

Training needs and educational sources of European musculoskeletal specialists: learning outcomes of the IBSA International Academy – MSK Modules

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ABSTRACT

Background: Building a meaningful training program for musculoskeletal (MSK) specialists is a major undertaking to improve the clinicians' skills and ultimately patients' outcome. The purpose of this study was to gather direct information from attendants of a training program called IBSA International Academy – MSK Modules on the perceived benefit of such initiative.

Methods: The IBSA International Academy has been developed during 2021 by IBSA's Global Medical Affairs department with the involvement and support of an international faculty composed by experts in the field that has become the scientific Board of the Academy. More than 100 specialists from several European countries attended one or more modules focused on ultrasound (US) and US-guided infiltration and were asked to answer (a) a short survey just after the modules were completed and (b) a more detailed survey several weeks after their return to daily practice.

Results: A total of 114 specialists from 12 European countries attended the academy. The post-module evaluation form was completed by 94 (82.4%) and the follow-up survey by 30 (26.3%) participants. Response rate was highest for specialists from Nordic countries (50.0%) and lowest from Balkan countries (11.1%). The overall feedback of the participants to the academy was overwhelmingly positive both immediately and medium–long term after return to daily practice. About 57% of responders indicated mastering US and 30% indicated a better understanding of the anatomy as a key learning outcome of the academy. The added value of networking between peers and of direct contact with the experts in the faculty was mentioned by 77% and 53% respectively.

Conclusions: Attending a well-designed on-site training academy provides lasting benefits to participants from a skill perspective, as well as for building a professional networking with peers.

Keywords: Continuing medical education, Musculoskeletal disorders, Post-doctoral training

Introduction

Building a meaningful clinical skills program for musculoskeletal (MSK) specialists is a major undertaking to improve the clinicians' skills and ultimately patients' outcome. Miller et al (1) pointed out that orthopedic surgery residency education, for many decades based on the historic mantra of "see one, do one, teach one," is now incorporating more formal skill programs into curricula.

In this evolving scenario, there is a growing interest in the use of technologies such as virtual reality (2,3) in training of specialists. These technologies have the potential to

complement and strengthen the curricula of MSK specialists, together with e-learning platforms that provide convenient access to instructional materials and interactive tutorials.

However, on-site training programs, including but not limited to cadaver labs, remain invaluable for the education of specialists as they offer the unique opportunity to have experts available on site to illustrate, demonstrate and help master key techniques such as ultrasound (US)-guided infiltration.

It is well known that these programs are costly and time consuming and therefore it is very important to evaluate their benefit for the participants.

Direct feedback and clinician input in assessing and shaping training programs can lead to more effective educational outcomes and improved patient care. Currently there is a scarcity of studies in the literature that have tried to directly capture clinician feedback through surveys in order to gain comprehensive insights into the perceived effectiveness of training programs (4).

The purpose of this study was to gather direct information from attendants of a training program called IBSA International Academy – MSK Modules on the perceived benefit of such initiative.

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Materials and methods

Participants in this study were attendants of the IBSA International Academy – MSK Modules, a structured academy project developed during 2021, just after the pandemic emergency, by a faculty composed of IBSA's Medical Affairs department, the Academy's scientific board of experts in the field of MSK diseases. It involved more than 100 specialists (Orthopedists, Rheumatologists, Sports Physicians, Physical Medicine and Rehabilitation doctors, Pain Therapists) from several European countries and run from November 2021 until November 2023 with further sessions planned well into 2024.

The academy (5) aims to offer theoretical and practical knowledge that can be applied to day-to-day specialist practice (Fig. 1)



FIGURE 1 - Logo of the Academy.

The participants can tailor their own educational package, by selecting the modules most suited to their professional lives within the Academy offering. The modules cover (a) basic US study of the upper limb: shoulder, elbow, hand, and wrist; (b) basic US study of the lower limb: hip, knee, foot, and ankle; (c) intermediate US study of the upper limb; (d) intermediate US study of the lower limb; (e) basic US-guided infiltration of the MSK system; (f) a cadaver lab, dedicated to the US-guided infiltration of the shoulder, hip, and knee.

The whole training section is coordinated by a faculty with 15 members selected for their professional and communication skills in their various fields. Names of faculty members are included in the acknowledgments.

In the present study, we administered two surveys to participants: (a) a standard evaluation form just after completion of an academy module and (b) a more detailed survey a few weeks post-course.

