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ORIGINAL RESEARCH

# Athletic Training Services in Japan: A Comparison of the United States and Japan Based on Educational Background

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**Context:** Each country has a unique history in the development of its athletic training professionals and education and credentialing systems. In Japan, the majority of athletic trainers hold a domestic credential (JSPO-AT) obtained from the Japan Sport Association (JSPO) or a US-based credential from the Board of Certification (BOC-AT).

**Objective:** To determine whether differences in demographic, professional, and educational characteristics exist between Japanese BOC-ATs and JSPO-ATs who currently practice athletic training services in Japan.

**Design:** Cross-sectional study.

**Setting:** Online survey.

**Patients or Other Participants:** Eight hundred twenty-nine Japanese athletic trainers in Japan (BOC-AT, n = 64; JSPO-AT, n = 765).

**Main Outcome Measure(s):** Pearson's $\chi^2$ test and Fisher's exact test were used to determine differences in demographic, professional, and educational characteristics between BOC-ATs and JSPO-ATs.

**Results:** The proportion of female respondents was greater for BOC-ATs (29.7%) than for JSPO-ATs (18.7%; $\chi^2$ [1] = 4.5, $P$ = .03). A greater proportion of BOC-ATs reported having master's degrees or higher ($\chi^2$ [3] = 81.6, $P < .01$). The percentage of respondents with at least 1 therapist or medical practitioner license in Japan was greater for JSPO-ATs (73.1%) than for BOC-ATs (20.3%; $P < .01$). The percentage of respondents with at least 1 credential in exercise, nutrition, or teaching was greater for BOC-ATs (62.5%) than for JSPO-ATs (45.2%; $P < .01$). A large difference was observed in the proportion of individuals who identified as therapists (JSPO-ATs = 29.8%, BOC-ATs = 6.3%; $\chi^2$ [5] = 18.9, $P < .01$). The median income for BOC-ATs was 401–600 million yen (US$36 500–$54 500), whereas the median income for JSPO-ATs was 0–200 million yen (US$0–$18 200).

**Conclusions:** BOC-ATs in Japan were more established than JSPO-ATs as athletic training professionals with higher educational backgrounds, while more JSPO-ATs tended to be therapists. Findings from the current study may serve as benchmark data for the athletic training profession and service characteristics in Japan.

**Key Words:** Globalization, athletic training education, athletic training certification, athletic training license

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## KEY POINTS

- The current paper is the first, to our knowledge, to characterize the athletic training profession and service characteristics in Japan based on educational preparation.
- The type of education received, and additional credentials and licensures held by Japanese athletic trainers differed between Japan Sport Association-credentialed athletic trainers and Board of Certification-credentialed athletic trainers.
- Continued effort should be made to document and understand the evolution of the athletic training profession worldwide to promote globalization of athletic training.

## INTRODUCTION

Each country has a unique history in the development of its athletic training professionals and education and credentialing systems. Learning these histories and understanding why differences and similarities exist is a critical step toward designing globally acceptable athletic training education standards and establishing the athletic training profession as a globally recognized profession.

In Japan, individuals who provide athletic health care and conditioning services to athletes have been called *trainers*. Records show that trainers provided sports massages to Japanese Olympic teams as early as the 1932 Los Angeles Olympics.[1] From the beginning, Japanese trainers have had various educational and credentialing backgrounds, but have mostly been comprised of (1) licensed therapists in Japanese traditional medicine, including acupuncture therapy, moxibustion therapy (thermal therapy by burning a small piece of dried moxa herb on the meridian point), amma-massage-shiatsu therapy (traditional massage and release technique of applying pressure on meridian point), and judo therapy (acute care therapy that includes a bone setting technique for dislocation developed by a judo wrestler) or (2) licensed physical therapists, who have been regulated as allied health care professionals in the Japanese medical system since 1966. These licensed therapists are educated to provide health care services to the general public, but some of them provide care for athletes within their respective competency and refer to themselves as trainers when they work in athletic settings. In addition, people with educational backgrounds in sports science and physical education support athletes during practices and competitions (eg, taping, stretching) and refer to themselves as trainers, and some trainers with therapist license have educational backgrounds in sports science.[2]

It was not until the 1970s that the athletic training profession was first introduced to Japan from the United States. In 1975, the former Vice President of the National Athletic Trainers' Association (NATA) Richard Malacrea visited Japan to host the first athletic taping seminar.[3] The following year, Frank George, the President of NATA at the time, came to Japan with Malacrea for a weeklong athletic training seminar (J. Shikakura, personal communication, October 2018). By the 1990s, various private institutions were hosting educational seminars and workshops in athletic training. As interest in athletic training increased, Japanese students began studying athletic training in the United States, and some institutions and vocational schools in Japan began to offer courses and their own certification in athletic training.[2]

