

EFFECTS OF THE USE OF TABLE TENNIS IN SPORTS THERAPY IN PSYCHIATRIC HOSPITALS. CASE STUDY: PATIENT WITH ALCOHOL DEPENDENCE

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Abstract. Sports therapy is an effective scientific method of supporting specialized psychiatric treatments. By using sports therapy in psychiatric medical treatment, the patient's physical and mental health is improved. Research to date shows that in psychiatric clinics where patients also benefit from sports therapy, the recovery process is accelerated. Patients' access to a gym and/or possibly to a swimming pool improve sports therapy, making it possible to carry out therapy regardless of the season or weather. The most common sports in sports therapy are: table tennis, swimming, badminton, basketball, volleyball, fitness, walking and running outdoors, yoga, cycling or even climbing on special boards. Table tennis is an accessible and effective method to support psychiatric therapy, having effects on the patient's mental health through a combination of physical exercise, cognitive stimulation and social interaction. By accepting the regular practice of table tennis, an acceleration of the rehabilitation process is observed in patients with alcohol dependence. At the cellular level, following the moderate physical effort of table tennis, there is a substantial release of endorphins and the level of cortisol in the blood is regulated, which leads to a decrease in stress levels and an increase in the patient's ability to concentrate and disconnect from anxious thoughts. After analyzing the results of the conducted experiment it can be concluded that the first and easiest method of sports therapy in psychiatric clinics is table tennis. It proves the hypothesis that table tennis significantly helps the patient with alcohol addiction problems to quickly regain body and mental control in comparison with the patient who does not want or does not have the possibility to participate in sports therapy sessions. The patients with alcohol dependence contact with the gym, with the rules of table tennis and with other players helps in better managing their emotions, improves self-esteem, encourages physical movement and social contact and also demonstrates the importance of sport therapy.

Keywords: table tennis, psychiatric, sports therapy, alcohol, dependence.

1. Introduction

Table tennis, also known as ping-pong, has a fascinating history that begins in the 19th century. This activity, which became an Olympic sport in 1988, has Asian origins. In Europe it emerged as an indoor version of field tennis. Brought to Europe by English officers it was practiced by English aristocrats in the dining rooms of their palaces. Over time the discipline became known the world over. Nowadays table tennis is one of the most widely practiced sports in the world, with millions of amateur and professional players, and is appreciated both for its dynamics and for the physical and mental benefits it offers (Xun. L 2022). As an easy sport, table tennis has no age limit and does not



require significant investment in equipment. It has a simple set of rules and can be played in teams of two as well as individually. Table tennis is not only a recreational or competitive sport but also a method used in sports therapy (Naderi, A. 2018). Due to its dynamic and accessible nature, it can also be practiced by people with neuro-motor or psychiatric disorders or with heart problems (Guochang. L. 2022). Regular practice of table tennis has been shown to increase concentration and coordination of arm movements, helping to maintain active cognitive functions. Playing table tennis activates the production of endorphins, substances that reduce stress and induce well-being in the body. Focusing on the game can have a similar effect to meditation, helping patients to disconnect from anxious thoughts. For patients with depression and alcoholic problems, table tennis is a simplistic way of taking a first step towards socialization and performing light physical movements without significant physical and mental stress. By accepting involvement in the game of table tennis, by progressively increasing the patient's playing skills, a sense of accomplishment and self-confidence is offered to the patient. Table tennis is a method that can also be used in group therapy to improve interpersonal relationships. Practicing this discipline helps patients with disorders such as schizophrenia or autism to develop social skills in a structured environment (Seo,S., 2024). Play contains rules that require discipline and emotional control. These can help patients with personality disorders, Diabetes, Parkinson or ADHD to manage impulsivity (Olsson, K., 2020, Buchmann, N., 2005). Learning game strategies and accepting defeat helps to develop emotional resilience. For the uninitiated, table tennis is a well-known, accepted, and popular sport. Table tennis is quickly reminiscent of childhood, possibly the gym at school, which creates a feeling of nostalgia and joy. With the help of table tennis, the effort capacity of the alcoholic patient is increased and the coordination of body movements return more quickly to normal (Williams, A., 2002).

2. Application of sports therapy in rehabilitation clinics

In order to be successful in the application of sports therapy in psychiatric clinics and especially by the alcohol wards, it is necessary that the sports therapist has a number of special qualities such as patience, empathy, didactics, pedagogy, optimism, medical knowledge, sports and physical education knowledge (Dra gnea, A., 2002). The sports therapist will start the therapy according to didactic principles, from simple to complex, from easy to hard and from unknown to known. The therapy is done according to a well-established plan together with the psychiatrist, occupational therapist, social educator and sports therapist. The treatment plan in psychiatry is a team work and the results are visible over time by optimizing the application of special therapies.

