

BIO-REGENERATION, HYGIENE NUTRITION AND HEALTH SELF-CONTROL IN POLAND (1944-1955), PART III

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Abstract:

Beginnings of bio-regeneration, nutrition hygiene and post exercise self-control in Poland, among Polish athletes, originated with organization of the TG "Sokół" in 1867. Presence was broadened in sport clubs, athletes and developed in 2nd Polish Republic (1918-1939). After II World War in 1944, along with reconstruction of sport structures, medicine and sport community proceed to develop sport-medicine structures, where practical information's directed on bio-regeneration, food hygiene and self-control occurred.

Sport-medicine had special participation, due to organization of practical courses, informational actions during obligatory athlete health tests, significant share had sport and medical newspapers.

Article is continuation studies over organization and functioning of sport-medicine in Poland, created by analysis of print media sources. Main propose of article is registration of creating sport medicine after II World War in Poland, sport-medicine control methods, also participation of doctors, physiologists and coaches.

After II World War popularity of sport in Poland was increasing constantly, society needed entertainment during leisure time, that positively caused development of sports clubs and number of athletes. Sport medicine along with this, improve quality of first aid actions and launch new methods in recovery after injuries.

All athletes performing (not only professional) sport, are in risk of injury like: bone fracture, pulled muscle or tendon, bruises, sprain. First aid actions during this injuries are determine by doctor or nurse knowledge, access to medical equipment, diagnose of injury and time into perform first aid action . All this factors influence on time and health disposition after injury, what in professional sport is very important. Hygiene after exercises or in normal life, like quality of nutrition or diet, effort level during trainings, has big influence on recovery time and sometimes even lowering level of injury. In sport community, clubs underline on knowledge and information about healthy lifestyle, anatomy, physiology and nutrition [Dr J. Miller: *Przez sport do zdrowia*, „Sportowiec”, 1949 no 1, pp. 15.].

Development of sport provides to "race" for better results and new records, new training methods, heavier trainings, demand on athletes to point attention on recovery actions.

Popular was using knowledge about post effort recovery, examples were hydrotherapy (hot douche, tub, steam room), massages and proper diet [S. Zakrzewski: *Trening lekkoatletyczny*, „Sportowiec”, 1949 no 7, pp. 4]. It was recommended to use transition douche as follows: *5-10 minutes hot shower, then to cause coarctate blood vessel, quick cold shower, next step was once again 5 minutes hot shower* [J. Miller: *Jak usuwać zmęczenie*, „Sportowiec” 1950 no 18, pp. 7.]

Doctors fairly thought that this action stimulate temperature of body made it higher, that caused more sweeting, connected with excrete rests of lactic acid and other leftovers of

metabolism. After few weeks, when body gets used to this treatment, it was recommended to extend time of it, for example: 2x15 min, 2x20 min, 3x10 min.

Treatments in sauna provides to dehydration, what caused weight losing up to 2,5 kg of body weight and salt mineral deficiencies. That makes athletes feel weaker, M. Baquet advice that they should drink water with small portion of salt.

Other recovery treatment used in sport was massage, S. Zakrzewski said that for optimal results it was recommended to had at least 1-2 times in week, after sauna. Author also advice to complete process with high-caloric food and 8-9 hours of sleep [S. Zakrzewski: *Trening lekkoatletyczny*, „Sportowiec”, 1949 no 8, pp. 4].

Role of proper diet was well known in ancient time, in Poland athletes diet during first sport competition in XIX century was primitive. Food hygiene was subject in many different courses organized by Gymnastic association “Sokół”. After Poland got independent in 1918, knowledge about importance of diet in sport was getting bigger than before.

After II World War, athletes were taught about healthy life style, hygiene, there was big difference between diet of people non-training any sport and athletes, who’s basically got more calories in daily diet. It was recommended to increase in sport diet amount of protein, carbs, water, vitamins and minerals. All of this influenced on results reached by the athletes, time of the recovery. Helpful was schedule of calories depend on sport which was trained [Dr J. Miller: *Dobre odżywianie – wyniki*, „Sportowiec”, 1949 no 8, pp. 7].

Tab. 1. Daily calories demand on sport trained by J. Millera (1949)

Sport discipline	Youth	Senior	Women
Group I Shooting sports, archery, tobogganing, table tennis	3300–4100	3300–4100	3300–3800
Group II Diving, motorcycle, car races, ice skating , team gymnastics, fencing	3700–4100	3700–4100	3300–3800
Group III Rhythmic gymnastics, short runs, ski jumps, tennis, tack cycling, team sports(Volleyball and handball), hockey, sailing	4100–4600	4100–4600	3800–4100
Group IV Middle and long distance running, march, javelin, skiing, gliding, speedway, middle and long distance swimming, rowing, sea sailing, cross country skiing, ice skating, track bicycle, boxing, mountain climbing, basketball, football	4600–5000	4600–5000	3800–4600

Source: dr J. Miller: *Dobre żywienie – wyniki*, „Sportowiec”, 1949 no 8, pp. 7.