This led to an increase in athletic trainers (ATs) with various educational levels and self-styled ATs, which continued until mid-1990. In 1994, with the help of sports medicine physicians, the first domestic credentialing program for athletic trainers by a national organization under the influence of the Ministry of Education and Science was established by the Japan Sports Association (JASA).[3] JASA was a semigovernmental body that organized national sports federations in Japan and played a significant role in providing seminar-based education and credentialing programs for sports coaches and such health care professionals as sports medicine physicians and sports dentists. JASA helped to identify and establish the standard knowledge and skills required to become a certified AT in Japan. The organization has now changed its name to the Japan Sport Association (JSPO) and become a nonprofit incorporated foundation, but it continues to serve as the credentialing and accrediting body for certified ATs in Japan.[3]

Japan is in a very unique position within the international athletic training community because a large number of domestically and internationally certified ATs coexist. Understanding the influence of domestic and foreign athletic training certifications in a country may provide valuable information for developing strategies to globalize athletic training education programs. To the best of the authors' knowledge, Japan has the largest population of certified ATs outside of the United States.[4] Currently, 2 major certifications exist that Japanese ATs may hold: (1) a domestic credential issued by the JSPO (JSPO-AT) and (2) a US-based credential from the Board of Certification (BOC-AT). The JSPO athletic training program began in 1994, and as of October 1, 2018, the number of JSPO-ATs has increased to 3825.[5] According to BOC data, Japanese BOC-ATs are the largest group of international members.[6] Since the first Japanese individuals became BOC-ATs in 1977, more than 200 Japanese individuals have studied athletic training in the United States to obtain BOC-AT certification and have returned to Japan to work in their home country.[7]

In order to advance the athletic training profession outside of the United States, it is critical to examine the similarities and differences in demographics and work characteristics between US-educated ATs and domestically educated ATs in a foreign country (eg, Japan). However, demographic survey reports on the athletic training profession are currently limited in North America, and descriptive statistics about ATs in other regions, especially in Asian countries, are relatively scarce.[8,9]

Therefore, the purpose of this study is to investigate whether differences in characteristics exist between Japanese BOC-ATs and the JSPO-ATs who currently practice athletic training services in Japan. We hypothesized that differences would be found in the characteristics of professional background and education between the 2 groups.

## METHODS

An online survey using Google Forms (Google, Mountain View, CA) was sent to Japanese ATs through the JSPO and the Japan Athletic Trainers' Organization (JATO), which consists of Japanese BOC-ATs with membership in the NATA. The survey was open between July 2 to August 31, 2018, and reminder e-mails were sent by JSPO and JATO 2 weeks after the initial e-mail. Since the athletic training profession is yet to be defined on the basis of certification or licensure in Japan, we established the following criteria for participants to be eligible for our sample: (1) certified ATs (BOC-ATs or JSPO-ATs), (2) current residence in Japan, and (3) currently practicing athletic training in any form (full-time, part-time, volunteer, academic).

The survey questions included items regarding participant characteristics (eg, age, sex, educational background) and their current job as an AT (eg, employment type, setting, annual income). The selection of these questions was based on items included in the demographic and background information sections of the Global Practice Analysis (GPA), a practice analysis study of athletic training and therapy professionals worldwide developed by BOC and the World Federation of Athletic Training and Therapy and first conducted in 2006. The GPA survey is used to identify and analyze the necessary skills and knowledge required by competent athletic training and therapy professionals. The GPA questionnaire includes 24 athletic training and therapy tasks in 4 domains (assessment, intervention, administration, education) commonly practiced by athletic training and therapy professionals. It also includes questions related to demographic and background information. JSPO (JASA at that time) and JATO developed a Japanese version of the GPA survey in 2011.[10] For the current study, questions were based on the Japanese version of the GPA, in which minor modifications were made to the original demographic questions in order to reflect the Japanese health care system, removing from the survey, for example, health care professions that do not exist in Japan (eg, physician extender). In addition, a question regarding annual salary was included. The final survey underwent a peer-review process by JSPO-AT board members to ensure the questions were relevant and coherent. This study was approved by the institutional review board of Tokyo Ariake University of Medical and Health Sciences.

### Data Analysis

The JMP Pro (version 14.0; SAS Institute, Cary, NC), a statistical software package, was used for statistical analysis. Descriptive statistics were calculated to report demographic and background information. Calculations performed for descriptive data were based on the number of responses per question because responses to some of the questions were missing. We examined whether differences existed in (1) demographic characteristics, (2) educational characteristics, and (3) professional characteristics between BOC-ATs and JSPO-ATs (Table 1) using Pearson's $\chi^2$ test. Analysis pertaining to licenses and credentials held by ATs was conducted using Fisher's exact test due to the limited number of samples in some cells. Statistical significance was set at $P < .05$.

## RESULTS

A total of 1125 individuals (1017 JSPO-ATs, 108 BOC-ATs, including 37 with dual BOC-AT and JSPO-AT credentials) completed the survey. Overall, JSPO-AT and BOC-AT response rates were 30.2 and 57.4%, respectively. Data from 26 respondents (JSPO-ATs = 13, BOC-ATs = 13) who reported their current residency to be outside of Japan were excluded from further analysis. The study focuses on the data from the 829 (JSPO-ATs = 765, BOC-ATs = 64) respondents who indicated they currently practice athletic training full time (n = 263), part time (n = 352), as volunteers (n = 136), or academically (n = 88), which can be seen in the Figure.

