

**DEVELOPMENT OF ELITE SPORTSMEN'S TRAINING SYSTEM**

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Sport Energy

**Abstract.** *Purpose:* to study conditions and organizational management forms of material-technical and personnel potential's realization in modern system of elite sportsmen's training. *Material:* publications on the topic of the article were used as sources of information. *Results:* approaches to optimization of sportsmen's training and competition functioning management were analyzed. In the basis of modern system of elite sportsmen's training for competition functioning is realization of knowledge and practical experience of different specialists. Provisioning of conditions for different profiles specialists' participation in sportsmen's training is ensured by large training centers with developed infrastructure and wide complex of services for sportsmen. *Conclusions:* coordination of different profiles' specialists in sportsmen's preparation for competition functioning and in competition functioning is ensured by different forms of management. The most effective of them is model of chief coach's and chief of complex scientific group's cooperation.

**Key words:** training, sportsman, management, model of management, personnel, training centers.

**Introduction**

Up to 1960-s the process of elite sportsmen's training was exclusively the sphere of coach's activity. Effectiveness of sportsmen's fitness depended only on coach's knowledge, skills and experience. Next years role of different profiles' specialists increased (physiologists, bio-chemists, psychologists, sports medical doctors, specialists in motor qualities' development, in periodization of trainings and other) in optimization of training process. Specialists helped sportsman and coach to raise quality of training, to avoid over-fatigue and over-training with their advices and researches. In 1960-s, in the USSR, GDR and other Eastern European countries, at combined teams scientific groups were formed. Such groups realized scientific-methodic provisioning of athletes' training. Even initial results of those groups' work showed purposefulness of their potential usage for increasing of effectiveness of sportsmen's training and competition functioning.

In 1970-s–1980-s functioning of complex scientific groups in combined teams of the USSR and German Democratic Republic (GDR) became an integral part of training process. In these groups specialists of different profile appeared – in theory and methodic of sports training, in physiology, bio-chemistry, sports medicine, psychology, dietetics, physical therapy, genetics, pharmacology. Besides, specialists from educational and scientific centers of sports profile, well-known experts from adjacent spheres (biology, medicine, cybernetic) were involved. Such practice developed also in other countries: in France, Australia, Italy, Cuba and Spain. Then such practice was transferred in many other countries, interested in successes on world and Olympic arenas.

Finally it resulted in the fact that specialists in many other specialties were involved in modern practice of elite sportsmen's training. Training process became so complicated that even a coach of the highest qualification can not have the required scope of knowledge and practical skills at modern level.

In these conditions there appears demand in substantiation of material-technical and organizational-management forms, capable to ensure conditions for realization of potentials of different profiles' specialists, as well as for coordination of these specialists' functioning in training and competition work.

**Purpose, tasks of the work, material and methods**

*The purpose of the works* is to study conditions and organizational management forms of material-technical and personnel potential's realization in modern system of elite sportsmen's training.

*The methods of the research:* analysis of special literature, questioning of experts, content-analysis, systemic-integration method, procedural approach.

**Results of the research and discussion**

Strive for realization of material-technical, scientific and personnel potential of modern sports resulted in creation of complex or special-purpose training centers. Such centers work in close contact with scientific establishments, consultants of different profiles, narrow specialists. The tasks of these centers is provisioning of

sportsmen with different services. In such centers sportsman is ensured with comprehensive and complex support of rather wide group of specialists: planning of training process and its maintenance; organizational and material-technical provisioning and etc.

It is known that it is impossible to ensure complex of services for sportsmen's effective training at modern stage without sports-training centers with developed infrastructure. Such centers shall have conditions for work of different profiles specialists. For illustration we can familiarize with list of services of the largest training centers of China, France, Norway, Australia, Great Britain, Canada and a number of other countries. These centers are characterized with modern approaches to elite sportsmen's trainings. As an example we can refer to list of services, provided by sports training centers in Canada.

In Canadian centers sportsmen are provided with modern sports facilities and equipment, conditions for living, eating and recreation. Additionally they are provided with services for optimization of training process:

- Services of dietetics specialists, psychologists, chiro- and massage specialists, physical therapists, bio-chemists, physiologists, specialists in physical training, in planning of training process and so on;
- Prophylaxis of sports traumas and diseases, treatment and rehabilitation; combination of sports practicing and education; employment, social adaptation after sports; optimization of life process and solution of current life problems (relations in collective, with coach and specialists; with mass media; law assistance, financial management, cooperation with sponsors and etc.);
- Enriching of knowledge in field of methodic of training and optimization of competition functioning by module system (building of many years' training, composing of training plans, eating of sportsman, physical training, mental training, recreation and rehabilitation, leadership and ethic and etc.).