Sport massage after II World War in Polish sport was almost mandatory for professional athletes during season and preparation to this season, almost in all sport disciplines. It influence positively in endurance sports, strength sports.

In 1949 it was organized first course of sport massage, trainee was learning elements related with techniques connected precisely with sport massage.

During trainings (pre-season) in use was massage called “training massage”, duration depend on height, weight of athlete, usually it was 45-60 minutes. Massage therapist used three main methods: stroking, spreading, kneading, it was recommended to dose proper strength and pace of this massage. Before treatment it was demanded to take quick shower (up to 7 minutes) and after also quick hot shower (1-2 minutes) [O. Fiński: *Masaż sportowy rodzaje i zastosowanie*, „Sportowiec”, 1949 no 9, pp. 7].

Second kind of massage used during trainings and sport competition which was used in 1950’s was “introducing” massage, it was element of warming up exercises. Recommended time to do this treatment was up to 12 minutes before warm up, direct mainly on muscles which have biggest input in competition. Three main techniques used in this type of massage was: spreading, kneading, pummelling, all performed in fast pace and medium strength.

Therapist should have proper physiology knowledge and preparation, also he should know level of muscle stimulation of athlete.

Third kind of massage used in sport was massage during breaks in competition (for example in boxing etc.), often called “middle competition”. Requirements of this massage were similar that in “introducing” massage with small difference in spreading part.

4th type of sport massage was “whole muscle” massage which take usually 20-25 minutes, stroking was main method used during this massage, frequency of massages is presented by table under.

Type of massage	Period of trainings and competition			Middle competition time
	Circuit training	Main training	Competition period	
Training massage	Once a week in day without training, or if it's not possible 90 minutes after exercises	Once or twice a week, like in circuit training	At the end of competition day, at least after 2 hours after physical activity	Once or twice a week
Introducing massage		Before fights or hard training	Before warm up	
Middle competition			During breaks in competition or fight	
Relaxing massage			Before afternoon, when competition is in the afternoon or evening	Once a week
Self-massage	Every day after morning stretching, exercises or when performing other treatments is not possible			

Source: Otto Fiński: *Masaż sportowy rodzaje i zastosowanie*, „Sportowiec”, 1949 no 9, pp. 7.

At the end of 40's XX century, sport-medicine doctors point out on importance proper nutrition for athletes. Dr Józef Miller (polish national team of athletics doctor) in article “Good nutrition- good results” released in “Sportowiec” in 1949 in no. 7, showed necessary elements in healthy diet. In his results emphasize that sportsmen results are determine by: talent, proper training, hygiene of life and *nutrition which is of course very important and has to relay on the same rules like healthy diet person who uses a lot of energy (calories)*[Dr J.Miller: *Dobre odżywianie-dobre wyniki*, “Sportowiec”, 1949 no 7, pp. 10]

Dr Józef Miller in his study advice following nutrition rules:

- food should be high-caloric, possible small portions and tasty prepared
- athletes should eat at least 4 times per day, do not overfeed
- never drink alcohol (especially vodka)
- athletes should start his exercises at least 2-3 hours after his meal and eat at least 1 hour after training [Dr Józef M. Miller: *Samokontrola zdrowia sportowca*, „Sportowiec”, 1950 no 22, pp. 5].

HEALTH SELF-CONTROL

Except training courses for athletes and trainers in first aid area, provincial sport-medicine clinic from 1950 inform (them) about possibility of self-control condition of health.

Doctors during obligatory medical examination advice athletes about ways of self-controlling body. Positive aspect of this was increasing knowledge players about his body and possibility of better examination about illnesses by doctors, better tailoring of training methods by coach.

Self-control factors assessed:

- Mood, quality of sleep, sport capacity, training will
- Body measurements: weight, height, attempt of circulatory and respiratory systems measure of chest, lung capacity, apnoea test [Dr J.Miller: Samokontrola zdrowia sportowca, „Sportowiec”,1950, no 55, pp. 5].