### Demographic Characteristics

Both JSPO-ATs and BOC-ATs in Japan were predominantly male (JSPO-ATs = 81.3%, BOC-ATs = 70.3%); however, the relative representation of female ATs was greater in BOC-ATs (29.7%) than in JSPO-ATs (18.7%; $\chi^2$ [1] = 4.5, $P = .03$). More than 80% of BOC-ATs who answered the survey were 36 years old or older. In contrast, more than half of JSPO-ATs who answered the survey were 35 years old or younger (51.2%; Table 2).

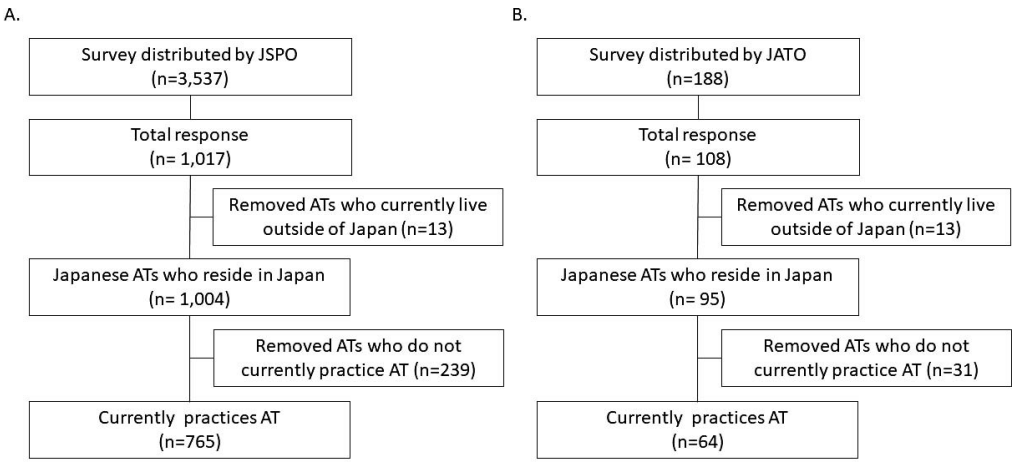
### Comparison of Educational Characteristics

A comparison of educational characteristics between BOC-ATs and JSPO-ATs is summarized in Table 3. Regarding the highest level of education, half of JSPO-ATs selected *other*, whereas none of the BOC-ATs chose this category. On the other hand, the largest group for BOC-ATs selected a master's degree (46.9%) as their highest level of education, and more than half of BOC-ATs reported having a master's degrees or higher ($\chi^2$ [3] = 81.6, $P < .01$).

The number of respondents with therapist or medical practitioner licenses in Japan was greater for JSPO-ATs than for BOC-ATs in all categories (acupuncture, moxibustion, amma-massage-shiatsu, judo therapy, physical therapy; $P < .05$). The percentage of respondents with at least 1 therapist or medical practitioner license in Japan was 73.1% for JSPO-ATs, whereas only 20.3% of BOC-ATs met the criteria ($P < .01$).

Statistical differences in the proportion of respondents with the following 3 exercise science-related certifications were found between BOC-ATs and JSPO-ATs: Certified Strength and Conditioning Specialist (CSCS), National Academy of Sports Medicine Performance Enhancement Specialization (NASM-PES), and National Academy of Sports Medicine Corrective Exercise Specialization (NASM-CES). More BOC-ATs reported to be CSCS or CSCS*D (28.1%) than JSPO-ATs ($P < .01$). Similarly, more BOC-ATs reported having NASM-PES and NASM-CES than JSPO-ATs (NASM-PES: BOC-ATs = 35.9%, JSPO-ATs = 6.3%, $P < .01$; NASM-CES: BOC-ATs = 35.9%, JSPO-ATs = 0.1%, $P < .01$). The percentage of respondents with at least 1 credential in exercise, nutrition, or teaching in Japan was 62.5% for BOC-ATs, whereas 45.2% of JSPO-ATs met the criteria ($P < .01$).

**Figure. Summary of data extraction process for (A) Japan Sport Association (JSPO) and (B) Japan Athletic Trainers' Organization (JATO). Abbreviations: AT, athletic trainer.**




### Professional Characteristics

Statistical differences were observed between BOC-ATs and JSPO-ATs in all professional characteristics ($P > .05$; Table 4). For both groups, 11–20 years of experience was the most frequently reported category (BOC-AT = 50%, JSPO-AT = 30.5%). However, the overall trend differed between the groups ($\chi^2$ [5] = 28.8, $P < .01$); more than half of JSPO-AT respondents (56%) reported having 10 years or less experience