Functioning of specialists in sports training centers is various. For example, in Australian training centers the process of elite sportsmen's training for international competitions has complex character. This process is realized by group of different profiles' specialists. Sports medical doctors work on prophylaxis of sports traumas and professional diseases. They coordinate their activity with work of narrow specialists (cardiologists, podiatrists, therapists, gynecologists and other) and interact with other specialists. Activity of physical therapists includes prophylaxis of traumas and rehabilitation after traumas, acceleration of recreational reactions after great training and competition loads with the help of wide spectrum of physical therapy methods. Physical therapists accompany sportsmen at competitions. They closely interact with coaches and medical doctors in problems of optimization of sportsman's condition.

Physiologists and bio-chemists deal with comprehensive testing of sportsmen's potentials and functional state, with studying of adaptation processes' dynamic; with diagnostic of over-fatigue and overload of functional systems; they give recommendations on correction of training process, prophylaxis of doping, behavior in far flights, in training in different conditions ( midlands, highlands, high temperatures). Physiologists and bio-chemists closely interact with medical and dietetics specialists, psychologists. Their aim is working of consistent recommendations.

Specialists in bio-mechanics study sports technique. They use different dynamic and kinematic sportsman's body and motor characteristics; work out recommendations on correction of movements, on reduction of aerodynamic and hydrodynamic resistance. Modern sports industry provided wide spectrum of devices in disposal of bio-mechanic specialists. Such devices permit to register and process different information, which reflect sportsman's technique and reserves of its perfection.

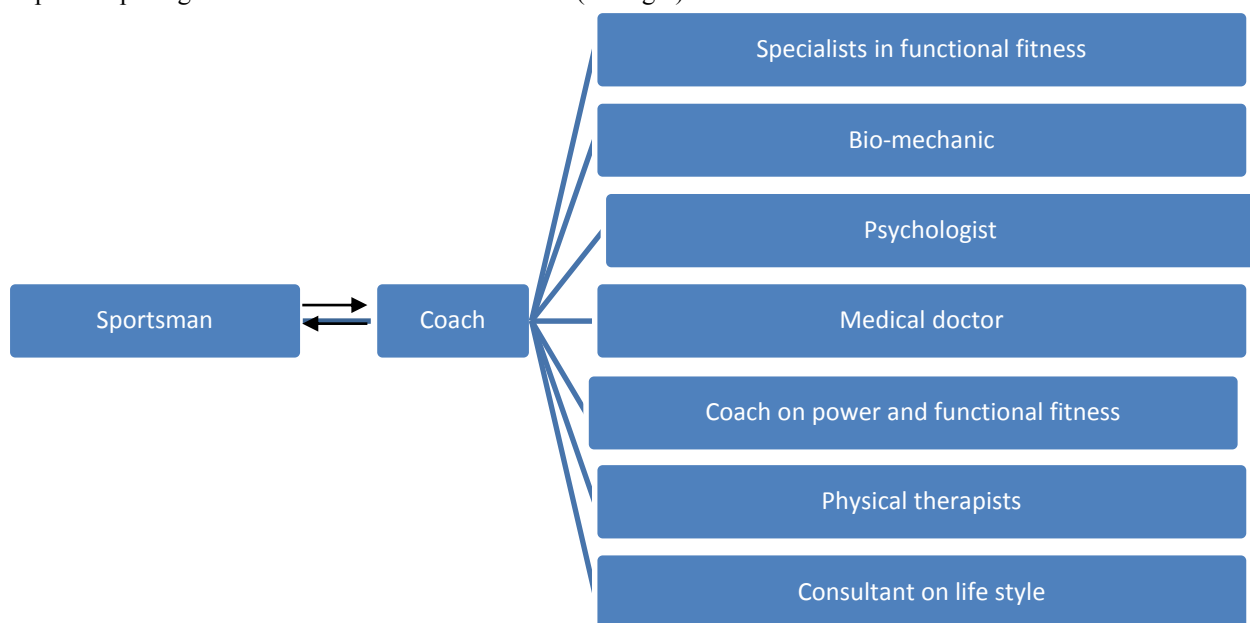
The work of sports psychologists covers two relatively independent branches. The first is connected with optimization of training and competition functioning. It implies application of stimulation of motivation methods as well as concentration and regulation of psychic tension; resistance to physical and emotional stresses. The second direction ensures resistance to environmental negative impacts: social problems, relations in training group and family, traumas, diseases, perfectionism and etc.

