

Comparing Russian artistic swimming practices with a global model for integrated development of mass and high-performance sport

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Abstract:

This study evaluates the current development of artistic swimming in Russia against an ideal model for high-performance sport integrated with broad public participation. A questionnaire was designed to assess the following components of this model: talent development; advanced support for athletes; training centers; competitions; intellectual services; partnerships with supporting organizations; and balanced integrated funding and organizational structures for mass and elite sport. To determine the areas for improvement, 101 coaches of Russian Artistic Swimming Federation completed the questionnaire. Results suggest possible approaches for further development at macro level (e.g., new partnerships and incentives for greater support of mass and elite artistic swimming), meso level (e.g., additional sources and models for better coach education and facilities), and micro level (e.g., advanced lifelong artistic swimming guidelines for mass participation). The results of the study reflect the effective current policy for integrated development of mass and high performance sport of Russian Artistic Swimming Federation as one of the successful elite sports in the world practice.

Keywords: Artistic Swimming, high performance, mass participation, sport development

Introduction

Artistic swimming, formerly **known as** synchronized swimming, is an artistic water sport in which now both males and females take part. Males officially began to take part in the World Championships since 2015. **Synchronized swimming was a** demonstration sport at the 1952 Olympic Games in Helsinki, but did not become a full Olympic sport **until** Los Angeles Olympics-1984 when medals were awarded in women's duet and women's solo. The women's team event was introduced at Atlanta 1996 at the expense of the other two synchro disciplines but from Sydney 2000 onwards, there have **been** team and duet competitions. The sport is developing as male athletes will be able to compete in Olympic artistic swimming for the first time at Paris 2024 with up to two permitted per NOC in the eight-person team event. In the last century the USA and Canada were initially the top nations in Olympic synchronized swimming but Russia has dominated since 2000, winning every gold medal on offer in duet and team events. Mass participation and coaching support continue to grow: the number of athletes registered with Russian Artistic Swimming Federation (RASf) increased from 12,256 in 2015 to 20,570 in 2022 while the number of coaches grew from 271 in 2015 to 308 in 2022. That is why the study of Russia's practices in the development of artistic swimming seems to be relevant and in demand. The purpose of this study was a comprehensive analysis of various aspects of the RASf activities against a global model for integrated development of mass and high performance sport to identify its unique peculiarities.