**Table 1. Variables Collected in the Survey**

| Characteristic | Data |
|---|---|
| Demographic | |
| Sex | Male, female |
| Age, y | 20–24, 25–35, 36–45, 46–55, >55 |
| Educational | |
| Highest level of education received | Bachelor's degree, master's degree, doctoral degree, other (which includes diploma from high school and vocational school) |
| Type of license held as therapist or medical practitioner | Acupuncture, moxibustion, amma-massage-shiatsu, judo therapy, physical therapy, registered nurse or practical nurse, other |
| Type of credentials related to exercise, nutrition, and teaching | CSCS or CSCS*D, NSCA-CPT, NASM-PES, NASM-CES, ACSM Health and Fitness Specialist,[a] JATI certified instructor, JHPFF-Health Fitness Programmer, JHPFF-Health Fitness Instructor, JPSA-certified sports trainer for people with disabilities, certified nutritionist, registered dietician, teaching license |
| Professional | |
| Years of experience | 3, 3–6, 7–10, 11–20, 21–25, >25 |
| Employment type | Full-time AT, part-time AT, volunteer AT, educator in AT |
| Work setting | Elite, university, school organized sports, other |
| The name of profession in which each practitioner self-identifies himself or herself in his or her respective work settings | AT, trainer or personal trainer, strength and conditioning coach, therapist, corporate worker, educator |
| Job title | Administrator or program director, AT or athletic therapist, educator, head AT or head athletic therapist, staff AT or staff athletic therapist, allied health care professional, other |
| Salary from athletic training job, million yen | 0–200, 201–400, 401–600, 601–800, >801 |

Abbreviations: ACSM, American College of Sports Medicine; AT, athletic trainer; CES, corrective exercise specialist; CSCS, Certified Strength and Conditioning Specialists; CSCS*D, Certified Strength and Conditioning Specialists with Distinction; JATI, Japan Association of Training Instructors; JHPFF, Japan Health Promotion and Fitness Foundation; JPSA, Japanese Para Sports Association; NASM, National Academy of Sports Medicine; NSCA, National Strength and Conditioning Association; NSCA-CPT, National Strength and Conditioning Association certified personal trainer; PES, performance enhancement specialist.

[a] Currently renamed as American College of Sports Medicine Certified Exercise Physiologist.

**Table 2. Comparison of Sex and Age Group of Japanese Athletic Trainers by Athletic Training Credentials**

| Group | BOC-AT, n (%)[a] | JSPO-AT, n (%)[b] | $\chi^2$ (*P* value) |
|---|---|---|---|
| Sex | | | |
| Male | 45 (70.3) | 622 (81.3) | 4.5 (.03) |
| Female | 19 (29.7) | 143 (18.7) | |
| Age, y | | | |
| 20–24 | 0 (0.0) | 70 (9.2) | 28.4 (<.01) |
| 25–35 | 11 (17.2) | 321 (42.0) | |
| 36–45 | 31 (48.4) | 225 (29.4) | |
| 46–55 | 17 (25.6) | 120 (15.7) | |
| >55 | 5 (7.8) | 29 (3.8) | |

[a] BOC-AT refers to athletic trainers who received their athletic training certification from the Board of Certification in the United States.

[b] JSPO-AT refers to athletic trainers who received their athletic training certification from the Japan Sport Association in Japan.

as an AT, whereas only 23.5% of BOC-AT respondents had 10 years or less experience.

The most common employment type for BOC-ATs was full time (54.7%), whereas part time was the largest group for JSPO-ATs (43.9%). Additionally, less than 1% of BOC-ATs classified their employment type as volunteer, whereas 17.7% of JSPO-ATs reported that they work as volunteers ($\chi^2$ [3] = 32.3, $P < .01$).

The most common work setting for both groups was the elite level (BOC-ATs = 51.9%, JSPO-ATs = 46.3%). The second largest group was the university level for BOC-ATs (26.9%), whereas organized school sports was the second largest for JSPO-ATs (32.8%; $\chi^2$ [3] = 10.4, $P = .02$).

The majority of JSPO-ATs (62.5%) and BOC-ATs (50.5%) identified themselves as ATs. However, a significant difference was observed in the proportion of individuals who identified themselves as therapists (JSPO-ATs = 29.8%, BOC-ATs = 6.3%; $\chi^2$ [5] = 18.9, $P < .01$). Head AT or head athletic therapist was the most frequently reported job title by BOC-ATs (31.3%), whereas AT or athletic therapist was the most frequently reported for JSPO-ATs (35.2%). Significant differences were observed in educator (BOC-ATs = 20.3%, JSPO-ATs = 10.7%) and allied health care professional (BOC-AT = 4.7%, JSPO-AT = 17.8%; $\chi^2$ [6] = 27.8, $P < .01$).

The median income category for BOC-ATs was 401–600 million yen (US$36 500–$54 500), whereas the median income category for JSPO-ATs was 0–200 million yen (US$0–$18 200). More than half of JSPO-ATs make less than 200 million yen (US$18 200), whereas 31.8% of BOC-ATs selected this category ($\chi^2$ [4] = 32.4, $P < .01$).