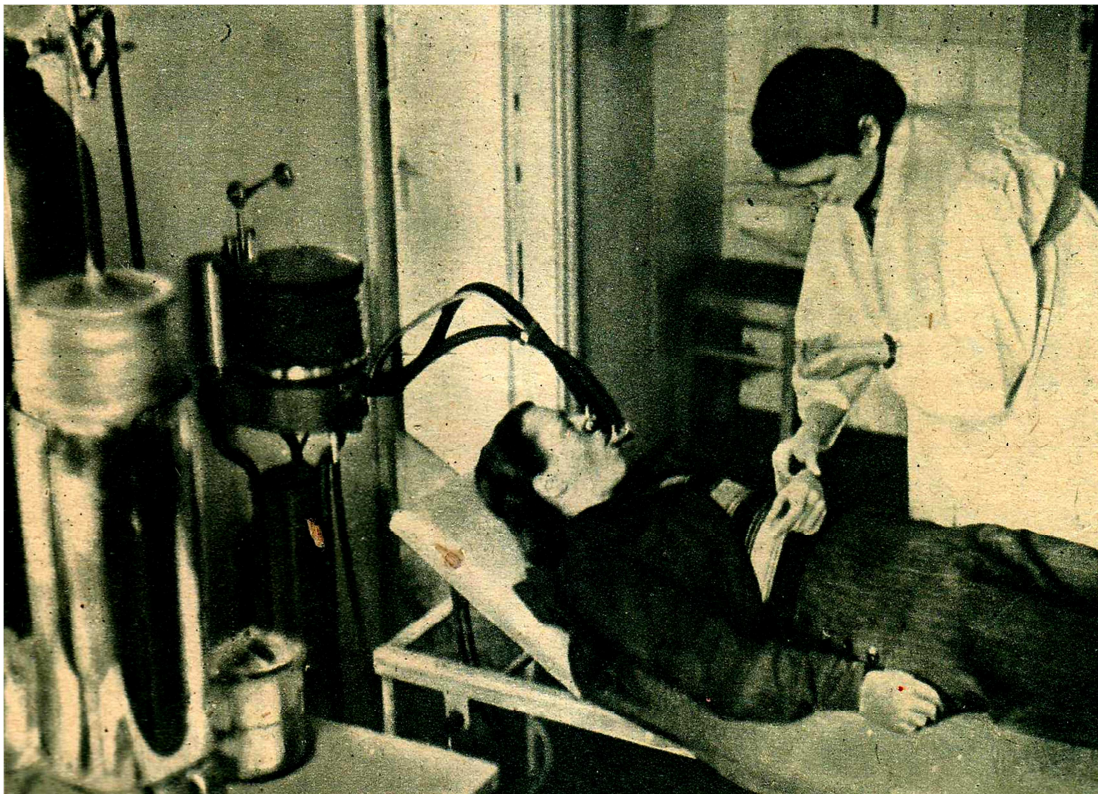
Athletes note results in special notebook, author advice to write all remarks about trainings, competitions, types of trainings and results achieved. Data from self-control notebook allowed to check influence of trainings on athletes body.

Notebook had 10 rubrics:

- date
- weight
- heart rate (lying on)
- heart rate (standing position)
- heart rate after performing squads (number depend on personal conditioning)
- time after pulse come back to normal
- chest measurement in centimetres (indrawn breath/ exhaust)
- if there was possibility to use spirometer, 8th rubric was prepared for result of this test
- number of seconds on apnoea test
- state of being, remarks about mood before, during and after training. Additional if athlete didn't have notebook with his results, he could put them there.

Weight should be checked and noted at least once a week, other parameters once in 2-4 weeks.

Dr J. Miller author of this self-check notebooks, mentioned that he was inspired by methods of USSR (Union of Soviet Socialist Republic) doctors.



Source: Spirometer test, „Sportowiec”, 1951, no 2, pp. 12.

One of factors of self-control was weight. Every change of body mass which depart from norm was a signal for athletes to visit doctor.

Method to calculate right weight for athletes was: ... in adult from number of height less 110 for 185-175 and 105 for 175-165 and that gives us correct weight, example if you have 180 cm of height you should weight 70kg (180-110=70), that numbers we have to treat approximately [Dr J.Miller: Samokontrola zdrowia sportowca, "Sportowiec", 1950 no 24, pp.14].

Athletes with high intensity training, depend on specific of discipline and longevity may have high hesitation of weight, but when if not come back to normal level after one day it can be symptom of overtraining. It was recommended for athletes when they notice this situation to contact with doctor for health check. Doctor advice to check weight everyday with the same clothes, in all phases of season.