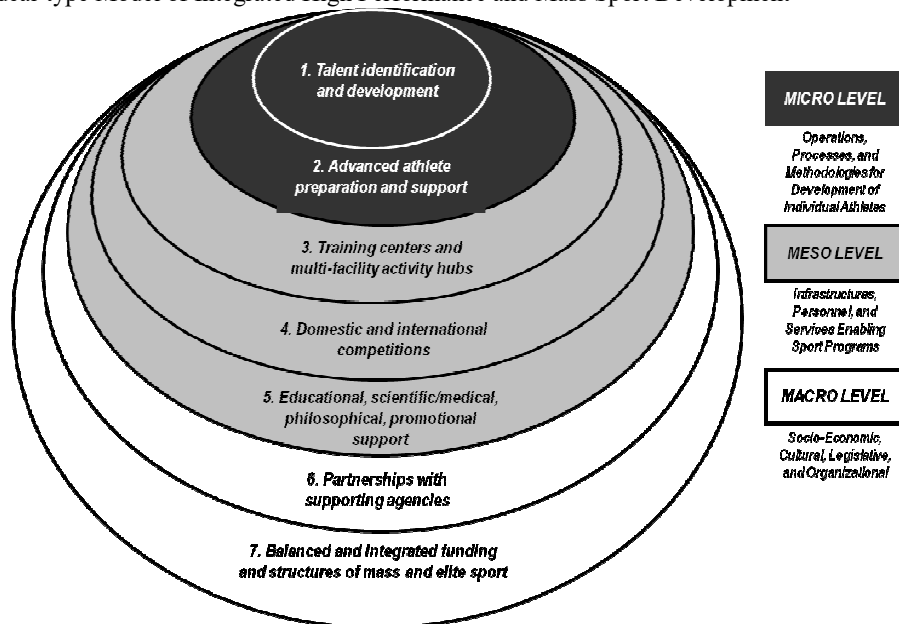
Theoretical framework

The Smolianov and Zakus (2008) model emerges from the integration of instruments that have been used to analyse and compare national elite sport systems (e.g., Baumann 2002; Green and Oakley 2001; De Bosscher et al. 2006; Digel 2002). While the previous concepts focused solely on elite sport, the model used in this research was originally developed in reference to practices in the USSR where mass and elite sport were integrated (Matveev 2008; Riordan 1980; Smolianov and Zakus 2008). The model has received scholarly validation (Smolianov and Zakus 2009) and shown to be a framework for program analysis that is not culturally bound. The model incorporates such practices of Eastern Europe not emphasized in previous constructs as affordable access to high quality coaching, facilities and events at both mass and elite levels of participation, as well as training and rewarding all participants based on multi-stage scientifically developed methodologies (e.g., Fetisov 2005; Matveev 2008; Platonov 2010; Tumanian 2006).

This study's theoretical framework is built on the scholarship of Bravo, Orejan, Vélez, and López (2012), De Bosscher et al. (2006), Digel (2005), Fetisov (2005), Platonov (2010), Smith, Romanazzi, et al. (2022), and Smolianov, Zakus and Gallo (2016) who discuss the foundation of broad sport participation leading to the development of high performance athletes. A key idea in this process of development from recreation to

high performance is that of levels of support and policy – macro, meso, and micro – as adapted from Green and Houlihan (2008), De Bosscher et al. (2006), and De Bosscher et al. (2010). In this study, macro level elements refer to socio-economic, cultural, legislative, and organizational support for a national sport system by the whole society. The meso level includes infrastructures, personnel, and services enabling delivery of sport policy. The micro level consists of operations, processes, and methodologies for development of individual athletes. As the HP elements overlap at different levels (De Bosscher et al. 2006), the magnitude and hierarchical relationship of the elements are summarized in Figure 1.

Figure 1. Ideal-type Model of Integrated High Performance and Mass Sport Development



When high performance and recreational sport are connected, goals of supporting agencies, ranging from fitness to competitive success and commercial objectives, can be achieved (Fetisov 2005; Smolianov and Zakus 2008, 2009). The developed model suggests a globally applicable theory of how to advance high performance sport (programs preparing athletes for national and international televised competitions) and benefit mass participation (physical education (PE), recreation and fitness programs). This is a significant challenge for sport developers due to insufficient conceptual and practical frameworks, often leading to poorly functioning sport systems (Dolmatova, et al, Fyodorov et al.).

The model detailed below is based on the literature mentioned above as well as the following works: Clarke (2002), Clumpner (1994), Eganov et al. (2021), Houlihan and Green (2008), Nys, De Knop and De Bosscher (2002), Oakley and Green (2001), Riordan (1989), Semotiuk (1990), Sturkenboom and Vervoorn (1998), Van Bottenburg (2000), Van den Berg (2001), and Yang, Hamilton, Wang, et al (2024). The micro level elements one and two in Figure 1 indicate that successful systems for most sports, including artistic swimming, try to identify talent and gradually develop participants into high performers. These follow hierarchical pools of athletes who are rewarded financially and have access to increasingly sophisticated and scientifically-based multidisciplinary performance, career, and lifestyle support.

Effective functioning of the micro level requires element three in Figure 1, which includes easily accessible, high quality facilities, equipment, and coaching for each age and level of participation. In each community, artistic swimming could be part of a multi-sport hub where: sports share resources; travel takes little time between home, training, and school; and access to medicine and cultural venues is maximized. Another important condition for the micro level is element four in Figure 1, sufficient well-organized competitions at all levels, and the integration of commercial tournaments into a plan of amateur competitions gradually preparing athletes to achieve peak performance at major events. This element also implies that educational, scientific, medical, philosophical, and promotional support (element five in Figure 1) are available at each level of participation.