Dietetics specialists work out general strategy of eating and usage of food additives considering specificity of kind of sports, content of training process and athletes' individual characteristics. They also shall correct eating and liquids taking during trainings and at competitions, depending on definite situation: energy losses of sportsmen, environmental temperature, conditions of midland and highland, specificities of cuisine in places of competitions and etc.

Specialists in informational technologies help sportsman and coach to use potential of Internet. It permits to immediately receive different information on increasing the quality of training process. Such information can relate to achievements of science; technique and tactic of main contestants' competition functioning; different simulators and devices; opinions of known specialists about one or another problem and so on. These specialists also fulfill intellectual analysis of information, recommendations on its usage, informational communicative interaction with other specialists.

Thus, recent years professional medium of elite sportsmen's training has been widening greatly. In such medium analytical approach is closely connected with optimization of many separate components of training system. It is supplemented with by effective synthesis and systemic thinking. It in no way belittles role and authority of coach. On the contrary, it provides coach with wide spectrum of additional opportunities.

Widening of specialists' circle in process of sportsmen's training put in the first place demand in coordination of their functioning; in exclusion of hypertrophied influence of some of them on training process; prevention from contradictory and not approved recommendations. Such coordination can be ensured in several ways. One of them implies imposing of coordination functions on coach (see fig.1).