## DISCUSSION

The purpose of this study is to investigate whether differences in demographic, professional, and educational characteristics exist between Japanese BOC-ATs and JSPO-ATs who currently practice athletic training services in Japan. The study results suggest there are evident differences in demographic, educational, and professional characteristics between BOC-ATs and JSPO-ATs.

### Demographic Characteristics

Although both groups had greater representations of males than females, the proportion of female ATs was larger for BOC-ATs (29.7%) than for JSPO-ATs (18.7%), which may be associated with the greater percentage of female student representation in athletic training programs in the United States than in Japan. Furthermore, 80% (n = 667) of study participants (BOC-ATs and JSPO-ATs combined) were male, which differs greatly from what was reported by NATA in their April 2019 NATA Membership by Ethnicity and Gender Data, which showed that 43.9% of the NATA members in the United States registered in their survey were male.[11] This result may have been influenced by the strong propensity for Japanese society to perceive sports-related professions as a male-dominated field. Similarly, the numbers of female professional sport leagues are much fewer than those of male sports, which may also influence the number of positions available for female ATs. These social factors might result in fewer opportunities for female students to pursue a career as an AT.

The comparison by age group revealed that BOC-ATs were older than JSPO-ATs, which may be influenced by 2 factors. One is the age of the participants who received athletic training education. Japanese BOC-ATs tend to have completed a bachelor's degree in Japan before studying abroad in the United States. Before the entry-level master's programs became popular, these individuals went on to pursue another undergraduate program to study athletic training, which may have raised the average age of BOC-ATs in Japan. On the other hand, the youngest possible age for JSPO-ATs is 20 because some institutions offer a 2 year athletic training education program approved by JSPO. Another possible explanation is the organizational differences between JATO and JSPO. The JATO is a professional membership organization, whereby members must actively join the organization and pay the membership fee to maintain its benefits. For this reason, young certified BOC-ATs tend to opt out for various reasons (ie, cost, not seeing the benefits of a professional organization). On the other hand, the JSPO is an accreditation and credentialing organization, not a membership organization. Therefore, the JSPO was able to send the survey to all JSPO-certified ATs, including recent graduates.

### Educational Characteristics

A greater proportion of BOC-ATs had higher levels of education compared to JSPO-ATs. It should be noted that the difference observed in the highest level of education received between JSPO-ATs and BOC-ATs is likely due to differences in the education and credentialing systems. Approximately half the JSPO-AT respondents answered *other* on the question about level of education, which included diplomas from high schools or vocational schools. Those with high school diplomas are likely the few individuals who were grandfathered into the system at the adoption of domestic accreditation programs in 1994. Currently, the JSPO offers 2 routes to become eligible for their certification exam. The first option is the seminar route, in which the JSPO enrolls approximately

**Table 3. Comparison of Educational Characteristics of Japanese Athletic Trainers by Athletic Training Credentials**

| Parameter | BOC-ATs (n = 64), No. (%)[a] | JSPO-ATs (n = 765), No. (%)[b] | $\chi^2$ (*P* Value) |
|---|---|---|---|
| Highest level of education | | | |
| Bachelor's degree | 27 (42.2) | 254 (33.2) | |
| Master's degree | 30 (46.9) | 95 (12.4) | |
| Doctoral degree (PhD, EdD) | 7 (10.9) | 44 (5.8) | |
| Other[c] | 0 (0.0) | 372 (48.6) | 81.6 (<.01) |
| Therapist or medical practitioner license | | | Fisher's exact test, *P* Value |
| Acupuncture | | | |
| Holder | 10 (15.6) | 265 (34.6) | |
| Nonholder | 54 (84.4) | 500 (65.4) | <.01 |
| Moxibustion | | | |
| Holder | 10 (15.6) | 268 (35.0) | |
| Nonholder | 54 (84.4) | 497 (65.0) | <.01 |
| Amma-massage-shiatsu | | | |
| Holder | 6 (9.4) | 151 (19.7) | |
| Nonmolder | 58 (90.6) | 614 (80.3) | <.05 |
| Judo therapy | | | |
| Holder | 3 (4.7) | 127 (16.6) | |
| Nonholder | 61 (95.3) | 638 (83.4) | .01 |
| Physical therapy | | | |
| Holder | 3 (4.7) | 204 (26.7) | |
| Nonholder | 61 (95.3) | 561 (73.3) | <.01 |
| Nurse or practical nurse | | | |
| Holder | 0 (0.0) | 3 (0.4) | |
| Nonholder | 64 (100.0) | 762 (99.6) | 1.0 |
| Other | | | |
| Holder | 0 (0.0) | 2 (0.3) | |
| Nonholder | 64 (100.0) | 763 (99.7) | 1.0 |
| Therapist or medical license practitioner holder ratio | | | |
| Holder | 13 (20.3) | 559 (73.1) | |
| Nonholder | 51 (79.7) | 206 (26.9) | <.01 |
| Exercise, nutrition, teaching credentials | | | |
| CSCS or CSCS*D | | | |
| Holder | 18 (28.1) | 87 (11.4) | |
| Nonholder | 46 (71.9) | 678 (88.6) | <.01 |
| NASM-PES | | | |
| Holder | 23 (35.9) | 48 (6.3) | |
| Nonholder | 41 (64.1) | 717 (93.7) | <.01 |
| NASM-CES | | | |
| Holder | 4 (6.3) | 1 (0.1) | |
| Nonholder | 60 (93.7) | 764 (99.9) | <.01 |
| NSCA-CPT | | | |
| Holder | 2 (3.1) | 47 (6.1) | |
| Nonholder | 62 (96.9) | 718 (93.9) | .58 |
| JATI instructor | | | |
| Holder | 7 (10.9) | 115 (15.3) | |
| Nonholder | 57 (89.1) | 650 (85.1) | .46 |
| ACSM HFS | | | |
| Holder | 0 (0.0) | 3 (0.4) | |
| Nonholder | 60 (100.0) | 762 (99.6) | 1.0 |
| Teaching certificate | | | |
| Holder | 7 (10.9) | 117 (15.3) | |
| Nonholder | 57 (89.1) | 648 (84.7) | .47 |
| CST for disabled | | | |
| Holder | 0 (0.0) | 5 (15.3) | |
| Nonholder | 64 (100.0) | 760 (99.4) | 1.0 |

