

# Changes of Interprofessional Education in Athletic Training: A 5-Year Follow-up Study

Jeane Silva<sup>1</sup>, J. Dustin Tracy<sup>1</sup>, Tim McLane<sup>1</sup>, Jessica Lynn Stewart<sup>1</sup>, Jason Hughes<sup>2</sup>, Angela Allen<sup>1</sup> & Gianluca De Leo<sup>1</sup>

<sup>1</sup> Institute of Public and Preventive Health, Augusta University, Augusta, GA, USA

<sup>2</sup> Occupational Therapy Program, Bowling Green State University, Bowling Green, OH, USA

Correspondence: Gianluca De Leo, Institute of Public and Preventive Health, Augusta University, Augusta, GA, USA

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## Abstract

Interprofessional Education (IPE) prepares students in the healthcare field for collaborative practices. Faculty perceptions of IPE have been investigated among several health professions. We assess athletic training (AT) faculty perceptions of the importance of the four IPE competencies, their attitudes towards IPE, their attitudes and beliefs about IPE in the academic settings, their perceived barriers, and opportunities towards implementing IPE in AT curricula; and how these have changed. This study utilized a cross-sectional online survey administered anonymously in 2017 and 2022. The study population was faculty from accredited AT education programs in the USA identified through the National Athletic Trainers' Association (NATA). We find that in the last five years, faculty perception of IPE has shifted to a more positive attitude toward understanding and implementing IPE in AT programs. However, data showed no significant differences between the initial and follow-up studies. Values and ethics and teams and teamwork were the two competencies ranked the highest in both studies. Younger respondents ranked communication higher than older respondents. Barriers to IPE implementation included lack of resources, allocated funding, and institutional support. The creation of an IPE program coordinator was one of the opportunities highlighted. Faculty of AT programs are aware of the importance of IPE and demonstrated a general positive attitude toward implementing IPE in their AT curricula. However, several barriers have been identified, including a perceived negative attitudes toward AT from other health professions.

**Keywords:** interprofessional education, faculty attitudes, competency, athletic training

## 1. Introduction

Interprofessional Education (IPE) has become a focus in healthcare and healthcare education (Interprofessional Education Collaborative, 2016). IPE is defined as students from “two or more professions learning about, from, and with each other to enable effective collaboration” to improve health care outcomes (World Health Organization, 2010). In 2011, the Interprofessional Educational Collaborative established four core competencies for interprofessional work and education: values and ethics, roles and responsibilities, interprofessional communications, and teams and teamwork (Interprofessional Education Collaborative, 2011, 2016).

Recently, there has been a call for educators in athletic training (AT) programs to commit to IPE (Breitbach & Richardson, 2015). However, faculty attitudes toward IPE differ based on faculty rank, prior experience, and skill level using IPE (Parry, 2017). Previous research studies have highlighted faculty attitudes toward IPE, perceptions of importance of IPE four competencies, barriers, and opportunities to implementation among faculty in nursing (Curran et al., 2007; Olenick & Allen, 2013) and in several allied health professional programs such as respiratory therapy (Behr et al., 2022; Vernon et al., 2018; Vernon et al., 2017), nutrition (Patton et al., 2018), occupational therapy (Hughes et al., 2019), physical therapy (Ramiscal et al., 2022), dental hygiene (Tolle et al., 2019), medical laboratory science (Bamfield-Cummings et al., 2023), and radiation science (Kindle et al., 2023). While IPE is recognized as necessary, there are still perceived challenges in incorporating IPE into the academic curricula.

The Commission on Accrediting Athletic Training Education (CAATE) has made IPE a requirement for all programs (Rizzo et al., 2015). CAATE has established 18 standards for the athletic training profession related to

program design and quality (Commission on Accreditation of Athletic Training Education, 2023). These standards align with the program goals and the institution's mission. For instance, Standard 8 states, "Interprofessional education is incorporated within the professional program," and Standard 18 states, "Students gain experience with patients with a variety of health conditions commonly seen in athletic training practice" (Commission on Accreditation of Athletic Training Education, 2023).

The goal of this study was to assess athletic training faculty perceptions of the importance of the four IPE competencies, their attitudes towards IPE, and their attitudes and beliefs about IPE learning in academic settings; and how these have changed. This study also investigated barriers, and opportunities towards implementing IPE in athletic training curricula.

## **2. Method**

### *2.1 Study Protocol*

This study reports data from two cross-sectional surveys conducted at two different time points. The initial study was conducted from January through February 2017, and the follow-up study was conducted from November 2021 through January 2022. The research approach consisted of a single-stage, 29-question survey. To improve the reliability and transparency of the survey instrument, this study followed the Consensus-Based Checklist for Reporting of Survey Studies (CROSS) guidelines (Sharma et al., 2021).