Provision of the meso level services results from multiple partnerships (element six in Figure 1) in order to obtain sufficient resources, exchange expertise, and achieve common goals to influence the environment of mass and elite sport, particularly mass media, sponsorship, and overall society. These are areas in which policy may direct the type and nature of systemic organizations required for a holistic sport delivery system. For a cooperative long term functioning of all these elements, funding, and structures of mass and elite sport systems must be balanced and integrated (element seven in Figure 1), which relates more to legislative, ideological, and systemic government inputs.

Successful sport systems require macro level societal support and balanced funding of elite and mass sport from each source; mass and HP programs and facilities developed in integration by government departments, the nation's Olympic Committee, National Governing Bodies (NGBs), and clubs; balanced power between the government on one side and NGBs, training centers, clubs, and communities on the other; PE and sport integrated at childcare facilities, schools, and universities; a pyramidal system of sport clubs for each participation level with a dual goal of maximizing participation and developing excellence; progressive participant and coach rewards for fitness and elite performance; a high number of dedicated professional well-trained coaches at all levels; and subsidization of and incentives for recreational and elite sport ensuring diversity and availability for all, a full spectrum of sport related activities funded for both recreation and excellence in all appropriate age groups. If HP and recreational sport are connected on the above points of development, they can reach goals of supporting agencies, including: commercial objectives; positive levels of health and fitness; the various elements of social capital, and community development; success in major global competitions; and national pride.

Material and methods

In this study both a highly structured and open-ended qualitative analysis tools were used. This included a survey of artistic swim coaches where open responses accompanied structured questions. Also, a content analysis of RASF's website and organizational documentation was conducted. Previous theoretical framework and a comprehensive literature review were used for the development of a fifty-four-item questionnaire. These statements were validated by twelve international experts, including academics who published on HP sport systems and on sport development and executives of sport governing bodies. A sample of Russian artistic swim coaches was collected from personal contacts, various website sources, including RASF and its regional affiliates, clubs, high schools, colleges, and universities covering all regions (thirty-two) of the country where this sport is developing. The questionnaire was delivered online to 250 Russian artistic swimming coaches, and 101 surveys were fully completed for a response rate of 40.4%. The sample size rate was common while the response rate was high for a study of this nature (Smolianov et al. 2016).

When answering a question (with the possibility of choosing several answers) concerning the level of participants with whom surveyed coaches work, most of respondents indicated that they coach the beginner stage (62,7%), the training/intermediate stage (76,1%) and the stage of sports improvement/advanced (61,2%), while 20,9% of respondents coached wellness/recreational participants and 37,3% coached elite athletes. The overwhelming majority of the interviewed coaches were female – 98%. The coaches' education was quite high: 85,1% reported having a sport specific master's degree while 14,9% graduated from a sport college. The coaching certification was also relatively high: 27% had the second/initial coaching category, 19% had the first/advanced and 25,4% had the highest coaching category. Besides, 9,5% were merited top level coaches.

Survey instructions asked respondents to think about current structures and systems of artistic swimming in Russia and to indicate how often the elements and practices were evident, from "never" (1) to "always" (5), on a five-point Likert Scale. They were also asked to elaborate on their responses through open written comments. The interviews were based on the seven elements of the model. A content analysis was conducted for the open-ended comments, website content, and phone interviews that reflected the ideal-type model for HP and mass participation (Smolianov and Zakus 2009). Inductive coding techniques followed by researcher discussions led to refinement of themes.

Discussion

Survey responses are analyzed as both average scores and aggregated percentages of perceived current RASF practices. Aggregated percentages of responses allow appreciate of the distribution of coach responses.

Element One: Talent Identification and Development

Element one was viewed positively by more than half of respondents (51,4%) and negatively by only 24,6% of the responded coaches. Only one out of ten items in this element ("artistic swim training is well integrated with school/college/university education for harmonious development of athletes") had predominantly negative perceptions, indicating the problem of combining elite sport system and educational programs. The highest positive scores were given to such items of this element as: young artistic swimmers train on the basis of the federal standard of sports training in artistic swimming approved in Russia (69%); the current system of awarding sport categories and titles contributes to the motivation of athletes from beginner to top international level (76,8%); artistic swim coaches are paid according to multi-level certification based on coaches' education and achievements of entrusted athletes (63%); artistic swimmers with potential to represent the country are offered the conditions to train full time with high performance standards (69,1%). According to these responses, talent identification and development governed by RASF seems to be quite effective, but Coach 1 expressed the common respondents' view that the federal policy is still to provide all beginner groups with such specialists as acrobats and choreographers, and that public schools are to open more sport classes/streams.