**Table 3. Continued**

| Parameter | BOC-ATs (n = 64), No. (%)[a] | JSPO-ATs (n = 765), No. (%)[b] | $\chi^2$ (*P* Value) |
|---|---|---|---|
| Health fitness programmer | | | |
| Holder | 4 (6.3) | 74 (9.7) | |
| Nonholder | 60 (93.8) | 691 (90.3) | .50 |
| Health fitness instructor | | | |
| Holder | 1 (1.6) | 48 (6.3) | |
| Nonholder | 63 (98.4) | 717 (93.7) | .17 |
| Certified nutritionist | | | |
| Holder | 0 (0.0) | 2 (0.3) | |
| Nonholder | 64 (100.0) | 763 (99.7) | 1.0 |
| Registered dietician | | | |
| Holder | 0 (0.0) | 3 (0.4) | |
| Nonholder | 64 (100.0) | 763 (99.6) | 1.0 |
| Exercise, nutrition, and teaching credential holder ratio | | | |
| Holder | 40 (62.5) | 346 (45.2) | |
| Nonholder | 24 (37.5) | 419 (54.8) | <.01 |

Abbreviations: ACSM HFS, American College of Sports Medicine Health and Fitness Specialist; CES, corrective exercise specialist; CSCS, Certified Strength and Conditioning Specialists; CSCS*D, Certified Strength and Conditioning Specialists with Distinction; CST, certified sport trainer; JATI, Japan Association of Training Instructors; NASM, National Academy of Sports Medicine; NSCA-CPT, National Strength and Conditioning Association certified personal trainer; PES, performance enhancement specialist.

[a] BOC-AT refers to athletic trainers who received their athletic training certification from the Board of Certification in the United States.

[b] JSPO-AT refers to athletic trainers who received athletic training certification from the Japan Sport Association in Japan.

[c] Other (n = 372) includes high school diploma (n = 7), vocational school graduate (n = 345), 2 year college graduate (n = 345).

100 candidates every year who already have some experience working in athletic settings as an AT. Seminar participants will complete educational courses offered by the JSPO to become eligible to take the JSPO-AT certification exam. The other option is the approved education program route, which is typically housed within educational institutions that have programs in the area of sports science. Currently, the JSPO does not require the candidate to have a bachelor's degree or the approved educational institution to be a 4 year college. In fact, 32 of the 68 JSPO-approved athletic training education programs are offered by vocational schools that do not offer college diplomas and usually require 2 to 3 years to complete.[12] Consequently, there is a mix of JSPO-ATs who have completed a university degree (51.4%) and others (high school and vocational school; 48.6%). On the other hand, all BOC-ATs had some level of university degree, with the greatest proportion of participants indicating a master's degree as their highest level of education completed. Since its establishment, the BOC credentialing ATs in the United States has set the bachelor's degree as the minimum level of education, with the majority of BOC-ATs pursuing graduate degrees. With the upcoming changes in 2022 to raise the minimum degree requirement to a master's degree, an additional change in the highest level of education among BOC-ATs may occur in the near future.[13]

The differences in educational characteristics may have also influenced the greater percentage of ATs with therapist licensure among JSPO-ATs than BOC-ATs, whereas the opposite relationship was observed in the proportion of ATs who hold exercise-related credentials. Many of the Japanese ATs who were grandfathered in were working as therapists, with their respective licensure in the field of health care. Their backgrounds as therapists provided educational and legal basis for providing therapy to athletes, but they only studied athletic training informally. This trend of Japanese ATs with therapist licensure continues, even after the JSPO-AT program was established. Among the 32 vocational schools offering JSPO athletic training education programs, 20 offer therapist education programs, such as acupuncture, massage therapy, and judo therapy. The education and credentialing programs for therapists are regulated by the Ministry of Health and Labor and do not have to follow the structure of 4 year collegiate degree programs. Some of these therapist education programs now offer courses in which students may choose a double major in the respective therapist course and a JSPO-approved education program.