In 50's of XX century doctors pointed importance of pulse mensuration in athletes training and recovery. Dr Józef Miller author of article *Jak badać samemu sprawność serca* (How to check efficiency of heart), published in "Sportowiec" in 1951, encourage all professional athletes to monitor pulse as factor of general condition of circulatory system in process of training and recovery time. Author presented methods how sportsmen could check his pulse: *heart rate can be assessed by: two fingers (pointer finger and middle finger) of right hand put on left end-edge of arm at the height of wrist, due to location of radial artery what allow us to feel pulse. It is important to remember , that during pulse check of other person we cannot use thumb, due to possibility of blunder feeling our pulse instead of her.*

Properly we can check pulse counting to 10-15 sec or using watch, after number of heart beats multiply by 4 (If we were counting to 15 sec) or by 6 (if we were counting to 10sec). [Dr Józef Miller: *Jak badać samemu sprawność serca*, „Sportowiec”, 1951 no 2, pp. 12]

For male sport medicine assuming pulse 60-70 beats and for female 65-80 beats per minute. In endurance sports controlling and knowledge of own pulse is very important, it helps us to assess level of condition, beginnings of overtraining or even sickness. Normally pulse of healthy person is at 60-70 bpm for man, 65-80 bpm for woman, professional athletes reach level 50-56 bpm but sporadically even 40 bpm. Reducing of pulse was good sign of adaptation of cardio-vascular system for training.

Table 3. Norms of pulse in different trainings by J.Miller 1951.

Person	Beats per minute
Men without training	60–70
Women without training	65–80
After 2-3 months of training	Reduce by 2–4
After 1 year of training	Reduce by 9–12
After 3-4 years of training	Up to 40
After moderate exercise	Increase about 100–120
After intense exercise	Increase about 140–150
After sport competition	Increase about 180–200 In extreme cases- 240–270

Source: Dr Jozef Miller: *Jak badać samemu sprawność serca*, „Sportowiec”, 1951 no 2, pp. 12.

In health self-control it was recommended to measure pulse in: repose, during exercises, after exercises, that should examine how fast body comeback to norm.

In attempts of circulatory system efficiency examination, it was demanded to project following data:

- 1) Pulse in repose in laying position. After 5 minutes test pulse during 1 minute,
- 2) Pulse in standing position. Slowly stand up, after minute measure pulse during 1 minute, difference between pulse measured in point 1 and 2 should be 6-12 bpm, if result it is over 20 bpm indicate problem with circulatory system.
- 3) Pulse after probationary effort. Pulse survey should be made after 20-40 squats (all surveys must be made with the same number of it). Pulse was calculate after 1 minute gap. Norm was 120-130 bpm and should get back after 3 minutes. Less increase of pulse after effort and quicker return to base level of pulse (before exercise) after 3 minutes.

Author advise that in all researches it should be consult excitableness of athletes.

In 1950's athletes had other possibility to control theirs health , by other test- respiratory system test. Doctors notice that respiratory capacity of lungs is very important, especially in endurance sports.

Method to exactly test vital capacity was using spirometry, but for individual use it was hard available. In this situation it was proposed to measure circuit of chest, conduct apnoea test and check incidence of breath. Girth of chest were measure during breath and maximal exhalation.

Except this two results it was also considered difference in chest circumference between two results- indrawn and exhaled breath. Difference was called chest elan, which define possible physical efficiency. Method used to examine was calculate average chest circumference, amount of indrawn and exhaled breath divide by 2. Average chest circumference was classified by pattern, where result should be at least half of athlete height.

Average chest circumference for non-training people was 5-7 cm, for athletes and people who are training regularly 10-12 cm and more, that result can be reached after 3 months of training. Chest were measured by measure tape (tailor tape). Properly it was recommended to encircle chest at shoulder and nipple height (breastbone level), next step was reading breath and exhalation result. [Dr J.Miller: *Samokontrola zdrowia (badania sprawności płuc)*, „Sportowiec”, 1951 no. 9, pp.14].

Second method used in 50's XX centaury was apnoea test. Examined athlete after 3-5 minutes of sitting, proceed to 3-5 deep breaths, after last one close mouth, pinch nose using fingers. Pattern for normal healthy people without physical preparation was 20-30 seconds, athletes can reach 1 or even 2 minutes.

Nowadays this test is no longer using, but it allowed to check not only lungs condition, but also circulatory system or mechanisms like fatigue swallowing or endurance.

When athlete was over trained or tired results were worse and with other self-control methods comparison allowed to draw right conclusion.

Other method to examine respiratory and circulatory system was breath frequency. Normally human breath 16-20 times per minute. Well trained athletes, prepared for physical effort 7-12 times per minute. After physical exercises breath frequency rise up to 30-35 per minute. Result of this test was made during rest and few hours after exercises, on the grounds of that doctor or athlete could check respiratory and circulatory efficiency.

In self-control importance was comparison of all tests together due to best result, which could be helpful for doctors and trainers.

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