește eficiența învățării, prin optimizarea procedeele tehnice, corectarea greșelilor recuperare după accidentări și obișnuirea cu situațiile competiționale (Holdevici, Vasilescu 1988). S-a pornit de la ipoteza că antrenamentul mental pentru a-și crește eficiența trebuie

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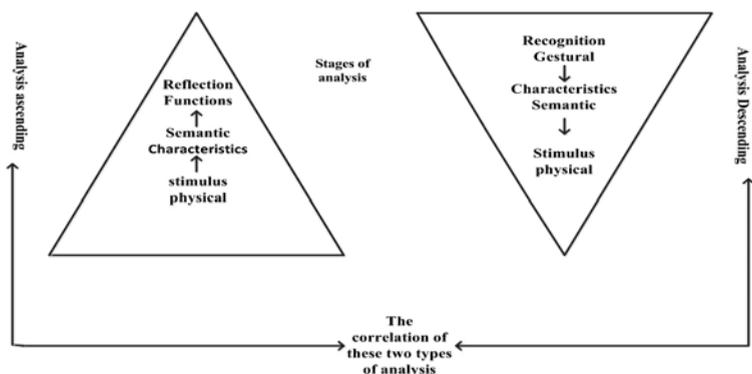
să depășească statutul de metodă devenind o formă de antrenament integral bazat pe „modele de reprezentări interne” (Paillard, 1971) care nu reproduc numai imagini vizuale ci și chinestezice, auditive și tactile. De asemenea reprezentările sunt și de natură internă reproducând imagini mentale elaborate în absența stimulilor externi-vizuali (Miclea, 2003). Imaginile mentale se formează ca un sistem cu dublă intrare: percepții din mediul extern și prin sistemul cognitiv integrativ-mediul intern. Pentru a demonstra acest lucru am elaborat două teste care au vizat formarea reprezentărilor prin cele două căi, constând în provocarea unor reprezentări situaționale pe macheta terenului de handbal și activarea reprezentărilor formate pe cale perceptivă prin situații problematice (scheme de joc) din handbal. Analiza timpilor de reacție înregistrați de la comandă la evocarea reprezentării au evidențiat o corelație pozitivă între cele două căi. Imaginile mentale se formează mai rapid prin stimuli verbali care conțin informații despre forma și configurația spațială a procedeeleor tehnico-tactice.

**Cuvinte cheie:** antrenament mental, reprezentări, imagini mentale.

## Introduction

Psychic phenomenon is mainly involved in mental training visual representation plus the kinesthetic auditory representation associated with attention, memory and other cognitive processes.

Representations of a problem epistemological movements as well as all types of representations. The psychological literature is recorded two major conceptions concerning mechanisms antagonistic representations.



**Fig. 1.** Analyzes stages up and down the formation of representations



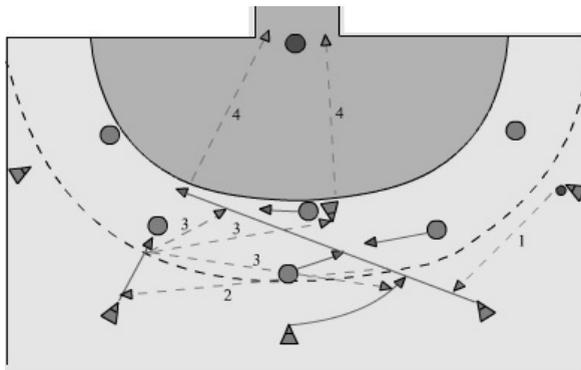
I found it necessary to prove through this research the relationship between the two embodiments of the representations in handball and necessary conclusions in forming images as clear and their evocation of mental training (Holdevici, 2010).

### **Models and research organization**

To achieve the research purpose we developed two tests for assessing the informational content of some aspects of subjective interiority handball and transposition of the subjects investigated in the form of images (ascending analysis) and then anticlockwise from subjective to objective reality interiority (analysis downward).

#### *Test No. 1 - analysis of ascending*

It presents a scheme developed land subjects handball, which describes a phase of game where the attacking team has the ball to a player in a position to choose who to pass between two teammates in situations possible to throw the gate.



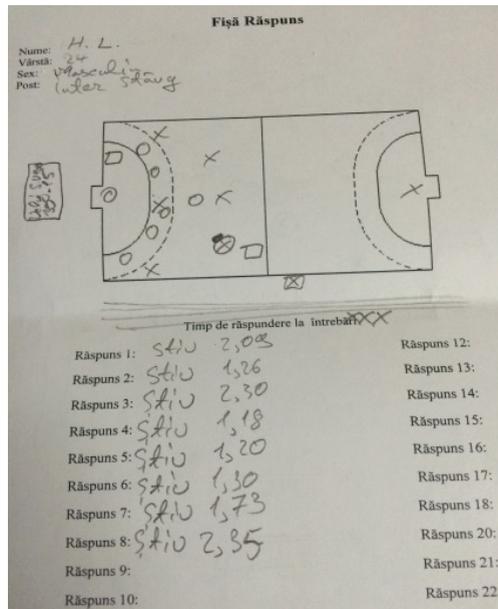
**Fig. 3.** Game draft with two possibilities of pass.

Subjects were asked to view the draft for 20 seconds after which they redesigned it from memory. The drawing was covered with paper and the experimenter called a player in attack or defense that the subject must also recall him saying the position is located. Pronounce words every 5 seconds. We measure the time from the signal (center, inter, etc.) to answer.

#### *Test No. 2 - Analysis downward*

It asks subjects to mentally explore a handball court and the environment in which it lies. On the ground runs a game. The subject is situated on the drawing to a position marked with X.