### Professional Characteristics

For professional characteristics, we found more BOC-ATs work as athletic training professionals compared to JSPO-ATs, which was confirmed by the findings pertaining to employment type, work setting, position, and job title. We believe that this difference in professional characteristics is influenced by differences in educational characteristics between the 2 groups. For example, a greater proportion of BOC-ATs worked in academic settings or served in higher roles (eg, head AT), which may be associated with the fact that a greater proportion of BOC-ATs had higher levels of education compared to JSPO-ATs. On the other hand, a greater proportion of JSPO-ATs chose therapist as a self-identified profession and allied health care professional for job title, which may be associated with the fact that a greater proportion of JSPO-ATs had educational background as a therapist. Furthermore, other factors such as the evolvement of athletic training as an extension of other existing licensed therapists, lack of social recognition, and limited financial support for ATs in Japan, may have contributed to the difference in professional characteristics.

**Table 4. Comparison of Professional Characteristics of Japanese Athletic Trainers by Athletic Training Credentials**

| Characteristic | BOC-AT, n (%)[a] | JSPO-AT, n (%)[b] | $\chi^2$ (*P* value) |
|---|---|---|---|
| Years of experience | | | |
| 3 | 3 (4.7) | 111 (14.5) | 28.8 (<.01) |
| 3–6 | 4 (6.3) | 156 (20.4) | |
| 7–10 | 8 (12.5) | 161 (21.1) | |
| 11–20 | 32 (50.0) | 233 (30.5) | |
| 21–25 | 12 (18.8) | 57 (7.5) | |
| >25 | 5 (7.8) | 47 (6.1) | |
| Employment type | | | |
| Full-time AT | 35 (54.7) | 228 (29.8) | 28.4 (<.01) |
| Part-time AT | 16 (25.0) | 336 (43.9) | |
| Volunteer | 1 (0.01) | 135 (17.7) | |
| Educator in athletic training | 12 (18.8) | 66 (8.6) | |
| Work setting | | | |
| Elite (professional, professional club, Olympic) | 27 (51.9) | 319 (46.3) | 10.4 (.02) |
| University | 14 (26.9) | 116 (16.8) | |
| School organized sports | 7 (13.5) | 226 (32.8) | |
| Other | 4 (7.7) | 28 (4.1) | |
| Self-identified profession | | | |
| AT | 40 (62.5) | 386 (50.5) | 18.9 (<.01) |
| Trainer or personal trainer | 6 (9.8) | 63 (8.2) | |
| Strength and conditioning coach | 4 (6.3) | 22 (2.9) | |
| Therapist | 4 (6.3) | 222 (29.8) | |
| Corporate worker | 1 (1.6) | 9 (1.2) | |
| Educator | 9 (14.1) | 57 (7.5) | |
| Job title | | | |
| Administrator or program director | 3 (4.7) | 31 (4.1) | 27.8 (<.01) |
| AT or athletic therapist | 16 (25.0) | 269 (35.2) | |
| Educator | 13 (20.3) | 82 (10.7) | |
| Head AT or head athletic therapist | 20 (31.3) | 98 (12.8) | |
| Staff AT or staff athletic therapist | 7 (10.9) | 126 (16.5) | |
| Allied health care professional | 3 (4.7) | 136 (17.8) | |
| Other | 2 (3.1) | 23 (3.0) | |
| Annual income from athletic training, million yen (US dollars[c]) | | | |
| 0–200 (0–18 200) | 20 (31.8) | 325 (51.6) | 32.4 (<.01) |
| 201–400 (18 320–36 400) | 10 (15.9) | 154 (24.4) | |
| 401–600 (36 500–54 500) | 15 (23.8) | 83 (13.2) | |
| 601–800 (54 600–72 700) | 7 (11.1) | 43 (6.8) | |
| >801 (>72 800) | 11 (17.5) | 25 (4.0) | |

Abbreviation: AT, athletic trainer.

[a] BOC-AT refers to ATs who received their athletic training certification from the Board of Certification in the United States.

[b] JSPO-AT refers to ATs who received athletic training certification from the Japan Sport Association in Japan.

[c] Applied exchange rate for US dollars and Japanese yen: ~$1 = 110 yen.