### *2.2 Study Population*

The study population was faculty from accredited AT education programs in the USA identified through the National Athletic Trainers' Association (NATA).

### *2.3 Survey Development*

The single-stage 29-question survey was designed based on previously used questionnaires published in the literature (Bamfield-Cummings et al., 2023; Curran et al., 2007; Hughes et al., 2019; Patton et al., 2018; Ramiscal et al., 2022; Tolle et al., 2019; Vernon et al., 2017). The survey questions investigated the demographics of the faculty, the characteristics of their programs, perceptions of the importance of IPE competencies, attitudes towards IPE, and attitudes and beliefs about IPE learning in the academic settings. The survey ended with two open-ended questions about barriers and opportunities to implement IPE in AT curricula.

### *2.4 Administration of the Survey and Data Collection*

Following IRB approval, in winter 2017, 724 AT faculty were invited to participate in the initial survey. In winter 2022, 746 AT faculty were invited to participate in the follow-up survey. Each invitation e-mail contained the purpose of the study, a brief description of the survey, informed consent procedures, the contact information of the researchers, and a link to access the online survey anonymously. At two and four weeks after the initial distribution, reminder e-mails were sent to those who had not yet responded or completed the online survey. The survey was distributed by using Qualtrics (Qualtrics, 2023). Data were stored in a secure folder.

### *2.5 Statistical Analysis*

All statistical analyses were performed using Stata Version 18.0 (StataCorp, 2023). Missing values that corresponded to refused to answer were not included in analyses. Frequency statistics were calculated for participants' responses to each survey item. Descriptive statistics and the Pearson chi-square of independence test were used to analyze the statistical significance between variables. The asymptotic significance (2-sided) was set at  $p \leq 0.05$ . Responses to the open-ended questions were analyzed using a general inductive approach to condense extensive raw text into a brief summary.

## **3. Results**

### *3.1 Participants Demographics*

A total of 210 out of 724 faculty responded to the initial survey, which resulted in a response rate of 29.0%. In the follow-up survey, 90 out of 746 faculty responded to the survey, resulting in a response rate of 13%. As expected, among the demographic characteristics, age, rank, and years worked showed a difference between the first and the follow-up survey. In the follow-up survey, faculty reported a higher level of education than in the first survey. In both surveys, approximately half of the faculty reported their sex as male, and 30% of the faculty reported serving as program directors. Table 1 shows detailed information about the demographic characteristics of the participants.

Table 1. Initial and follow-up surveys respondent demographics

	Initial Survey		Follow-up Survey		Chi <sup>2</sup>
	Count	%	Count	%	p-value
<b>Sex</b>	n = 210		n = 90		0.338
Male	106	50.48	40	44.44	
Female	104	49.52	50	55.56	
<b>Age</b>	n = 211		n = 90		0.011
Less than 30	6	2.84	0	0	
30–39	65	30.81	13	14.44	
40–49	72	34.12	36	40.00	
50–59	44	20.85	28	31.11	
60+	24	11.37	13	14.44	
<b>Education</b>	n = 211		n = 89		0.012
4-year College Degree (BA, BS)	2	0.95	0	0	
Master's Degree	85	40.28	21	23.60	
Professional (example - DPT, MD, DO, JD)	124	58.77	68	76.40	
<b>Primary Role</b>	n = 207		n = 88		0.195
Program Director	62	29.95	29	32.95	
Clinical Education Coordinator (CEC)	33	15.94	8	9.09	
Faculty	112	54.11	50	56.82	
Prefer not to answer	0	0	1	1.14	
<b>Rank</b>	n = 211		n = 89		< 0.001
Professor	40	18.96	37	41.57	
Associate Professor	79	37.44	34	38.20	
Assistant Professor	62	29.38	11	12.36	
Instructor/Lecturer/Other	25	11.85	7	7.87	
Clinical Instructor	5	2.37	0	0	
<b>Years Worked</b>	n = 211		n = 89		< 0.001
Less than 5 years	24	11.37	0	0	
5–10 years	48	22.75	11	12.36	
11–15 years	41	19.43	17	19.10	
16–20 years	40	18.96	17	19.10	
Greater than 20 years	57	27.01	44	49.44	
Prefer not to answer	1	0.47	0	0	

Notes. BA (Bachelor of Arts ),BS –/(Bachelor of Sciences),

DPT (Doctor of Physical Therapy), MD (Medical Doctor), DO (Doctor of Osteopathy) and JD (Juris Doctor).

