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50 YEARS WITH MENTAL TRAINING FOR SPORTS, PEOPLE & HEALTH

Lars-Eric Unestahl, Ph.D. Orebro University & Scandinavian International University, Sweden

This report will show the basic principles of Mental training and then give examples of the applications, especially in the Sport and Health areas

Background.

After 10 years of research at Uppsala University around Mind and Body relations, Alternative states of Consciousness and the Effects of Systematic Training on Mental processes and skills, I created the concept “Mental Training” 1969.

The name became later “Integrated Mental Training” (IMT) and in the Swedish defense: “Mental emergency training”. Another name has been CET – Cognitive and Emotional Training.

Definition

IMT is defined as a systematic and long-term training of mental processes and mental skills with Life Excellence as a vision and goal.

The training is based on the “Inner Mental Room”(IMR), which is an operational definition of a self-hypnotic state, in which the operative system of the brain is changed in order to increase the susceptibility for the information given.

Hypnosis vs Self-hypnosis

My investigations of Alternative States of Consciousness, especially Flow and Hypnosis, played a significant role as a background for Mental training. (The title of my PhD dissertation was “Hypnosis and Posthypnotic suggestions”.) Unestahl, 1973.

Some findings about the concept of training in relation to (Self) hypnosis.

I found that (Unestahl, 1982)

- recorded hypnotic inductions gave the same scores as live inductions.
- Participants who learned hypnosis without any external helpers were, after six months of hypnosis training, better in control and in application than those who were trained by a hypnotist.
- all hypnotic phenomena could be released through self-hypnosis, even amnesia for one’s own suggestions.
- hypnotic susceptibility could be developed in all people. Three to six months of systematic training in relaxation, imagery vividness, imagery control and ideomotor practices gave a significant increase of hypnotic susceptibility, measured with the Stanford scales.

These finding became the base for the decision to make

self-hypnosis available to everyone through Mental training and the Inner Mental Room.

About flow: (Unestahl, 1979, 2006, 2014)

- Flow is an alternative state of consciousness, similar to hypnosis
- Flow can not be induced or produced through the common Dominant Control System (DCS) (Voluntary effort). Trying to get flow even prevents the flow to come.
- We realize first afterwards that we have been in the flow state
- If we become aware that we are in flow, it disappears
- Flow can be produced by means of the IMT Alternative Control Systems (ASC) for example by Images and Triggers.

Cost-effective

Similar to its physical counterpart Mental training is made for a longer period (sometimes Life long) through a self-coaching procedure, which make it to a very cost-effective method for human change and development.

Seven models (Unestahl, 1997, 2004, 2006)

Mental Training is based on the Developmental and Excellence model, The Training model,, the Mindset and Feedback models and the Psycho-Neuro-Cybernetic model.

The Developmental or D- model – differs from the Clinical or C-model, which is the common model in the Society, where changes and measures are linked to problems and crises, while the E-model promotes lifelong and continuous improvement, independent of the present situation. The identification is not with the starting point (diagnosis) but with the goals and the vision of Excellence.

The DE-model has also alternatives to other C-model actions like Critical, Complaining, Condemning, Correcting, etc. The DE model can also be called the Sport model, as athletes are working with continuous improvement through training

The Training model

Knowledge in itself seldom leads to change if it is not followed by action/training. This is the main reason why the relations between School success and Life success are so low. Success in school are measured by grades (reported knowledge), while Life success has to do with competence (how we handle and cope with the Life situations we meet). In order to go from knowledge to competence I use what I call the PAT principle, Practice, Applications, Training. There are even competences that can be developed without knowledge as a prerequisite (Sport competence, Social competence)

Mental Training consist of three stages

1. **Basic Mental training** Muscular and Mental Relaxation, Rest and Recovery training and the establishing of- and learning to use- the Inner Mental room (IMR)
2. **Mental training** Here there are two lines
A. Developing the mental “Success factors”: Self-Image with Confidence and Esteem as the two most important components, Goals and Motivation (with translation of “intellectual goalsetting” to Goal-Images and Goal-Programming,) Attitude with the Mental Toughness training and Optimist training as two parts. The last part contains several forms of Wellbeing training. The second line is
B. Problemsolving: Handling cognitive, emotional, behavioral problems. (More examples of that later)
3. Stage 3 is the **Mental Preparation**, which In Sport starts with career preparation followed by seasonal preparation and then Preparation for each competition/match. The most important part of the preparation is to program and automate the ideal

performance, which makes it easier in the competition to get into the effortless Flow state where the body “takes over”. The same principles are valid for mental preparation of various stress related Life events, like Public speaking.