For example, ATs in Japan may perceive that a licensed therapist will provide firmer legal status than only being certified as an AT because ATs are not regulated health care professionals in Japan. Often, an employer requires an AT to have some kind of therapist license in order for him or her to fulfill the responsibility of providing therapeutic interventions. In fact, three-fourths of full-time ATs held at least 1 therapist licensure.[14] Second, the job expectations of an AT may be heavily weighted toward therapeutic interventions because that was the major role of traditional trainers in Japan.[1] Japanese traditional therapy, such as acupuncture and amma-massage-shiatsu therapy, are often the choice of therapeutic interventions for athletic health care. In fact, 38% of JSPO-AT respondents had acupuncture or moxibustion licensure in our study. Lastly, the lack of social recognition regarding the values of ATs affects the number of AT positions available and leads to less than ideal income for ATs. Financial resources for athletic training programs in Japan for Japanese sport teams are very limited, which necessitates ATs to make a living from multiple team appointments or other jobs. Our data found that 30% of JSPO-ATs work as therapists, but when asked about their employment type for their AT job, the

most popular answers were part-time capacity. This may support the previous point about the high proportion of JSPO-ATs with therapist licensure because these individuals may choose to work as therapists in clinics and hospitals for a living while still providing athletic training services as part-time ATs. Contrarily, we found exercise-related credentials to be more popular among BOC-ATs, who may have been exposed to nontherapeutic areas of athletic training during their time in the United States. Such differences in background may be associated with the finding that more BOC-ATs were working as strength and conditioning coaches or trainers and personal trainers than JSPO-ATs.

### Evolution of Athletic Training in Japan and the Future

It has been more than 25 years since the establishment of the JSPO athletic training education and credentialing system. Due to the differences in historical and regulatory backgrounds, the evolution of athletic training in Japan has taken a different path from that of the United States in some ways. For example, by the time athletic training was introduced in Japan, traditional trainers with various backgrounds were already providing care for athletes. Consequently, the introduction of athletic training further diversified our approach to athletic health care and created political challenges. Therefore, the inception of the JSPO-AT education and credentialing system aimed to create a common ground for existing therapists and future ATs. Thus, the Japanese AT education and credentialing system was not designed to produce licensed health care providers but rather serve to set the minimum standard for ATs in Japan.

Nevertheless, athletic training in the United States faced similar growing pains during the initial development phase of their primary AT organization. For example, during the early years, obtaining a health or physical education teaching license or physical therapy license was encouraged in the United States, but NATA spent many years and great effort to have ATs recognized as allied health care professionals by the American Medical Association in 1991, which greatly contributed to increasing the regulatory status of the AT profession in 49 states.[15] Following in the footsteps of the United States, the JSPO AT board approved the establishment of a committee for athletic training education system reform in 2017 tasked with updating the current JSPO-approved education system. This is very similar to the time NATA's Board of Directors formed the Education Council in March 1996, which occurred 2 decades after the establishment of the certification exam in 1970. If athletic training history repeats itself in Japan, Japanese athletic training may enter the next growing stage, which is the establishment of the mutual recognition agreement. However, in order to apply for the mutual recognition agreement, JSPO has to complete various steps, such as conducting practice analysis for the assessment of practice equivalency and setting the minimum educational requirement at the level of a bachelor's degree. In each country, athletic training professionals and their local accreditation and credentialing agencies need to carefully consider the role of ATs in the respective health care and social models of their country. As mentioned in an editorial by Ferrara, the goals of athletic training professionals are universal: attaining the best health care for their patients.[16]

### Limitations

Although this study was the first study to our knowledge that identified differences between BOC-ATs and JSPO-ATs, there are limitations. First, current data were collected via an openly accessible Web-based survey that was distributed to JSPO and JATO members, which may have led to a skewed representation of ATs in Japan. For example, age groups represented in our sample for BOC-ATs were limited, with no respondents aged 20–24. Second, we acknowledge that a cohort of Japanese ATs who participated in the current study were both JSPO-ATs and BOC-ATs ($n = 37$); for the purpose of our analysis, we merged these individuals within the BOC-AT group because the list of competencies and amount of clinical observation hours required to become certified as a BOC-AT is much more extensive than for a JSPO-AT, and these ATs are likely to be influenced by US athletic training education. Third, while all JSPO-ATs are registered members of the JSPO, Japanese BOC-ATs are not mandated to become JATO members. Therefore, future studies should aim to further increase sample size in order to improve the generalizability of our findings. Lastly, although we based our survey on questions previously validated in the GPA,[8,9] we were not able to conduct a validation check for the survey we used in the current study. However, we believe that the chance of inaccurately collecting data pertaining to the participant's own job description is very low.

## CONCLUSIONS

The purpose of this study was to investigate whether differences exist in demographic, educational, and professional characteristics between Japanese BOC-ATs and JSPO-ATs who currently practice athletic training services in Japan. Our survey results revealed differences in characteristics in all 3 areas. BOC-ATs in Japan were better established as athletic training professionals, with higher educational backgrounds that emphasize exercise, whereas the work settings of JSPO-ATs were more therapist-oriented, requiring additional therapy-focused education. This difference is thought to be influenced by the unique historical background of Japanese athletic training. The current paper may both serve as benchmark data for the athletic training profession and service characteristics in Japan and also provide a point of reference for other countries that may be considering introducing athletic training into their existing health care systems. Future efforts should be made to continue to document the growth of the athletic training profession as the globalization of athletic training and therapy continues worldwide.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