### 3.2 Program Characteristics

As expected, among the program characteristics, the age of the program increased. The number of students also increased. In both surveys, the majority of the programs were housed in allied health colleges, and almost 20% of the programs were located in health centers. The number of master's degree increased while the number of bachelor's degree decreased in the follow-up survey. Table 2 shows detailed information about the characteristics of the programs.

Table 2. Initial and follow-up survey academic program/institution demographics by institution type and profit status

	Initial Survey		Follow-up Survey		Chi <sup>2</sup>
	Count	%	Count	%	p-value
<b>Location</b>	n = 204		n = 84		0.675
Physical Education	18	8.82	7	8.33	
Allied Health	70	34.31	23	27.38	
Natural of Physical Sciences	11	5.39	3	3.57	
Social Sciences	1	0.49	0	0.00	
Professional	9	4.41	3	3.57	
Other	95	46.57	48	57.14	
<b>Located in Health Center</b>	n = 202		n = 83		0.884
Yes	38	18.81	15	18.07	
<b>Institution Type</b>	n = 204		n = 84		0.097
Not for profit	164	80.39	76	90.48	
For profit	25	12.25	6	7.14	
Prefer not answer	15	7.35	2	2.38	
<b>Degrees Offered</b>	n = 188		n = 84		
Bachelor's degree	142	75.53	22	26.19	
Master's degree	59	31.38	62	73.81	
Doctoral degree	6	3.19	3	3.57	
Prefer not to answer	6	3.19	6	7.14	
<b>Number of Students Enrolled</b>	n = 188		n = 84		<0.001
less than 13	31	16.49	19	22.62	
Between 13 to 20	21	11.17	23	27.38	
Between 21 to 25	19	10.11	9	10.71	
Between 26 to 30	112	59.57	12	14.29	
Greater than 30	0	0.00	18	21.43	
Prefer not to answer	5	2.66	3	3.57	
<b>Program Age</b>	n = 188		n = 83		0.007
less than 5 years	8	4.26	8	9.64	
5–10 years	20	10.64	11	13.25	
11–15 years	44	23.40	11	13.25	
16–20 years	42	22.34	7	8.43	
Greater than 20 years	67	35.64	43	51.81	
Prefer not to answer	7	3.72	3	3.61	

### 3.3 IPE Competency Ranking

In the initial survey, 181 participants ranked the four IPE competencies as follows: the mean score for values and ethics was 2.6, communication 2.3, roles and responsibilities 2.4, and teams and teamwork was 2.7. In the follow-up survey, 63 respondents ranked the IPE core competencies as follows: the mean score for values and ethics was 2.7, communication 2.3, roles and responsibilities 2.2, and teams and teamwork 2.8 (Figure 1). No significant difference was found among faculty ranking IPE competencies between the surveys. However, younger respondents ranked communication higher than older respondents ( $p = 0.04$ ).