In the Swedish Police academy, which included Mental training in the curriculum during the eighties, one application is to mentally prepare for stressful events (being shot at, etc). In the same way as in Sport. The intellectual instructions of how to cope with such situations are transferred to situation related goal-images, which are programmed in the IMR.

Training programs (Unestahl, 2016)

From cassettes and CD to downloading, which makes the training easier. The contents are generalized, i.e the same programs for all Sport (with the exception of Golf (Hansson & Unestahl, 2005) and Football (Unestahl, 2008) .

The personal development programs are also general with the intention to leave the individualization to each person.

Another goal is to make the trainee independent of the recorded program and hand over both the induction and the measures to the trainee.

In listening to mental training from a person or from a recording the effect will increase when the “experiencing ego” takes over from the “observing ego”. In the process of self-induction a third part will enter, called “the instructing ego”, which like the observing ego interferes with the experiencing ego. Thus, many choose to continue to listen to recordings throughout Life even if being “your own mental trainer” is the ultimate goal.

Sport – a test area

The first area of application was Sport, where practical mental training programs were designed and evaluated during the 1970’s in cooperation with 11 National teams and two Olympic teams (1976 and 1980).

Some of the goals for the mental training programs

1. To establish the ideal muscular performance state, which I called “Relaxense” – optimal tension in the agonist muscles and relaxation in the antagonist muscles. In order to have this state it was necessary to begin with giving all muscles the experience of total relaxation
2. Learning to use the ideomotor control system, finding the right Peak Performance images and Learning the relaxed effectiveness by mental rehearsal and then handing the action over to the body
3. Training to establish the ideal self-image, especially the self-esteem, which can be low even if self-confidence is high.
4. Learning to identify specific, concrete (situation related) positive, self-controlled and attractive goals, which are translated to images and programmed in IMR
5. Finding and establishing the right attitude with the optimal optimism level and with the important “Mental toughness training”
6. Identifying the flow feeling and former Flow situations and learning to induce the Flow with triggers.
7. Learning to combine the sport training and competition with Wellbeing training (enjoyment, positive feelings, the ethics and playfulness of Sport, etc.)

Moscow 1980

By the 1980 Olympic Games in Moscow, there was already a significant relation between athletes' results and their mental training experiences. While 29% of the total team had used mental training in their Olympic preparation, the figures for the finalists was 58% and for the medal winners 67% (Unestahl, 1982, 1985).

Mind–Body Research in Sport

1. Investigating the links between Mental and Body processes (Uneståhl, 1979)
Examples from 3 areas.

a. Ideomotor connections

One experiment found no difference in the effects of physical or mental training in improving basketball shots. Another study showed no difference in learning golf (beginners) between the group with traditional 3 months training with a golf-pro and the group who played golf mentally (in IMR) with a model recorded on TV in a special way. The detection of the mirror neurons some years ago gave one explanation for the results.

b. Ideal Performance state

One experiment investigated the Ideal Performance state (IPS) with isometric strength as the performance variable. Variation of the subjects mental processes was made with posthypnotic suggestions (PHS). The best performance came when the subjects had a positive attitude to themselves (Good Self-image) and positive expectation to the performance task (Positive goal-images). PHS induced relaxation deteriorated the performance, which emphasized the new concept "Relaxense" as the ideal state instead of relaxation.

Another experiment looked at IPS in PE students in slalom skiing. All were beginners. Worst result was when they were instructed to think of a number of technical things, while the best results came after the instruction. "See yourself making a good run, then leave the run to your body while you sing a song during the run"

c. Mental rehearsal

Many studies were made about Mental rehearsal. One was made at the Swedish championship in downhill skiing. After the run the skiers was asked to repeat the run mentally. The result was that the best skiers had more similar time in the physical and mental skiing, ie the best skiers was also the best in mental rehearsing.