To foster participation, up to three reminders were sent to individuals who had not completed the survey. Faculty and other staff collaborating with the Academy were not included.

Demographic data

Participants were asked to provide detailed information about their country of origin, medical specialization, hospital or institution of residence, and current role; information on age and gender was optional.

Training needs and outcomes of the academy

Participants were also asked to answer a series of open-ended questions, such as (a) relevant educational sources, (b) previous experience in similar educational projects, (c) main achievements of the academy for their clinical practice, (d) opportunity to apply concepts and techniques mastered

during the academy into daily practice. Additionally, they were asked to indicate any other elements of the academy (besides their scientific and educational content) that may be relevant for their career (e.g., networking opportunities), in order to capture added value of the face-to-face interaction compared to virtual training. Finally, they were asked to provide any other comments or observations (Supplementary Table 1, Survey's questions).

Data analysis

Answers to the open-ended questions of the survey were clustered into homogeneous categories, to allow a quantitative analysis of the responses. Standard statistical analyses were applied when needed.

Results

On site evaluation form

The post-module evaluation form was completed by 94/114 (82.4%) participants and the results on a scale from 1 = poor to 5 = excellent were extremely positive: participants indicated a high relevance of the scientific content (mean score 4.93 ± 0.26), quality of theoretical part (mean score 4.88 ± 0.32), quality of practical part (mean score 4.88 ± 0.32), and overall quality of the teaching (mean score 4.90 ± 0.29), with a slightly lower score (mean score 4.83 ± 0.40) for digital and printed materials.

Follow-up survey

Several weeks after attending the academy, a survey was sent by email to all participants to gather more information about their educational sources and the key outcomes of the academy that they were able to apply in the clinics. Out of 114 participants invited to participate, 30 (26.3%) completed the survey.

Age range was wide with a minimum average age by country of 31 years and a maximum of 58 years (Tab. 1).

TABLE 1 - Answer rate and average age by country of participants

Country	n	Answers	% Answer rate	Avg age
Norway	7	4	57.1	53
Denmark	1	1	100.0	46
Sweden	4	1	25.0	58
Nordic countries	12	6	50.0	53
France	2	1	50.0	35
Spain	6	2	33.3	54
Italy	14	2	14.3	50
Western Europe	22	5	22.7	49
Poland	19	3	15.8	42
Slovakia	16	4	25.0	32
Hungary	11	4	36.4	44
Czech Republic	16	6	37.5	31
Eastern Europe	62	17	27.4	37
Albania	11	2	18.2	56
Macedonia	7	0	0.0	n/a
Balkan countries	18	2	11.1	56

With the exception of one country (Macedonia) for which no participant completed the survey, rate of survey completion by country ranged from 14.3% to 100%. Interestingly, specialists from Nordic countries replied more frequently (50.0% of participants) than specialists from Eastern Europe (27.4%), Western Europe (22.7%), and Balkan countries (17.6%).

Educational resources

Among the three most important educational sources that the participants indicated to rely on, traditional sources such as books ($n = 18$, 60%) and database and journals ($n = 16$, 53%) were among the top choices together with daily practical experience ($n = 17$, 57%). General web surfing ($n = 13$, 43%) and online courses were less cited, whereas scientific societies ($n = 5$, 17%) and congresses ($n = 3$, 10%) were rarely indicated as relevant educational sources.

Once asked whether during their career they attended an in-person training program similar to this academy, approximately half of the 30 respondents ($n = 14$, 47%) reported attending such programs, while the other 16 (53%) did not. All the respondents in the former group indicated that the courses they attended were less comprehensive and/or less practical than the current one. There were no significant differences in attendance based on age and demographics.

Learning outcomes of the academy

Key learnings

The learning experience was focused in several areas, mostly on the diagnostic approach. The majority of the responders (57%) indicated mastering US as a crucial learning outcome of the academy. As stated by one of the participants, “we learned about the various imaging modes such as 2D, Doppler, and 3D/4D, understanding how each mode functions to provide different perspectives of the scanned anatomy. This knowledge empowered us to optimize imaging parameters for specific diagnostic purposes and improve the quality of ultrasound examinations.” Interestingly, 30% of the responders indicated a better understanding of the anatomy as a key outcome of the academy, while 17% indicated injections/infiltration and 13% pointed to the selection of different treatment options.

Consistent with the initial sentiment collected by the on-site evaluation form, the overall feedback of the participants to the academy was overwhelmingly positive, as illustrated by the comments listed in Supplementary Table 2.