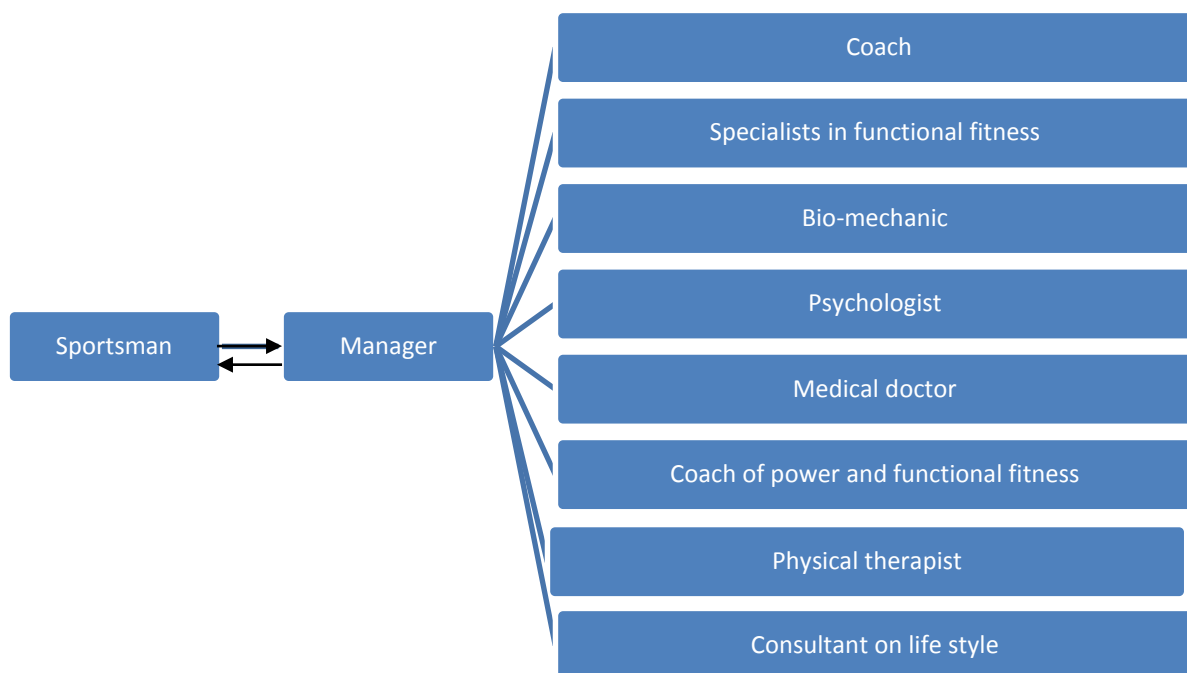


**Fig. 1.** Training system, controlled by coach (Abraham, Collins, 2011)

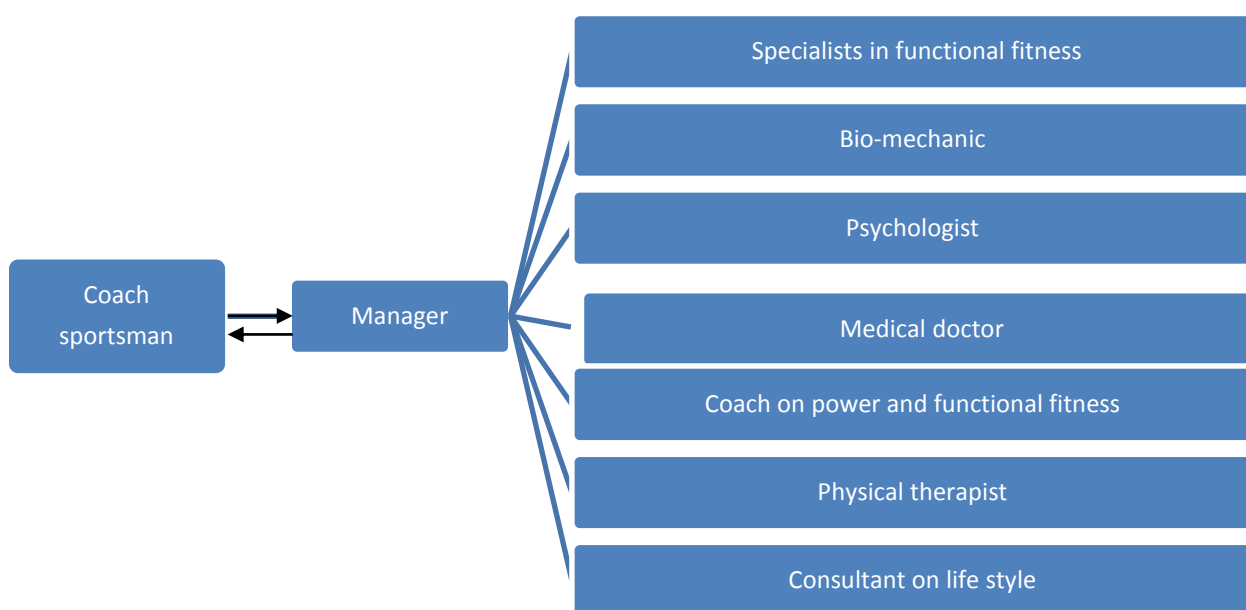
More preferable is management system, in which coordination functions are imposed on manager (see fig.2). Manager coordinates work of coach and other specialists. He creates atmosphere, excluding acute role conflicts. He also encourages discussions and debates as important tools of making correct decisions.

Such form of management demonstrated its high effectiveness in a number of combined teams of the USSR in years of their highest achievements on world and Olympic arenas. Chief Coach was the manager. His functions included: formation of general strategy of team's training and performance in competition; coordination of combined teams coaches' functioning as well as sportsmen's personal coaches; coordination of functioning of complex scientific groups' specialists, medical doctors, administrators. Chief Coach did not have his personal disciples. They practically did not interfere in pre-worked out and approved training process. One of lucky example of such activity was experience of work of Sergey Voytsekhovskiy, who was Chief Coach of swimming combined team in 1973–1982. For short period of time (1973–1976) he managed to make one of the most lagging team of soviet sports a world leader. In period from 1976 to 1982 swimmers of this team won 14 gold medals only at Olympic Games and world championships.

There is one more recommended model of management (which can be effective in case of disunity of trained groups, instructed by different coaches); this model is based on manager's functioning. Manager coordinates sportsmen's and coaches' functioning with functioning of different profiles' specialists (see fig.3).