Similarities between Flow – Self-hypnosis and the IMR-state

There are several subjective experiences which characterize the flow state

One is a change of perception. Under flow conditions, time seems to pass more slowly and key objects seem to be larger (the pigeon or the golf hole)

Another change is a sense of automaticity. Events seem to take place automatically, without conscious control.

The person in a flow state has a sense that his or her body moves easily in response to internal and external triggers. Events seem to happen effortlessly.

Here are some descriptions from mentally trained Olympic champions.

Kathy Kreiner, a Canadian Alpine skier, said, "After having learned through mental training to control the flow state, I started to experience my races in slow motion, which gave me more time to do what I had to do in order to win" (perceptual change).

- Pia Hansson, an Olympic skeet champion, reported, “As a peak performer, I have to establish a good relation and communication between mind and body, not by command and effort but through mental images, triggers, and thrust. In this flow state the pigeons look bigger and seem to move slower” (perceptual change),
- Olympic gold-medal-winning diver Ulrika Knape said, “I used mental triggers to enter a highly concentrated and focused state, where I was ‘right there,’ letting the thing happen in the right moment” (automaticity, disassociation).
- Ingmar Stenmark, an outstanding slalom specialist with two Olympic golds, five world championships, and 85 World Cup victories, commented: “I just go ahead, letting my body take care of the race. I do not worry about my competitors; I just chase the perfect race in my mind” (automaticity).
- Pär Arvidsson, an Olympic champion swimmer, said, “I did program my brain and body every week for two years to swim at a specific time. At the Olympics, my body just did it” (automaticity).
- And finally, Thomas Gustafson, three-time Olympic champion speed skater, reported, “I had control over my flow state by using the mental room to pick up the flow feeling from past competitions and condition the flow to triggers” (automaticity).

From Sport to most areas of Society

The effects on the sports field during the 1970s aroused interest in applying mental training methods in other areas. In the 1980s, therefore, the mental training was introduced in areas such as school, business, work life, health, etc.

This article will focus on Sport and Health but the introduction of Mental training to the other areas of society has also been very important.

Several studies of Mental Training for Schools was made in the 1970's and Mental Training was 1982 included in the National School curriculum.

Many companies began to use Mental training and over half of the 100 biggest companies have during the years used mental training in order to increase company effectiveness and company wellbeing.

Mental training for Personal development became popular in the 1990's and until today, have over 2.5 million Swedes used Mental training for problem solving and personal and Leadership development.

From Shrink to Stretch

A common misconception outside Sweden was to place Mental training under the C-model umbrella, ie as a Sport Psychology method only for problem solving. This was unfortunate as going to a Sport Psychologist among athletes was regarded as a sign of having “head problems”.

From “Shrink to Stretch” was my chapter in the proceedings from the 6th World Congress, which I organized in Copenhagen 1985. (Unestahl, 1985.) This attempt to show that Mental Training was based on a developmental model leading to Excellence led to the formation of the “International Society for Mental Training and Excellence” 1989. As the founding President I also proposed to expand the use of Mental training in the same way as we had made in Sweden. Thus, the following sections for Research and Applications were decided.

- Sport and Performing Arts
- School and Education
- Business and Public sector
- Health and Clinical Areas
- Personal, Leadership, Team & Organizational development

World Congresses has been held every four years at universities around the world. The next one “The VIII World Congress on Mind Training for Excellence in Sport and Life is scheduled to Gavle University in Sweden 12-16 June 2019 (www.wcecongress.com)

From Sport to Health

The common view of Health has been to place Health under the C-model umbrella.

The C-model definition of Health is “absence of Illness” while the DE model has the WHO definition: “Complete physical, mental and social well-being” (WHO)

This means that health becomes a visionary goal against which everyone can work throughout their lives.

Based on the WHO definition of Health we decided at my university 30 years ago to start a 3 year education to a profession as “Health developer”, in which Mental Training naturally became a very important part.

A Health developer works with all human beings to improve health towards the WHO vision. Information about the best lifestyle is only the first part of that work. The important thing for sustainable Health improvement is the systematic and long term training.