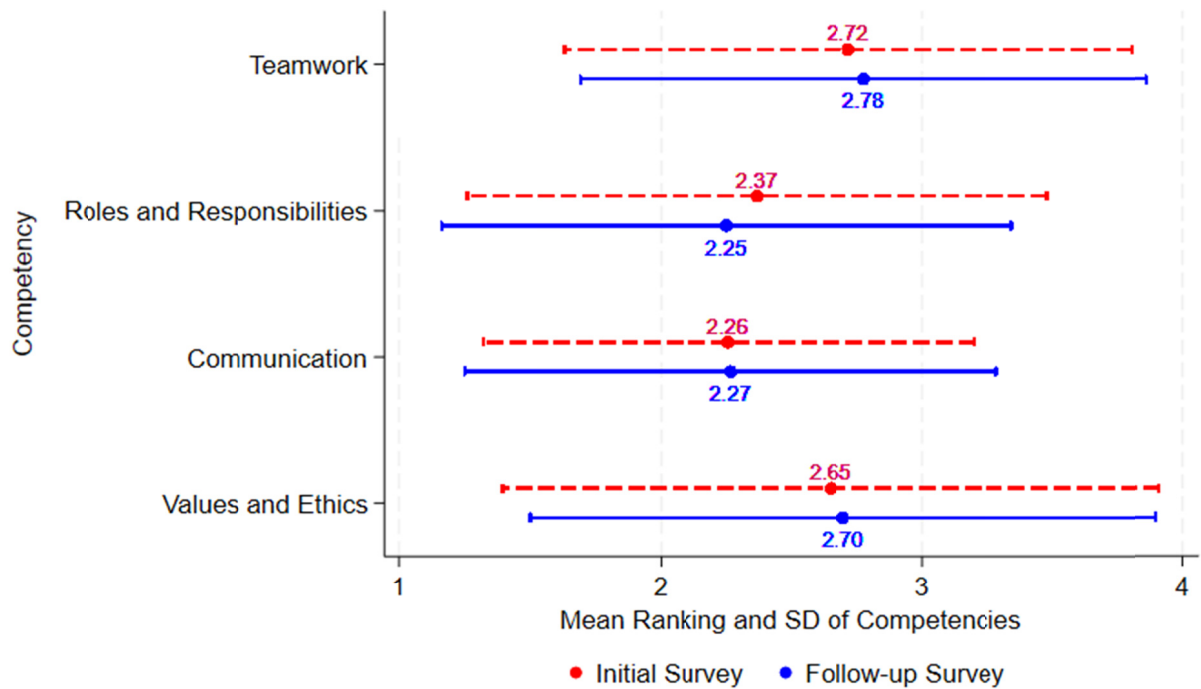


Figure 1. Initial and Follow-up Survey Overall Ranking of IEP Core Competencies

### 3.4 Attitudes Towards IPE

In the initial survey, 89 (54.3%) of the faculty strongly agreed, and 54 (32.9%) agreed that IPE would help students think positively about other healthcare professionals. Similar results were obtained in the follow-up survey, with 29 (42.03%) faculty strongly agreed, and 36 (52.1%) agreed with the same statement. Similarly, in the initial survey, faculty disagreed or strongly disagreed (73.78%), and the faculty in the follow-up survey disagreed or strongly disagreed (85.5%) with the statement that clinical problem solving can only be learned effectively when students are taught within their individual department at school. In both surveys, faculty reported a positive attitude towards IPE. Across all the questions, none of the differences in attitudes between the initial and follow-up survey were statistically significant. Table 3 summarizes the faculty attitudes toward IPE from the initial and follow-up survey.

Table 3. Attitudes of faculty towards IPE—Initial Survey (IS) and Follow-up Survey (FS)

		Strongly disagree		Somewhat disagree		Neither agree nor disagree		Somewhat agree		Strongly agree		Total
		n	%	n	%	n	%	n	%	n	%	
Interprofessional learning will help students think positively about other health care professionals	IS	2	1.2	3	1.8	16	9.8	54	32.9	89	54.3	164
	FS	0	0.0	1	1.5	3	4.4	36	52.1	29	42.0	69
Clinical problem solving can only be learned effectively when students are taught within their individual department at school	IS	49	29.9	72	43.9	21	12.8	18	11.0	4	2.4	164
	FS	23	33.3	36	52.2	7	10.1	2	2.9	1	1.5	69
Patients would ultimately benefit if health care students worked together to solve patient problems	IS	2	1.2	2	1.2	11	6.7	54	32.9	95	57.9	164
	FS	1	1.5	0	0.0	2	2.9	29	42.0	37	53.6	69
Students in my professional group would benefit from working on small-group projects with other health care students	IS	1	0.6	4	2.4	15	9.2	75	45.7	69	42.1	164
	FS	0	0.0	0	0.0	9	13.0	30	43.5	30	43.5	69
Communication skills should be learned with integrated classes of health care students	IS	1	0.6	3	1.8	25	15.2	66	40.2	69	42.1	164
	FS	0	0.0	0	0.0	8	11.6	29	42.0	32	46.4	69
Learning with students in other health professional schools helps undergraduates to become more effective members of a health care team	IS	3	1.8	5	3.1	16	9.8	78	47.6	62	37.8	164
	FS	0	0.0	1	1.5	7	10.3	32	47.0	28	41.2	69
Interprofessional learning among health care students will increase their ability to understand clinical problems	IS	0	0.0	6	3.7	22	13.4	73	44.5	63	38.4	164
	FS	0	0.0	2	2.9	10	14.5	41	59.5	16	23.2	69
Interprofessional learning will help students to understand their own professional limitations	IS	0	0.0	4	2.4	20	12.2	83	50.6	57	34.8	164
	FS	0	0.0	1	1.5	12	17.4	41	59.4	15	21.7	69
For small-group learning to work, students need to trust and respect each other	IS	2	1.2	2	1.2	4	2.4	62	37.8	94	57.3	164
	FS	0	0.0	0	0.0	6	8.7	26	37.7	37	53.6	69
Interprofessional learning among health professional students will help them to communicate better with patients and other professionals	IS	2	1.2	4	2.4	14	8.5	62	37.8	82	50.0	164
	FS	0	0.0	0	0.0	6	8.7	35	50.7	28	40.6	69
Team-working skills are essential for all health care students to learn	IS	2	1.2	0	0	4	2.4	53	32.3	105	64.0	164
	FS	0	0.0	1	1.5	0	0.0	20	29.0	48	69.6	69