2.1. Previous studies on table tennis and the importance of its practice for mental health

Numerous recent scientific studies confirm the positive effects of using table tennis as a method in sports therapy, especially in psychiatric contexts. An article in Psychiatric News points out that table tennis is ideal for use in psychiatric units due to its compact nature and the use of non-hazardous sports equipment. Its compact nature, coupled with the use of a table of small, harmless balls and paddles, makes it less intrusive in the psychiatric clinic. Participants benefit from a moderate level of physical activity, with minimal spatial movements involving a low level of arm and leg control. Table tennis can be played both outdoors and in the wards where patients are stationed. An article in a specialized newspaper highlights the fact that table tennis can be a motivator for alcohol addicts to give up alcohol. According to the investigation, an example of successful integration of table tennis in addiction therapy is found in Germany at the Blue Cross Sports Café in Bochum. Addicts, relatives and friends meet here to play table tennis together. The rule is clear: no alcohol and no drugs. This

program not only promotes physical activity, but also social interaction and mutual support, and the results are extraordinary. Another scientific study says that table tennis has positive effects on neuropsychological health. The study looked at the effects of a 4-week table tennis training program for alcohol-dependent adults. Results showed significant improvements in participants' self-efficacy and cardiovascular health. Promoting cognitive function through long-term table tennis training may alter the dynamic functional connectivity of the brain, suggesting improved cognitive function (Park, S., 2012, O'Brien, K, 2020, Jadedzak, A., 2018, Tsai, Y., 2022).

2.2. Methodology of applying sports therapy through table tennis for patients with alcohol addiction

In general, patients in the alcohol ward of psychiatric clinics know the rules of table tennis. The therapist is obliged to present the purpose, benefits and main rules of the game. He will try to demonstrate through simple movements the technique of the game and possibly choose one of the players for a demonstrative game, one step at a time, and perhaps most important is the patient's acceptance of the therapy. After the first few training sessions the patient will present him/herself in order to perform the session. The exercises in table tennis are easy like: one-on-one play or doubles, running around the table, ball control exercises like forehand, backhand, serve, ball spin, take-offs and stops, ball coordination.

After the period of impact and acceptance of the involvement in the activity of recovery through sport, the patient will change his motivation. One to two sessions per day will be carried out for a maximum of one hour per session. Discussions about the patient's personal problems should be avoided as much as possible. Patients will be motivated to play together or with the sports therapist. Hydration breaks or just breaks will be offered as many as the patients consider. No time limits will be imposed for play and the sports therapist will continuously monitor the patient's physical condition. The patient's balance, coordination and concentration will be monitored to see if the patient's balance, coordination and concentration improve compared to the first sessions. A quiet and relaxing playing environment will be provided for the therapy so that the patient's attention is focused on the game of table tennis. If the patient considers that a possible game on the point would be motivating, a competition can be organized (Kendzor, D., 2008, von Hachling, S., 2021).

3. Organization of the research

3.1. Aim of the work

The aim of this work is to investigate and compare how sports therapy influences the health status of patients by alcoholic ward of the Psychiatric Clinic in comparison with patients in the same ward who do not agree to attend therapy sessions through sport. The study aims to investigate how table tennis, as the first sport therapy method, applied to alcohol-dependent patients accelerates their rehabilitation process. By applying the experiment, it aims to gain a deeper understanding of how the use of table tennis can influence the motivation and physical behavior of the alcohol intoxicated patient undergoing therapy.

3.2. Research hypothesis

Table tennis is a first sports therapy modality that has an increased effectiveness in treating patients with alcohol intoxication.

3.3. Research objectives, tasks and evaluation methods

Evaluation methods:

- experiment method: physical capacity assessment tests (Ruffier test) and movement coordination assessment test (Matorin test)
- clinical observations
- interviews with patients and medical staff

To achieve the set objective, the following research tasks were formulated:

- a. Establishment of the research sample – 20 patients aged between 30 and 45 years of age first attending the de-alcoholization ward. Patients have different jobs in their daily lives and do not have enough time for sports and physical exercise. However, they admit that exercise is good for their physical and mental discomfort. 10 of these patients (P1 to P10) agree to participate in sports therapy, called experimental group (EG) and 10 of them (P11 to P20) will not participate in the sports therapy sessions, called control group (CG).
- b. Determining the duration of the experiment and the intervention protocol: sports therapy lasting eight weeks, two sessions of table tennis every day from Monday to Friday.