CET – Cognitive and Emotional Training

Even if Mental Training works more with Images than thoughts and thinking there are also training program for thoughts.

They are both concerned with **when** to think and **how** to think.

In Sport for instance thoughts and analysis during the action period will often lower the performance. The same is in stressful situations where planning and thinking deteriorate (“losing you head”). The main purpose of practices and preparations for critical situations is to be able to act automatically without having to “think”.

Also in the area of Mental Training for Problemsolving I use to suggest to replace thinking, analysis and rumination with “defining and describing the problem” and then leave to “the inner Mind” to find the best solution. This saves energy and the solution are often of a better quality. This is of course if the decision does not have to be taken immediately.

Positive thinking

We move now from **if** to think and **when** to think to **how** to think.

Every human being have many thousands of thoughts every day. However rather few percent of them are new thoughts. A new thought will create a new neurological thought path. Every time the same thought comes back we create a “wider” path and soon there are a “thought highway”, which enhances and promotes the same thoughts to come back. This is one reason which explains the difficulty to change the way of thinking.

Many people are tired of all recommendations and advices in books and articles – to think positive. A common reaction is: “Of course I should like to think positive. But I can not help

negative thoughts to come to my Mind. And this give me a bad conscience. I know I should think positive but I can't."

Thus, we should not recommend positive thinking if we can not show how to take control over our thoughts. I will just mention some strategies from the mental training.

First, a study I made in the early 70's, when the mental training was new (Unestahl, 1973). I had subjects to choose between positive and negative thoughts and images. Almost everyone chose the positive ones. The next question was. "Which of these catch your mind more easily?" The majority pointed to the negative alternatives.

The reasons for that seemed to be:

1. An old survival mechanism
2. We are caught by the thoughts with the strongest emotional components.
Negative thoughts (like fear) are often emotionally stronger than the positive ones
3. The problems and the obstacles are often more clear and concrete than the goals.

Mental training solutions

In the mental training I use 3 methods to change the thinking from negative to positive.

The first one is the ORA principle. As a thought is negative or positive due to the emotional reaction I use ORA to break the connection between thought and the emotion. ORA stands for Observation – Registration – Acceptance (but do not evaluate and react).

In the paragraph below about the two control systems I mention that DSC (trying) sometimes gives the opposite effects. The same here. Trying to stop and prevent a negative thought will make it appear more often. The acceptance and allowing it to come is combined with the permission to leave. Without a negative reaction the thought will be "tired of coming".

The second is to make the positive alternative more clear than the negative and the third to give the positive thought a very strong emotional content. The last 2 methods are important parts of the mental training goalsetting and goal programming section.

ASC 2 (Alternative Control system)

An important part of mental training is to develop alternatives to the common control system, which I call DCS (Dominant Control system) or the "Voluntary effort" system, which often is the only system that we have learned.. In many areas the problem will increase through DCS. Trying to go to sleep prevents the sleep to come, trying to run fast slows down the speed, trying to be happy block the happiness, etc. I have even a number of Swedish clients who have tried for years to become pregnant without success.

Learning the "relaxed effectiveness system" and ASC like triggers or Imagery control training has solved many sleep problems and even "produced" some pregnancies.

Mental Training as Complimentary Medicine

During the 1980's increased also the interest for the use of Mental training as a form of Complementary Medicine and I made a number of studies together with various university hospitals starting with areas where traditional medical treatment had little or no effect.

Tinnitus

One such area was tinnitus and together with "Sahlgrenska" in Gothenburg we could show that 3 months of mental training helped the 70 patients to remove the sound from the awareness area, with no awareness of the sound until they "decided" to bring it back voluntary and then they were able to "letting it go" again. (Unestahl, 2004)

Chronic pain

I used the same mental technique with chronic pain (The first studies were made in Helsingborg hospital but spread later to other pain clinics). In IMR it was possible to make a preprogramming of the brain in the same way as with tinnitus and to remove the pain from the usual attention area. (Unestahl, 2004)

In one hospital (Motala) I used humor training together with mental training. Women with chronic pain who had no improvement by medical measures during minimum 5 years gathered ones a week in a special "humor room" in the hospital. Between the meets they had daily mental and humor training. After 11 weeks there were a significant reduction of the pain and an increase of Life quality. (Unestahl, 1999)

Sleep

Another area where mental training has made a big impact is the sleep area.