After the drawing, it is covered with a paper and experimenter pronounces the word designating a position on the drawing, and starting the timer. The subject responds with “I know” or “do not know” stopping the timer. It does so with all parts of the drawing. The tests were applied to all data subjects are organized in pairs.



**Fig. 4.** Drawings of a subject

There were two training sessions (juniors and seniors) and two official games at senior and junior registering: marks and branding, wrong passes, interception actions were largely representations downward. Subjects included in this research

Subjects were selected seniors, seniors and juniors after their operation on a desire to be included in this research. The sample investigated is as follows:

**Table No. 1.** Subjects

Category	Nr. subjects
Seniors	5
Senior	5
Junior	10
<b>Total</b>	<b>20</b>

## Results

Reaction times collected by the two tests show the following:

In test no. 1 - seniors on representations after watching the tactical scheme are answers to 13 questions, reaction time values are between 0.90 seconds (STM – left back) and 4.08 seconds (ET – center back) value that can be considered non response.

Most answers are between 1-2 seconds. We appreciate that representations are well defined if and recognition time is reduced. Subjects with stroke between 1-1.5 seconds turned more effectively in training and action games with favorable placements.

It was found that the questions aimed at inner left and centers were answered in time longer than 2.60 seconds extremes and right inner, 3.71 seconds respectively 1.11 seconds – 2.50 seconds.

Values are similar in senior handball. We cannot consider that there are differences between the sexes on representations after watching the elaborate scheme.

We note responses in less time at the player's junior (16 years) between 0.71 seconds and 3.68 seconds. The five players have answered two or three questions, which highlights, on the one hand an observant less efficient and therefore lack clear representations. Synthetic can notice a revelation between speed image recognition by representation, the distance that lies teammates, opponents and spirit of observation.

No 2 test results seniors and all seniors have resulted in reaction times previous to question the recognition objectives recorded in drawings made by each subject. Reaction time between 1.50 seconds and 2.38 seconds.

Data is recorded and the players like juniors.

Recognition of images designated by each athlete and sports was achieved in a shorter time compared to storing images in test no. 1. We also appreciate that representations of drawings made by subjects did not have the clarity of viewing. Objectives drawn with greater clarity have led to clearer representations thereof. (Statements of subjects).

View that the two tests provides data on using images in explaining tasks in training but also in interruptions (time-out) to which they are entitled teams. An important condition is that they are accompanied by explanations short and precise players to form representations as clear.

**Table Nr. 2** - Test No. 2 the reaction times obtained in the group of junior handball players, recognizing the objectives of drawing

Nr. Crt.	Name Post	Age Sex	Position in field	Teammates	Opponents	Coach	Referees	Bench	Table	Tribune Public	The ball	Mascots
1.	S.A. Centru	16 F	2,51	4,35	2,88	3,30	-	-	-	-	2,26	-
2.	F.A. Pivot	16 F	2,16	1,66	2,38	-	-	-	-	-	-	-
3.	F.A Extr. Dr.	16 F	2,23	2,35	1,83	1,78	1,85	1,78	-	-	2,65	3,48
4.	D.I Pivot	15 F	1,91	2,25	2,62	2,71	2,60	-	3,35	-	-	-
5.	C.M Extr. Stg.	16 F	1,86	1,01	2,53	2,30	1,43	-	2,30	-	-	1,98
6	R.D. Extr.	15 F	3,06	2,55	2,65	3,05	2,08	2,10	2,21	1,55	-	1,80
7.	C.C pivot	16 F	3,45	2,26	3,03	3,50	3,91	3,50	3,21	2,41	-	-
8.	G.A pivot	16 F	1,96	2,03	2,30	1,86	1,86	2,30	1,80	1,38	-	1,90
9.	R.D pivot	16 F	2,58	2,86	2,60	1,85	1,75	2,40	1,53	1,66	-	-
10.	P.R. Inter. Stg.	15 F	3,03	2,60	2,16	3,18	1,48	2,15	1,70	2,00		1,81

## Conclusion

1. The representation of movement is established as a dual input that leverages two types of analysis, external and internal, ad hoc or enriching memory representations constituting imaging.

2. Test the analysis investigated the formation upward representations revealed that the retention of images under time pressure (maximum 20 seconds for observer) leads to the formation of blur, thus prolonging the time required for sharp observation.

3. Reaction time (recognition) of the signal protocol (abstract) Subjective image (representation) reflects its clarity with respect to target distance (player, lead, coach, etc.) from that which prepared the drawing.

4. Number of test questions no. 1 must not exceed the figure 14, referring to positions teammates and opponents.

5. Statistical analysis, particularly correlation between results of the two tests may reveal a close link between the two forms of analysis, ascending and descending.

## REFERENCES

- Cadopi, M. (1991). Role mentales des images dans la traction; in *L'apprentissages moteur, Role des Representation*. Edition revue E.P.S. Paris. (p.119)
- Fleurance, P. (1991). Place des Representation roles et dans l'apprentissage moteur; in *L'apprentissages moteur, Role des Representation*. Edition E.P.S. revue, Paris. (p.81)
- Holdevici, I. (2010). *Psychology of Success, autosuggestion and relaxation*. University Press. Bucharest. (p.231)
- Mircea, M. (2003). *Cognitive psychology*. Polirom. Iași. (p. 26, 169)
- Smith, P.N. (1978). *Dictionary of psychology*. Publisher Albatros. Bucharest.
- Zlate, M. (2009). *Foundations of psychology*, Polirom, Iasi. (p.150)