Research tasks:

- a. evaluation of the evolution of the effort capacity and motor coordination of the patient in the two groups.
- b. evaluation of the level of alcohol dependence through sport therapy. (Rîșneac, B., 2004)

3.4. Analysis and interpretation of results

During the eight weeks that the experiment was applied to all the 20 patients addicted to alcohol, a significant improvement in physical and mental health, an increase in social interaction and general motivation was observed. Following the interviews, all the patients, the 20 patients reported alcohol-related stress. In the first 14 days, the stress caused by alcohol addiction was lower, after which it reappeared, and after approximately four weeks it decreased again. Medication was determined by psychiatrists on a patient-by-patient basis and the therapists' contact with the doctors was continuous. In addition to alcohol addiction, all 20 patients had nicotine addiction. None of the patients managed to give up tobacco addiction during the therapy, but alcohol was totally prohibited. In the EG there was a 10% decrease in nicotine dependence by reducing the number of cigarettes smoked during the day. In the CG there was a 13% increase in tobacco consumption. In the experimental group there was an improvement in the coordination of arm and leg movements in the first days of therapy compared to the control group. The Ruffier test was applied on all 20 patients twice (T1, T2). The first time was applied two weeks after the beginning of therapy and the second test was done in the seventh week. After the completion of eight weeks the patients in the experimental group indicated their intention to join a table tennis club. The Matorin Test, as a movement coordination assessment test, was applied once in the eighth week of therapy and the results were analyzed by comparing the patient groups. The combination of the two tests was done so as not to induce fatigue in patients and to avoid accidents.

1. Ruffier test:

To calculate the Ruffier Index (R.I.), we used the dynamics of heart rate at standard effort. The patients performed 20 squats in 20 seconds. The pulse was taken three times respectively P1 before the effort, P2 after the effort and P3 one minute after the effort. The calculation formula used was: $(HR1 + HR2 + HR3) - 200$. The reference values are: between 0 – 50 = good, between 51 – 100 = fair, between 101 – 150 = poor and over 150 = very poor.

Evaluation: as can be seen in Table 1 and 2, Ruffier index recorded an increased value in the control group compared to the experimental group at both T1 and T2. In the experimental group in week 7 the value improved by 32,15 compared to the control group where the value is only 20,8. This result demonstrates that by practicing table tennis the effort capacity of patients with alcohol dependence increases.

Table 1. The T1 results for EG and CG

T1	Patients										EG Value CG Value
EG	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	121,9= poor
CG	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	
Result	121	145	111	113	142	125	120	122	105	115	
R. I.	142	115	139	132	135	140	141	136	130	127	133,7=poor

Table 2. The T2 results for EG and CG

T2	Patients										EG Value CG Value
EG	P1	P2	P3	P4	P5	P6			P7	P8	89,75= fair
CG	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	
Result	92	116	103	97	107	95	98	87	92	105	
R. I.	135	110	121	130	127	133	128	124	110	117	112,9=poor

Matorin test:

This test to assess the patient's movement coordination consists of performing a jump on both feet vertically, with as much turn as possible about the body's own axis. The starting position is with the legs slightly apart between which a vertical line is drawn. After performing the flip jump the patient must remain on the spot where he landed. A line is drawn between and parallel to his feet. The angle formed between the initial line and the resulting line is measured with a set square. The patient may perform the rotational movement as he thinks would be to his advantage. Two jumps are made to the left and two to the right but only the best jump is taken into account. The scale of judgment and qualitative evaluation will be:

- Under 180° poor
- Between 180° – 270° sufficient
- between 70° – 360° good
- over 360° very good

Table 3. The Matorin test results for CG

Matorin Test	EG										Total
Pacient	1	2	3	4	5	6	7	8	9	10	Average
Result	255 ^º	267 ^º	289 ^º	355 ^º	376 ^º	343 ^º	320 ^º	290 ^º	246 ^º	233 ^º	297,4 ^º

Table 4. The Matorin test results for CG

Matorin Test	CG										Total
Pacient	11	12	13	14	15	16	17	18	19	20	Average
Result	178 ^º	197 ^º	189 ^º	195 ^º	287 ^º	221 ^º	395 ^º	190 ^º	137 ^º	172 ^º	216,1 ^º

The average values obtained in the test for the experimental group were **297,4^º** (good) and for the control group **216,1^º** (sufficient), which means that patients who participated in table tennis sessions have better body movement coordination compared to those who did not participate

The results of the test demonstrate also the hypothesis of the experiment, namely that the use of table tennis as a sports therapy for patients undergoing therapy for disalcolization shows significant progress. The practice of table tennis helps the patient to regain confidence in his own strength and movements faster.

4. Conclusions and recommendations

Alcohol addiction is one of the most common illnesses encountered in psychiatric clinics. Recovery therapy in psychiatric clinics is a team work. Along with other existing therapies, sports therapy is an important method in the treatment of patients with alcohol intoxication and alcohol dependence. Table tennis is an easy method by which patients with such problems can accelerate their healing process. Table tennis can be easily implemented in all clinics. It would be recommended that a tennis table be installed in each detoxification section and that patients be motivated to start practicing.

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