In the firsts study people with sleep difficulties was connected to a sleeping line in the hospital, to which anyone could phone and listen to a sleep onset program. The study showed a significant reduction of sleeping pills in the city compared with another city as control. However, after some months the sleeping line became congested. I therefore recorded the programs on cassettes, which were distributed through the Swedish pharmacies.

I also complemented the sleep onset program with another program for improving the sleep quality. New findings at that time had found that sleep quality was more important than sleep quantity. Drugs can be used for sleep onset (even if Mental Training is much better as there are no side effects) but there are no drug that can improve the sleep quality.

Mental Training decrease the overall tension levels (muscular and mental) which is one reason to get more of deep sleep through Mental Training. (Unestahl, 2004, 2006)

Cancer

A number of mental training programs have been made to support the medical treatment by improving the patient's mood and expectations (goal images) The first pilot study of that kind was made in the 1970's with cancer at the hospital in Eskilstuna. 300 cancer patients were matched into two similar groups, which got the same medical treatment. The experiment group got a mental training program in which another and more positive image of the future was programmed while being in the IMR. However, the ethical committee interrupted the study after 3 months with the explanation that we could not prevent the control group to get the same treatment as the experimental group. During this 3 months, however, there were a clear trend with lower mortality in the experimental group but the time was too short to obtain significance. (Report from Uppsala University, 1977)

Other areas with good results have been smoking, weight, phobias, various stress problems, preparations for delivery, etc. (Unestahl, 2004, Unestahl & Nilsson, 2016)

Effective components in Mental training

The Swedish-Russian research project 1990-2002

The Swedish model of Integrated Mental training was translated to Russian and was certified by the Russian Federation of Sport Medicine and Sport Psychology. IMT includes more than 50 Swedish audio- and video programmes, 37 of which entered the Russian version of mental training

The effects of the Russian version of IMT was studied on more than 2500 persons at the age of 11–65 years old. They were schoolchildren of common and specialized gymnasiums, university students attending fitness- and shaping clubs, pupils of Olympic reserve schools, ex-athletes and persons who came for rehabilitation in health centres.

Besides these studies looking for the effects of IMT in Schools, Sport and Health was also studies to investigate the neuro-psycho-physiological changes due to Mental Training and to investigate the Inner Mental Room state.

Here are some of the findings (Unestahl & Bundzen, 1996; Bundzen & Unestahl, 1997; Bundzen, Gavrilova, Isakov, Unestahl, 1998).

The holistic and harmonic brain

The patterns of EEG neuro mapping and the spectral analysis of EEG point to the fact that the mental training state (IMR) is characterized by:

1. An intensification of theta activity in ante central sections of the brain and smoothing of alpha-activity in the frontal-occipital direction
2. A decrease of alpha activity in frequency 10-13 and an increase in frequency 7-9
3. A disappearing of hemispheric asymmetry and a synchronization of total hemispheric activity (The holistic brain concept)
4. The subsequent analysis showed that the EEG frequency spectrum in the retro central sections of the cortex represents a set of subdominant and harmonic bound frequencies in the range of delta, theta, alpha 1 and 2 and beta rhythms. Thus, the polymodal frequency harmonization of cortical bioelectrical activity, whose basis may be considered as so-called “golden ratio” or “section divine” has been shown to be one of the specific neuro-dynamic correlates of the “IMT-IMR state. As the section divine is a ratio which stands for balance and harmony, we call this “the harmonic brain” state
5. This quantitative and the qualitative changes of brain activity (the holistic and harmonic brain) seems to change the informational system in such a way that the body through decreased “reality testing” interpreters internal images as “real” .
The differences between a “physical event” and the image of such an event seems to diminish or disappear in the Inner Mental room. This may be the main explanation for the significant impact which the IMT training has on various psychosomatic and body-related problems.