### 3.5 Attitudes and Beliefs About IPE Learning in the Academic Setting

In the initial survey, 104 (63.0%) faculty strongly agreed, and 47 (28.5%) faculty somewhat agreed with the statement that interprofessional efforts required support from campus administrations. In the follow-up survey, 37 (52.0%) faculty strongly agreed, and 29 (40.9%) somewhat agreed with the same statement. In the initial survey, 31 (18.8%) faculty strongly agreed, and 78 (47.3%) somewhat agreed with the statement that interprofessional courses are logistically difficult to implement. In the follow-up survey, 16 (22.5%) faculty strongly agreed, and 37 (52.1%) faculty somewhat agreed with the statement. In both surveys, despite several challenges to IPE implementation which are discussed below, faculty reported positive attitudes and beliefs about IPE learning in the academic setting. Across all the questions, none of the differences between the initial and follow-up studies were statistically significant. Table 4 summarizes the faculty attitudes and beliefs about IPE learning in the academic setting from the initial and follow-up survey.

Table 4. Attitudes and beliefs about IPE learning in the academic setting—Initial Study (IS) and Follow-up Study (FS)

		Strongly disagree		Somewhat disagree		Neither agree nor disagree		Somewhat agree		Strongly agree		Total
		n	%	n	%	n	%	n	%	n	%	
		Interprofessional learning better utilizes resources.	IS	4	2.4	3	1.8	29	17.6	66	40.0	
	FS	0	0.0	1	1.4	23	32.9	32	45.7	14	20.0	70
It is important for academic health center campuses to provide interprofessional learning opportunities.	IS	2	1.2	2	1.2	21	12.7	54	32.7	86	52.1	165
	FS	0	0.0	2	2.8	7	9.9	22	31.0	40	56.3	71
Interprofessional learning should be a goal of this campus.	IS	3	1.8	4	2.4	22	13.3	58	35.2	78	47.3	165
	FS	0	0.0	1	1.4	8	11.4	29	41.4	32	45.7	70
Students like courses taught by faculty from other academic department.	IS	1	0.6	13	7.9	62	37.6	69	41.8	20	12.1	165
	FS	1	1.4	13	18.3	33	46.5	20	28.2	4	5.6	71
Students like courses that include students from other academic departments.	IS	2	1.2	14	8.5	55	33.3	73	44.2	21	12.7	165
	FS	0	0.0	5	7.0	34	47.9	24	33.8	8	11.3	71
Faculty should be encouraged to participate in interprofessional courses.	IS	2	1.2	2	1.2	11	6.7	79	47.9	71	43.0	165
	FS	0	0.0	2	2.8	6	8.5	27	38.0	36	50.7	71
Faculty like teaching students in other academic departments.	IS	2	1.2	13	7.9	61	37.0	64	38.8	25	15.2	165
	FS	1	1.4	4	5.7	16	22.9	42	60.0	7	10.0	70
Faculty like teaching with faculty from other academic departments.	IS	2	1.2	6	3.6	50	30.3	81	49.1	26	15.8	165
	FS	0	0.0	1	1.4	22	31.0	33	46.5	15	21.1	71
Interprofessional efforts weaken program content.	IS	64	38.8	77	46.7	16	9.7	6	3.6	2	1.2	165
	FS	32	45.1	30	42.3	6	8.5	2	2.8	1	1.4	71
Interprofessional efforts require support from campus administration.	IS	1	0.6	6	3.6	7	4.2	47	28.5	104	63.0	165
	FS	0	0.0	1	1.4	4	5.6	29	40.9	37	52.1	71
Interprofessional courses are logistically difficult.	IS	3	1.8	17	10.3	36	21.8	78	47.3	31	18.8	165
	FS	2	2.8	3	4.2	13	18.3	37	52.1	16	22.5	71
Faculty should be rewarded for participation in interprofessional courses.	IS	6	3.6	10	6.1	32	19.4	68	41.2	49	29.7	165
	FS	2	2.8	5	7.0	16	22.5	26	36.6	22	31.0	71
Accreditation requirements limit interprofessional efforts.	IS	17	10.3	49	29.7	54	32.7	37	22.4	8	4.9	165
	FS	12	16.9	24	33.9	15	21.1	14	19.7	6	8.5	71

### 3.6 Barriers and Opportunities

Faculty in both surveys reported the following barriers to implementing IPE in AT programs: lack of administrative support, limited numbers of other programs on campus, teaching load, negative attitudes from other professions, time and resources, campus geography, time consuming, and lack of understanding. Also, respondents pointed out that usually, IPE has no credit attached to it, does not have any value for tenure, and they reported that IPE is not yet officially part of the curriculum, and all curricula are packed with other requirements.