Element Two: Advanced Athlete Support

The total number of scores and percentages in the second element is slightly weaker than the first one. It has the similar proportion of negative (23,5%) perceptions but with a lower proportion of positives ones (42,6%)

due to an increase in neutral responses from the respondents (33,9%). Two out of eight points of this element received predominantly negative perception, namely: athlete support is well shared/balanced between coaches and advisors (e.g., coach may provide psychological, nutritional and performance science support, while independent advisors may best assist with medicine, career, education and personal finances) – 41% negative responses versus 31,3% positive ones; athletes leaving elite sport are provided with individualized lifestyle plans for physical and psychological health – 16,9% negative responses versus 15,4% positive ones. The highest percentages of positive responses were received by such statements as: high performance artistic swimmers are ranked into hierarchical sports categories and titles with appropriate financial and technical support (65,3%); doping is controlled by RASF and is based on the most recent guidelines from the World Anti-Doping Agency (96,3%). The results show that RASF should pay more attention to scientific and methodological support of elite athletes. Coaches 1 and 2 agreed with other respondents that more specialists are needed including choreographers, production/performance coaches, acrobats, psychologists, masseurs, physiotherapists and rehabilitation experts, that especially more medical support is needed and particularly for regional teams. The same applies to issues with the employment of highly qualified athletes who need better conditions for combining their competitive career with preparation to productive healthy life after sport.

Element Three: Training Centers

More than a third of respondents (35,9%) were positive about swimming facilities while 27,6% of coaches responded negatively to this element. Two out of seven items of the third element received predominantly negative perception, namely: training centers provide specialized facilities and equipment for each age and level of participation – 36,4% of negative responses versus 31,2% of positive ones; a network of training centers is used to prepare Russian elite artistic swimmers in different environments/socio-geo-climates (e.g., high altitude/temperature/humidity, city/pollution, rural/resort) – 32,4% of negative responses versus 26,8% of positive and 40,8% neutral ones.

Again, one item (swimming training centers are located close to other sport facilities so that players participate in and learn from other sports) received an equal number of positive and negative responses (22,1%), with a predominance of neutral ones (55,8%). The majority of coaches (65,7%) responded positively to the statement that "high performance athletes are provided with priority access to specific high quality equipment and facilities". In general, the responses of coaches indicated that the system of training centers offer elite artistic swimmers the necessary modern equipment, but there are opportunities for improvement of specialized facilities for younger groups and lower levels of participation. Coaches 2, 3 and 4 again expressed the common respondents' view that regional programs in particular are in need of halls with mirrors, lounges for acrobatics, latest musical equipment and large screens in the pools, noting the need for training camps involving athletes and specialists from different regions in deep ideally 50-meter pools.

Element 4: Competition Systems

This is a strong element, with 57,4% of positive and 22,7% of negative perceptions: the competitive opportunities allowed Russia to play a dominant role for artistic swimming development. The statements of this element with more than half of positive responses were: competitions are well structured at all levels (e.g., club/training center, regional, and national) – 60,5%; RASF and its support mechanisms sufficiently assist in local and developmental events – 70%; RASF attempts to integrate professional and amateur tournaments into a progressive plan of competitions gradually preparing athletes for peak performance at "Majors" – 56,6%; RASF tries to coordinate all domestic and international competitions for all ages and levels, between and within all possible organizations – 69,4%). The main concern in this element according to 34,2% of coaches was connected to the fact that event sponsorship incomes are not well used to involve young participants with artistic swimming, while 42,1% were happy with this practice. Coach 3 expressed the common opinion among respondents that more qualified managers are needed to advance the organization and marketing of the events. In addition, the coaches noted that hosted international events are not sufficient for all athletes with potential to represent the country which is associated with the recent removals of Russian athletes from international competitions. To improve judging, Coaches 1 and 2 suggested to involve independent referees, use underwater and surface filming at all competitions, conduct more frequent referee seminars and joint discussions of the results of refereeing and competitions, create qualified judging panels at all levels and compensate referees for expenses (travel allowance, absence from work, etc.).