The Optimal zone of performance

In some studies we looked into the brain–body connections to identify the optimal zone of performance (OZP) using a field EEG measurement instrument called Omega potential. The Omega potential (Russian patent no. 20,113,775, 1994) registers bilateral digital values of quasi-DC potential and averages the middle latency evoked responses (MLERs). Field investigations with EEG measures of the Omega potential in various sports pointed to an OZP of 15 Mv to 25 Mv, where the difference between top athletes and lower-level athletes seemed to be in the left hemisphere. Thus, peak performance in IMR seemed to be related to an integration of left and right hemisphere signals inside The OZP.

To test these findings, we compared EEG measures of the Omega potential in two archery shooters during competition, one average shooter and the other a Mental trained world-record holder (Unestahl, 1997). Their brain patterns were similar 10 seconds before every shot, with their left brain more active than the right one. At the time of the shots, the average shooter had still the same differential pattern, but the world champion had integrated the left and right hemi-sphere signals so that the activity was on the same level in both hemispheres and inside OZP.

When the world champion afterward was asked: “How do you know when you are going to shoot?” She answered “I do not know, but my body knows. The shots come by themselves when my body is ready. I do not have to think.” Another difference was that the champion’s arrow was released through an ideomotor system, which involved less tremor than shots released through the other shooter’s voluntary decisions.

Psychophysiological changes

Example of other changes during and after IMR/IMT training (Uneståhl & Bundzen , 1996; Bundzen, Gavrilova, Isakov, & Unestahl, 1998; Bundzen, Korotkov, & Unestahl, 2002):

1. A significant reduction of the level of cortisol and free fatty acids in the blood plasma
2. Increase in beta-endorphin levels
3. Increase in general immunomodulating capacity
4. Prevention of reduced immunology, normally related to overtraining
5. Reversal of the age-related decrease of the hormone DHEAS
6. Increase in self-regulating capacities and homeostatic processes
7. Increase of the self-healing systems after sport injuries

Immunomodulation

As a comment to the immunomodulating effects can be mentioned that IMT in the study with IMT training of Russian athletes (Bundzen et al, 1998) showed that the common immune depression could be prevented. This is of importance not only to prevent the negative overtraining effects in Sport but also to prevent the immune deficit effects due to depression and negative stress.

Antiaging effect

Some years after the Swedish-Russian research project we decided to look more close to point 5 above: Reversal of the age-related decrease of the hormone DHEAS

Seven years “younger” after 6 months of Mental training

A Swedish study (Johansson & Unestahl, 2006) was made to investigate further the Swedish-Russian findings of reduced cortisol and DHEA-S levels in order to see if IMT could produce an anti-aging and rejuvenation effect.

The study examined the influence in healthy subjects of mental training taught in group sessions, with individual training in between according to a standard protocol. The training was integrated in daily life and work for six months. The alteration in plasma concentration of the stress hormone cortisol and the ‘anti ageing’ hormone dehydroepiandrosterone sulfate (DHEA-S). DHEA-S and cortisol were analyzed in twelve healthy men and women, with six individuals randomly divided equally between experimental and control groups. In the experimental group DHEA-S was significantly increased by 16% ($P < 0.05$), whereas plasma DHEA-S in controls followed an expected age-related decline. Cortisol was reduced by 12.3% ($P < 0.05$) in the experimental group, but remained unchanged in the control group.

The ratio between plasma concentrations of DHEA-S and cortisol that reflects stress-related alteration in the adrenal secretion between androgens and glucocorticoids, increased significantly by 27.8% ($P < 0.05$) in the experimental group with a reduction of 8,2% in controls.

The increase in plasma DHEA-S under experimental conditions was equivalent to a range normally found in individuals 5 to 10 years younger. (Johansson & Unestahl, 2006)

FINALLY

Due to

1. the simplicity of mental training for the practitioner (just to follow the training manual),
2. its effectiveness on all areas of Life and sections of Society
3. the low cost (high cost-effectiveness), due to the self-coaching training which both reduce the costs and increase empowerment
4. the absence of negative side effects,

an obvious goal will be to spread the training to every human being.

This is also in accord with the Mental Training vision: Mental Training for a better and more peaceful world.

Let me finish with one project that I started 2015 in north Iraq together with the government in Kurdistan. The goal is to bring Mental Training to everyone.

The name of the project is: Mental Training for Peace – From Inner Peace to Outer Peace.

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