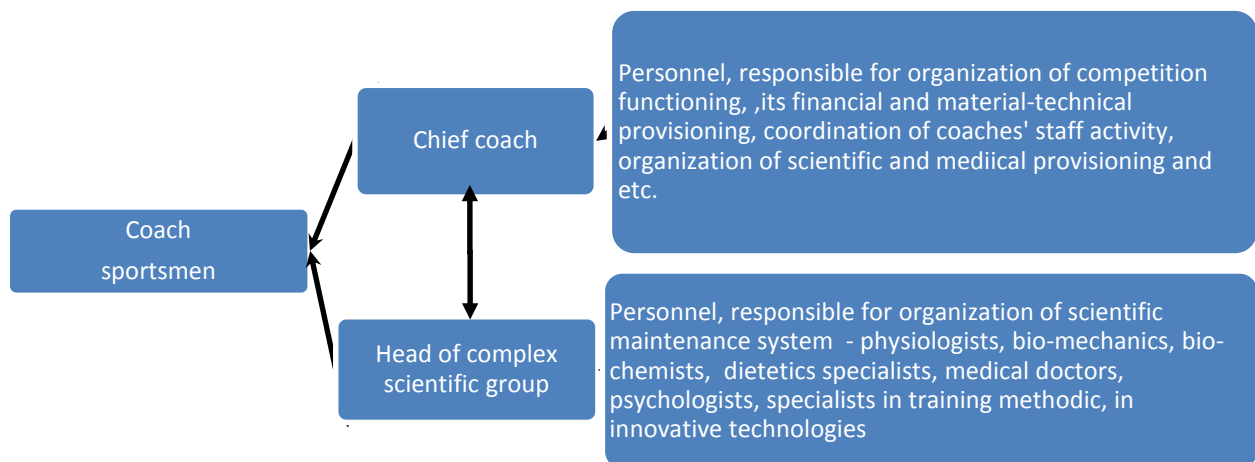
**Fig2.** Training system, controlled by manager (Abraham, Collins, 2011)



**Fig.3.** Training system for disunite groups, controlled by manager (Abraham, Collins, 2011)

It is worth to pay attention to management model of sportsmen’s training and different profiles specialists’ functioning, which successfully was realized in 1980-s in combined teams of GDR and USSR. Manager’s functions were imposed on two specialists: chief coach and head of complex scientific group (see fig.4). Chief coach solved the tasks of general strategy of training organization and management; material, personnel and financial provisioning; coordination of coaches’ staff; provisioning of scientific and medical maintenance of sportsmen’s life style, their participation in main competitions and etc. Functions of head of complex scientific group implied formation and realization of scientific maintenance system, coordination of other specialists’ functioning (physiologists, bio-

chemists, bio-mechanics, dietetics specialists, medical doctors, psychologists, specialists in training methodic), coordination of their functioning with coaches' staff in training process.



**Fig. 4.** Diagram of management of USSR and GDR combined teams in 1970-s –1980-s

During certain period of time (1980–1992) such model was the basis of USSR bicycle combined teams' training (highway and track). Its realization ensured high and stable results of soviet sportsmen at Olympic Games and world championships. Positions and opinions of main managers (chief coach and head of complex scientific group) did not always coincide. There were acute discussions and even conflicts, which were regarded at the highest levels with participation of head of all Olympic training system's head. But it was an additional factor ensuring business environment and optimal decisions' taking.

In the same way management of GDR combined teams' training was built. The only distinction was that managing decisions of Chief Coach and head of scientific group were restricted by requirements of general conception of combined team's training. Such conception was reliably worked out and substantiated. It clearly showed the functions of specialists, involved in work. It substantially simplified usage of external factors, directly connected with sportsmen's training and competition functioning. Besides, it excluded emotional and ill-conceived decisions, extra independence of coaches and absence of coordination of different profiles specialists' functioning.

### **Conclusions**

In the base of modern training and competition functioning of elite sportsmen there is application of knowledge and practical experience of different profiles' specialists: coaches, managers, specialists in theory and methodic of training, medical doctors, physiologists, bio-chemists, psychologists, dietetics specialists, pharmacologists, bio-mechanics, genetics, physical therapists and other.

Creation of conditions for these specialists' participation in training processes and competition functioning; coordination of their activity are rather important side of management in this field. Such approach does not admit one-side, contradictory and ill-conceived recommendations and decisions. Conditions for different profiles specialists' participation in sportsmen's training process are ensured by large training centers with developed infrastructure and wide spectrum, of services for sportsmen. Acute rivalry between such centers and specialists, working in them for involvement of sportsmen is extremely important for progressing of the centers and increasing of their services' quality.

Coordination of different profiles specialists' functioning in sportsmen's training and competition activity is ensured by different forms of management. The most effective of them is model of chief coach's cooperation with head of complex scientific group (cooperation of main managers). Such model envisages their active interaction as well as interaction with many specialists, coaches and sportsmen.

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