Element 5: Intellectual Services

This element was the strongest, receiving 58,6% of positive and only 21,9% of negative perceptions. Like the previous element, this one received more positive responses on all of 6 statements. The items of this element with the highest scores were: publications and speeches in the media by representatives and leaders of the RASF contribute to the strengthening of national values and identity, encouraging athletes to strive for excellence, show the best results and demonstrate high moral and strong-willed qualities – 69,4%; RASF provides vision and leadership in improving all aspects of the participants' wellbeing through artistic swimming (e.g., physical, social, emotional, mental, spiritual, and environmental/ecological) – 75,3%. Less than half perceived that RASF fosters research on all important aspects of artistic swimming development (45,9%) and that research results are well communicated to coaches (40,3%), the practices which reached its peak of development in the USSR during 1980-90s and could be mastered again if given greater resources (cf. Matveev

2008; Platonov 2010; Riordan 1980; Smolianov et al. 2016; Smolianov & Zakus 2008). Coaches 1, 2 and 3 in their open responses agreed with other respondents that sport science should be closer connected with objectives and needs of coaches, participants and parents who should participate in frequent research seminars.

Element 6: Partnerships with Supporting Agencies

This element showed similar values as “Element Three: Training Centers”. A quarter of respondents (25,3%) answered negatively, while 36,8% gave positive answers. Three out of six items received predominantly negative perception, namely: support for artistic swimming development is adequate from various levels of government – 34,8% of negative versus 20,3% of positive answers; artistic swimming is well supported by educational sector (e.g., schools, colleges, universities) – 20% of negative versus 12% of positive ones; cooperation with agencies outside of sport industry (e.g., medical, scientific, military, philanthropic and sponsoring organizations, lotteries) is in place – 29,9% of negative versus 11,9% of positive responses. Meanwhile the item “role of clubs/community programs in artistic swimming development is sound” received the highest number of positive responses (77%). More than half of coaches (58,1%) responded positively to the fact that RASF provides sufficient attention to the education, certification and professional training of management and coaching personnel. It is necessary to develop comprehensive cooperation not only with various organizations of artistic swimming working outside sport industry and system, but also with authorities at various levels, which is designed to maximize support for the RASF activities and contribute to the Russian artistic swimming development on the whole. Coaches 1 and 2 agreed with other open responses that more artistic swimming events should be organized and used for greater cooperation with supporting organizations.

Element 7: Balanced and Integrated Funding and Structures of Mass and Elite Sport

The final seventh element of the survey appeared generally to have more positive than negative responses, but there also were statements that caused some criticism. Two out of eleven statements of this element received predominantly negative perception, namely: corporate and philanthropic tax incentives provide sufficient support of mass and elite artistic swimmers (26,7% of negatives versus 17,8% of positive answers) and sport participation, including artistic swimming, is rewarded with reduced personal tax (15% of negatives versus 10% of positives). As experiments with organizational sport tax incentives have struggled to achieve stable success in Russia and personal sport tax deductions have been introduced only recently, neutral and ‘unsure’ perception of these practices prevailed, requiring clearer and more effective policies in this area. Almost half of respondents (49,9%) were positive about the balance of mass and elite sport while 21,4% of coaches responded negatively to this element. The highest positive scores were given to the following items of this element: artistic swimming programs service both recreational and high performance athletes (66,2%); specialized sport schools similar to IMG academies are available and affordable to all talented artistic swimmers (65,7%); RASF demonstrates systematic/strategic management in developing artistic swimmers at every level (66,1%); RASF is effective in fostering both mass participation and high performance in artistic swimming (62,9%); artistic swimming is developed in integration with Olympic sports to achieve sustainable competitive excellence (79,4%). Generally RASF governs a relatively balanced and integrated mass and elite sport system as the majority of coaches (62,90%) agreed that RASF stimulates mass participation providing at the same time training for highly qualified artistic swimmers. Open responses suggested to mix different levels of participation during competitive and festival performances.