Some of the opportunities identified by the respondents were the creation of an IPE program coordinator for each program, planning group events each semester, and implementing IPE in a non-credit setting, such as workshops and seminars. Also, sharing information on AT scope with other professions, bridging programs on campus, and finding common curricular areas for shared learning. Additionally, establishing online IPE courses, transitioning to a master program, and starting a consortium to meet once a month are some suggestions to combine resources and create opportunities to implement IPE in AT programs.

## 4. Discussion

As expected, the demographic characteristics of age, rank, and years worked among faculty showed a difference between the first and the follow-up survey. In the follow-up survey, faculty were older, higher in rank, and had worked in academia longer. In the follow-up survey, faculty reported a higher level of education than in the first survey. This is in line with the decision in 2015 to change the AT degree level to a master's (Strategic Alliance Degree Statement, 2015) and with the consequent July 2020 substantive changes to the accreditation process that required all AT courses to be delivered at the graduate level. These changes probably triggered the desire of faculty

to obtain higher degrees.

In addition, as AT education is implementing the new accreditation standards, which also require the inclusion of IPE in the professional program (Commission on Accreditation of Athletic Training Education, 2023), there is evidence of growth in knowledge, skills, and attitudes among AT professionals. Our data showed a robust increase in master's degree levels in the last five years. As the profession is transitioning to a master's degree level, IPE is expected to have a more critical function in the curricula. Among the program characteristics, the age of the program increased. The number of students also increased. In 2021–2022, there were approximately 18% more graduates transitioning into AT as a destination profession compared to 2017–2018 (National Athletic Trainers' Association, 2023).

Our findings highlighted that AT faculty understand the importance of IPE. In both surveys, the participants reported that interprofessional education and collaborative practices are critical to patient care and interactions with other healthcare professionals. Because IPE occurs in both didactic and clinical settings, interprofessional education experiences are crucial in existing healthcare programs. As outlined in the literature, IPE core competencies have helped improve the dialogue around interprofessional education and collaborative practices (Interprofessional Education Collaborative, 2011, 2016). Additionally, it has been suggested that AT programs transitioning to a professional master's degree level might benefit from IPE initiatives (Eliot et al., 2017).

No significant difference was found among faculty ranking IPE competencies between the surveys. Teams and Teamwork and values and ethics are the competencies ranked the highest, followed closely by communication. Prioritizing these principles implies that interprofessional practices require maintaining a climate of mutual respect and better communication (Shakhman et al., 2020).

NATA's strategic plan emphasizes the inclusion and implementation of IPE through the curriculum. However, our study identified barriers to implementing IPE in AT programs. This result is supported by other studies reported in the literature. For instance, a previous research study argued that a significant proportion of AT programs have been struggling to implement IPE initiatives to meet accreditation standards and argued that the reasons are limited infrastructure to support them, limited history of collaboration, and units that house these programs might not support IPE because lack critical readiness to support it (Breitbach et al., 2018). It is important to point out that more support, assistance, and cooperation among stakeholders will be needed to minimize challenges and create opportunities for implementing IPE in the AT curriculum. Among other barriers, our study surprisingly identified that the reason was that IPE was not mandatory for accreditation. This was a surprising finding since the 2020 accreditation standards of AT programs set the Fall of 2022 as a deadline to implement the changes, and IPE must be incorporated into the AT curricula. However, the results of this study revealed that faculty and students engage in collaborative learning activities with other professionals using mixed educational strategies, such as case studies, simulation centers, and integrating IPE into virtual patient encounters.

We found critical barriers to implementing IPE into AT curricula, such as lack of administrative support, financial support, and resources. A previous study reported that the "pedagogical barriers in IPE" are consistent with a lack of administrative and long-term financial support from the institution, in addition to determining curricular changes to allow IPE to be included in the AT coursework (Breitbach & Richardson, 2015). The same barriers persisted after five years. Despite these challenges, we believe there is room for improvement and many opportunities have been identified to help implement IPE in AT curricula. As the participants of this study suggested, sharing information about the role of AT in patient care with other professionals, finding common curricular areas for shared learning, implementing and holding joint classes, identifying program IPE coordinators for each program, and planning group events and collaboration are some of the initiatives to improve IPE among AT professionals.

Many of our participants shared their beliefs that the AT profession is misunderstood by other members of the healthcare team, and there are negative attitudes from other professions towards AT professionals. These findings also supported a previous study that stated that other professions negatively perceive AT and that this negative view of the profession encouraged many ATs to leave the field entirely (Nokes et al., 2022). Another study reported that identifying these barriers will allow for modification of IPE activities to meet the needs of the faculty and to create opportunities to encourage participation in IPE activities (Dallaghan et al., 2016).