Of note, in no case a potential influence by the sponsor of the academy was mentioned, strengthening the purely educational aim of the academy.

Additional benefits

The answers to the question about the additional benefits of the academy, besides its scientific content, followed two major themes, both related to sharing of knowledge and development of a professional network.

Out of 30 answers, 16 (53%) indicated the added value of direct contact with the experts in the faculty, while 23 (77%)

focused on the added value of networking between peers and the chance of comparing different approaches and procedures in daily clinical and academic activities.

As stated by one of the participants, “The academy fostered collaboration and knowledge exchange among participants from diverse backgrounds, including radiology, physiotherapy, orthopedics. This interdisciplinary approach enriched the learning experience, allowing participants to gain insights from different specialties and perspectives, ultimately enhancing their proficiency in ultrasound applications across various medical disciplines.”

Unmet training needs

Most of the respondents indicated that the Academy had met the stated training objectives. However, three topics were listed by a minority of participants as training needs not thoroughly fulfilled by the Academy: (a) US-guided infiltration ($n = 5$); (b) US-guided peripheral nerve blocks ($n = 3$), and (c) Integration of the US data with magnetic resonance imaging and computed tomography scans ($n = 2$).

Discussion

Building from the demographic and education background of attendees, their main educational sources, and their previous attendance to similar programs, the data obtained in this study allowed to better understand the main impact of the current training program of MSK specialists into their clinical practice (7).

Geographical differences in the response rate

Specialists who attended the IBSA International Academy – MSK Modules operate in several different hospitals and institutions scattered throughout Europe, spanning Western (19%), Nordic (10%), Balkan (19%), and Eastern European (53%) countries.

The analysis of the response rate to our survey by geographical cluster indicates that specialists from Nordic countries had a response rate significantly higher than the other countries. This is consistent with other studies performed among health care professionals. For example, in the study by Meyer et al (6), the highest response rates among European health care professionals were found in Finland (85.2% \pm 7.9%) and Norway (71.5% \pm 11.6%), indicating a propensity of Nordic specialists to participate in surveys. Response rate in our study was lowest in Macedonia (0%), Italy (14.3%), and Albania (18.6%). One potential explanation is the lower confidence with English language in these countries, and this suggests the need for administering questionnaires in local language to foster participation.

Educational sources

Results of the survey suggest that specialists use a variety of sources for educational and training purposes. Interestingly, traditional sources such as books, journals, and databases are still top of the list and are being used as educational sources by the majority of the participants while scientific societies and websites are used only by a minority of specialists (17%).

Training needs and outcome of the academy

The response of the participants to the academy was overwhelmingly positive, as illustrated by the onsite evaluation forms and strengthened by some of the comments listed in Supplementary Table 2: here are some examples emphasizing the impact on the daily practice: “I learned many new things that I am already putting into practice in my office”; “I have learnt the US-guided infiltration for the hip at your module, that I am using very often”; “These modules have provided me with the opportunity to learn a great deal, and I implement it for the benefit of the patients who come to my pain therapy outpatient clinic”; “I’ve learned a lot and enjoyed the insightful discussions.”

Several articles have highlighted the importance of a proper mentorship (7) and a proper clinical skill program (1) in orthopedic trainees, pointing as an example to the importance of cadaver labs as one of the key pillars of training. The current Academy used a principle of the flipped classroom (1) whereby in-person workshops are reinforced by pre-session educational materials, an approach that is gaining traction in medical education. Of note, the evaluation forms indicated that the digital and printed materials were a useful complementary didactical tool. However, it has to be underlined that the comments gathered from the surveys focused almost exclusively on the in-person workshops, suggesting that the face-to-face experience by far exceeds the learning experience of the online modules or the printed material provided for the course.

Future directions

Some of the responses indicated that the group of participants was somewhat heterogeneous in terms of clinical experience, and increasing the homogeneity of the group should be an objective of future training program to maximize the benefits.

The Academy will continue throughout 2024, and possibly beyond, with an infiltration live experience and other programs.

Overall, the positive outcome of the academy highlighted by the analysis of the surveys indicates that these initiatives will continue to have a crucial role in improving specialists’ skills and, ultimately, patient outcomes.

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Disclosures

Conflict of interest: SG and IS are faculty members of the IBSA International Academy; MF and GV are full-time employees of IBSA Group.

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