Conclusions

The RASF international success is evident, as Russian athletes won almost all the gold medals at each Olympics since 2000. In this regard, it was interesting to analyze the activities of the RASF for the development of artistic swimming according to the ideal model of integrated high-performance and mass sport development.

At micro level, the effective system of talent identification and development combines best practices of the Soviet sport system and allows to motivate athletes in the development of a sport career – from the beginner to the elite level through the system of sport specific categories and with help of well-trained professional coaches. The coaches’ responses as well as their profiles indicate that Russian artistic swimming coaches almost at all stages of athlete development have high level of professional preparedness, but programs of all levels still need specialized acrobatics and choreography and school sport classes as developed in the USSR for optimal rotation and microdosing of training and academic sessions, better nutrition and holistic athlete care (Riordan 1980; Smolianov et al. 2016; Smolianov & Zakus 2008). Regarding the advanced athlete support, responses indicated that highly qualified artistic swimmers have a nationally structured system of division into categories according to the competition results and with appropriate financial and technical support. This helps participants develop their competitive career as elite athletes gradually with clear achievable objectives on each stage of sport development from first steps in sport to world competitions. However, more specialists for better medical and methodological support are needed, from performance staging to rehabilitation and other medical experts, especially to advance regional teams. Elite athletes need better assistance with their employment for productive healthy life after sport as recently advanced by sport organizations across the world (Digel 2005; Houlihan & Green 2008; Smolianov et al. 2016; Smolianov & Zakus 2009).

At meso level, it was indicated that highly qualified artistic swimmers have access to special high-quality equipment in modern facilities, and the services of national, regional and local centers in artistic

swimming are affordable for all categories of participants. While new swimming pools are being constructed across the country, regional programs still need better infrastructure from halls for ballet and acrobatics to deep warm ideally 50-meter pools with underwater and surface video and musical equipment. Russian artistic swimming is capitalizing on the many circus and other commercial performances that appeared in the country from 1980s and traveled the world, making the sport more interesting and attracting greater coverage on local and federal TV stations and other mass media. To advance the management and marketing of events, deeper relations with sponsors are needed at human resources, advertising and strategic leadership levels. To improve judging, more independent referees, more frequent referee seminars and more qualified judging panels at all levels are needed with better compensation of referees. RASF current efforts (e.g., media publications by RASF leaders) contribute to strengthening national values and identity, encouraging athletes to strive for excellence, show the best results and demonstrate high moral and strong-willed qualities. Systems of education, scientific, and other support for all sport specialists, most importantly to coaches, as endeavored by RASF which creates new regional federations across Russia, ensure that the majority of those who care for athletes are highly qualified professionals. Recommended are more frequent sport science seminars for coaches, participants and parents. At mass level, more specialists in acrobatics, choreography, performance staging, management, marketing and medicine are requested for further advancement.

At macro level, coaches were quite critical about partnerships with supporting agencies. The collaborations should be improved, including better communication through different events that attract mass participation. Also respondents noticed that there is a need for cooperation between artistic swimming clubs and institutions outside the sports industry (for example, medical, scientific, military, charitable and commercial organizations) and that there should be more support for RASF from the authorities at federal, regional and local levels. The key successful practices of Russian artistic swimming are that programs are aimed equally at training both beginners and highly qualified athletes as well as that artistic swimming schools are accessible and open to all talented children gathered, the statements which attracted the majority of positive responses (66,18%) and (65,71%). We can conclude that RASF demonstrates the high quality of strategic management in the training of artistic swimmers at all levels that helps to combine elite athlete development systems with mass participation at grassroots level. To further develop mass and elite sport in integration high, intermediate and beginner level participants including sponsors' employees and their families could perform at competitions and festivals held frequently among clubs, schools and colleges, as well as all possible public and private organizations.

Conflicts of interest – The authors declare no conflict of interest.

The authors declare no use of AI in the writing of this article.

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