IPE implies a willingness to collaborate and learn; with this in mind, incorporating IPE courses and activities into the AT curricula will enhance interprofessional collaboration, which will eventually outweigh the negative views and improve understanding of each profession's roles and contributions in providing better patient care.

We suggest that the accreditation agency, faculty, students, and the institution become change agents. Faculty and students should become more engaged and willing to participate in IPE activities, and the institution should



provide the resources for IPE projects.

In conclusion, the relevant literature has identified the critical factors that impact IPE. CAATE, which oversees AT programs' accreditation, has provided the guidelines and standards for improving students' knowledge, skills, and attitudes required to integrate best practices and become successful AT professionals. Faculty understand the concept of IPE and its core competencies and know they are important to improve practice. The results of our study highlighted the barriers and opportunities facing AT training programs and reinforced the importance of incorporating interprofessional education into the AT curriculum. AT programs have the tools to be successful and students to be active collaborators and team players to improve patient care. Our recommendations for future studies on IPE should include a closer examination of these concerns from faculty perspectives and develop methods and strategies to help build IPE as a more integral part of AT curricula.

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### **Authors' contributions**

Dr. De Leo and Dr. Silva were responsible for study design and revision. Dr. Tracy was responsible for data analysis and data visualization. Dr. Tracy also revised the manuscript. Dr. Stewart, Mrs. Allen and Mr. McLane drafted the manuscript and were involved in the study design. All authors read and approved the final manuscript. All authors contributed equally to the study.

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### **Informed consent**

Obtained.

### **Ethics approval**

The Publication Ethics Committee of the Canadian Center of Science and Education.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

### **Provenance and peer review**

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### **Data availability statement**

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

### **Data sharing statement**

No additional data are available.

### **References**

- Bamfield-Cummings, S., Bufkin, K., Jones, S., Bayhaghi, G., Kashyap, H., & De Leo, G. (2023). *Interprofessional Education in NAACLS MLT and MLS Programs: Results of a National Survey*. Lab Med. <https://doi.org/10.1093/labmed/lmad006>
- Behr, A. Y., O'Neal, P. M., Maldonado, D., Truelove, C. A., Jr., & De Leo, G. (2022). Faculty Perspective on Interprofessional Education Competencies: Respiratory Therapy Compared to Other Allied Health Professions. *Respir Care*, 67(10), 1246–1253. <https://doi.org/10.4187/respcare.09791>
- Breitbach, A. P., Eliot, K., Cuppett, M., Wilson, M., & Chushak, M. (2018). The progress and promise of interprofessional education in athletic training programs. *Athletic Training Education Journal*, 13(1), 57–66. <https://doi.org/10.4085/130157>
- Breitbach, A. P., & Richardson, R. (2015). Interprofessional education and practice in athletic training. *Athletic Training Education Journal*, 10(2), 170–182. <https://doi.org/10.4085/1002170>
- Commission on Accreditation of Athletic Training Education. (2023). *Standards and Procedures for Accreditation of Professional Programs in Athletic Training*. Retrieved from

- [https://caate.net/Portals/0/Standards\\_and\\_Procedures\\_Professional\\_Programs.pdf](https://caate.net/Portals/0/Standards_and_Procedures_Professional_Programs.pdf)
- Curran, V. R., Sharpe, D., & Forristall, J. (2007). Attitudes of health sciences faculty members towards interprofessional teamwork and education. *Med. Educ.*, *41*(9), 892–896. <https://doi.org/10.1111/j.1365-2923.2007.02823.x>
- Dallaghan, G. L. B., Hoffman, E., Lyden, E., & Bevil, C. (2016). Faculty attitudes about interprofessional education. *Medical Education Online*, *21*(1), 32065. <https://doi.org/10.3402/meo.v21.32065>
- Eliot, K., Breitbach, A., Wilson, M., & Chushak, M. (2017). Institutional readiness for interprofessional education among nutrition and dietetics and athletic training education programs. *Journal of Allied Health*, *46*(2), 94–103. Retrieved from <https://www.ingentaconnect.com/content/asahp/jah/2017/00000046/00000002/art00007;jsessionid=tyevfpk04akt.x-ic-live-03>
- Hughes, J. K., Allen, A., McLane, T., Stewart, J. L., Heboyan, V., & De Leo, G. (2019). Interprofessional education among occupational therapy programs: faculty perceptions of challenges and opportunities. *The American Journal of Occupational Therapy*, *73*(1), <https://doi.org/10.5014/ajot.2019.030304>
- Interprofessional Education Collaborative. (2011). *Core Competencies for Interprofessional Collaborative Practice*. Retrieved from <https://www.ipecollaborative.org/assets/2011-Original.pdf>
- Interprofessional Education Collaborative. (2016). *Core competencies for interprofessional collaborative practice: 2016 update*. Retrieved from <https://ipec.memberclicks.net/assets/2016-Update.pdf>
- Kindle, K., Johnson, E., Kohler, A., & De Leo, G. (2023). Interprofessional education in US radiologic technologist programs: Results of a national survey. *J. Med. Imaging. Radiat Sci.* <https://doi.org/10.1016/j.jmir.2023.09.003>
- National Athletic Trainers' Association (NATA). (2023). *The State of Employment for Athletic Training*. Retrieved February 10, 2023, from <https://www.nata.org/blog/beth-sitzler/state-employment-athletic-training>
- Nokes, R. D., Pitney, W. A., Bowman, T. G., & Nottingham, S. (2022). Professional Master's Athletic Training Students' Career Influences Part I: Perceptions of Athletic Training. *Athletic Training Education Journal*, *17*(1), 53–63. <https://doi.org/10.4085/1947-380X-21-001>
- Olenick, M., & Allen, L. R. (2013). Faculty intent to engage in interprofessional education. *J Multidiscip Healthc*, *6*, 149–161. <https://doi.org/10.2147/JMDH.S38499>
- Parry, M. M. (2017). *Faculty Perceptions of Readiness to Implement Interprofessional Education in Athletic Training*.
- Patton, Z., Vernon, M., Haymond, K., Anglin, J., Heboyan, V., & De Leo, G. (2018). Evaluation of interprofessional education implementation among nutrition program directors in the United States. *Topics in Clinical Nutrition*, *33*(3), 196–204. <https://doi.org/10.1097/TIN.0000000000000143>
- Qualtrics. (2023). *Qualtrics*. Retrieved from <https://www.qualtrics.com>
- Ramiscal, L., Truelove Jr, C., Heboyan, V., & De Leo, G. (2022). Attitudes and beliefs of physical therapist and physical therapist assistant program directors in the United States towards interprofessional education. *Internet Journal of Allied Health Sciences and Practice*, *20*(1), 13. <https://doi.org/10.46743/1540-580X/2022.2144>
- Rizzo, C. S., Breitbach, A. P., & Richardson, R. (2015). Athletic trainers have a place in interprofessional education and practice. *Journal of Interprofessional Care*, *29*(3), 256–257. <https://doi.org/10.3109/13561820.2014.942778>
- Shakhman, L. M., Al Omari, O., Arulappan, J., & Wynaden, D. (2020). Interprofessional Education and Collaboration: Strategies for Implementation. *Oman Med J*, *35*(4), e160. <https://doi.org/10.5001/omj.2020.83>
- Sharma, A., Minh Duc, N. T., Luu Lam Thang, T., Nam, N. H., Ng, S. J., Abbas, K. S., ... Karamouzian, M. (2021). A Consensus-Based Checklist for Reporting of Survey Studies (CROSS). *J Gen Intern Med*, *36*(10), 3179–3187. <https://doi.org/10.1007/s11606-021-06737-1>
- StataCorp. (2023). *Stata Statistical Software: Release 18*. In StataCorp LLC.
- Strategic Alliance Degree Statement. (2015). *Strategic Alliance Degree Statement*. Retrieved February 10, 2023, from <https://www.atstrategicalliance.org/statements/strategic-alliance-degree-statement>

- Tolle, S. L., Vernon, M. M., McCombs, G., & De Leo, G. (2019). Interprofessional Education in Dental Hygiene: Attitudes, barriers and practices of program faculty. *J. Dent. Hyg.*, *93*(2), 13–22. <https://www.ncbi.nlm.nih.gov/pubmed/31015303>
- Vernon, M. M., Moore, N., Mazzoli, A., & De Leo, G. (2018). Respiratory therapy faculty perspectives on interprofessional education: Findings from a cross-sectional online survey. *J. Interprof. Care*, *32*(2), 235–238. <https://doi.org/10.1080/13561820.2017.1389865>
- Vernon, M. M., Moore, N. M., Cummins, L. A., Reyes, S. E., Mazzoli, A. J., Heboyan, V., & De Leo, G. (2017). Respiratory Therapy Faculty Knowledge of and Attitudes Toward Interprofessional Education. *Respir Care*, *62*(7), 873–881. <https://doi.org/10.4187/respcare.05034>
- World Health Organization. (2010). *Framework for action on interprofessional education and collaborative practice*. Retrieved from [https://iris.who.int/bitstream/handle/10665/70185/WHO\\_HRH\\_HP\\_N\\_10.3\\_eng.pdf](https://iris.who.int/bitstream/handle/10665/70185/WHO_HRH_HP_N_10.3_eng.pdf)

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