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## Cannabis Content in Athletic Training and Physical Therapy Curriculums in the United States

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## Cannabis Content in Athletic Training and Physical Therapy Curriculums in the United States

### Abstract

**Background:** Cannabis is the most commonly used illicit drug in the U.S. and its use is becoming more popular with the legalization of medical marijuana. Currently, 36/50 states and the District of Columbia have legalized marijuana for medical purposes. These changes have allowed for more cannabis-related research to be conducted. It is unknown how health professional education programs such as physical therapy and athletic training have integrated cannabis-related curriculum into their students' training. This study aimed to identify how physical therapy and athletic training education programs are approaching teaching students about cannabis-related topics. **Methods:** There were 111 individuals from 40 states who responded to the survey (Males=53; Female=58), including 88 athletic training and 23 physical therapy faculty. **Methods:** An email was sent to all program directors of athletic training and physical therapy programs in the US with a Qualtrics survey link for faculty to complete. The 23-item questionnaire included closed-ended questions on demographics, where they sought cannabis-related information, and whether program curriculum includes cannabis-related topics. Frequencies were computed for sources of cannabis-related information and whether program curriculum includes cannabis-related topics. **Results:** Sixty (53.5%) participants stated they have not received information or completed any training related to cannabis. Of those receiving information or completing training (n=51), the most common sources of information were live lectures (n=23), peer-reviewed manuscripts (n=24), and social media/news (n=21). Also, 43 (38%) participants noted teaching cannabis-related topics in their curriculum. However, 33 participants reported either not completing training related to cannabis or being self-educated through the current literature. **Conclusions:** These results suggest program faculty may benefit from formal cannabis education in an effort to adequately integrate the content into curriculums.

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### ABSTRACT

**Background:** Cannabis is the most commonly used illicit drug in the U.S. and its use is becoming more popular with the legalization of medical marijuana. Currently, 36/50 states and the District of Columbia have legalized marijuana for medical purposes. These changes have allowed for more cannabis-related research to be conducted. It is unknown how health professional education programs such as physical therapy and athletic training have integrated cannabis-related curriculum into their students' training. This study aimed to identify how physical therapy and athletic training education programs are approaching teaching students about cannabis-related topics. **Methods:** There were 111 individuals from 40 states who responded to the survey (Males=53; Female=58), including 88 athletic training and 23 physical therapy faculty. **Methods:** An email was sent to all program directors of athletic training and physical therapy programs in the US with a Qualtrics survey link for faculty to complete. The 23-item questionnaire included closed-ended questions on demographics, where they sought cannabis-related information, and whether program curriculum includes cannabis-related topics. Frequencies were computed for sources of cannabis-related information and whether program curriculum includes cannabis-related topics. **Results:** Sixty (53.5%) participants stated they have not received information or completed any training related to cannabis. Of those receiving information or completing training (n=51), the most common sources of information were live lectures (n=23), peer-reviewed manuscripts (n=24), and social media/news (n=21). Also, 43 (38%) participants noted teaching cannabis-related topics in their curriculum. However, 33 participants reported either not completing training related to cannabis or being self-educated through the current literature. **Conclusions:** These results suggest program faculty may benefit from formal cannabis education in an effort to adequately integrate the content into curriculums.

**Keywords:** education, athletic trainer, physical therapist, marijuana

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## INTRODUCTION

Over the past 10 years the prevalence of cannabis acceptance has increased in the United States evident by the legalization of medical marijuana in 36 states, 4 territories, and the District of Columbia.<sup>1,2</sup> Additionally, the social culture of acceptance has also seen an upswing with “adult use” (recreational) marijuana now legalized in 15 states, 2 territories, and the District of Columbia.<sup>2</sup> The Agriculture Improvement Act of 2018 (PL 115-334), more commonly known as the “Farm Bill”, has allowed for legal growth and sales of hemp which is available commercially in forms of applications and consumption.<sup>3</sup>

Since the early 1900's traditional healthcare disciplines have not favorably viewed either medicinal or adult use cannabis. There are many reasons for this, amongst which is the long-standing classification of marijuana as a Schedule 1 drug in the Controlled Substances Act thereby making it illegal by the federal government.<sup>1</sup> Previous work has reported the views on cannabis with several healthcare and medical specialties. Four hundred ninety-four healthcare providers in Washington State with respondents reporting an overall low level of both knowledge and comfort regarding the recommendation of medical marijuana.<sup>4</sup> Despite medical marijuana laws being in effect since 1998 in Washington State, most of the providers had not received any formal education didactically or clinically. Similar findings were reported from primary care providers of a large Minnesota-based healthcare system who reported 58.1% of the respondents were favorable toward medical marijuana as a legitimate form of therapy but half of providers noting a lack of readiness to answer patient questions on the topic.<sup>5</sup> Additionally, a 2016 study of pharmacists in Minnesota revealed limited knowledge of state-wide cannabis policies and regulations and an unpreparedness to counsel patients. The results of this finding led to swift implementation of education programs on pharmacotherapy of cannabis.<sup>6</sup>

A 2018 Australian survey of 640 general practitioner's knowledge and attitudes toward medical cannabis found only 28.8% feeling comfortable discussing medicinal cannabis with patients despite much support for use of medicinal cannabis when condition-specific such as using for cancer pain, palliative care and epilepsy. This same group was less supportive of medical cannabis for use in depression and anxiety.<sup>7</sup> Another study found that fifty-eight percent of Irish general practitioners support the legalization of cannabis for medical use with a similar number not supporting adult recreational usage.<sup>8</sup> However, respondents agreed that cannabis can have a role in palliative care, pain management and treatment of multiple sclerosis. Of interest in this paper was that male general practitioners and those with higher levels of addiction training were more likely to support recreational usage. Additional studies of general practitioners in New Zealand and United States pharmacists, neurologists, and nurses support the use of cannabis for medicinal purposes yet are apprehensive regarding the scientific efficacy and safety.<sup>7,9,10</sup> Interestingly, one study noted those with a higher knowledge of cannabis education were attributed to being employed in a state with favorable workplace policies and legal access to cannabis.<sup>10</sup>

Cannabis knowledge and perception studies have been performed to gain insight from students in medicine and healthcare. Fourth-year medical students at the University of Belgrade were surveyed and reported that those students who possessed better knowledge of indications were more supportive of legalization while opponents of legalization appeared more knowledgeable of potential side effects associated with medical cannabis.<sup>11</sup> Overall, 64% of students surveyed supported medical cannabis legalization.<sup>11</sup> Students' previous use of marijuana and alcohol also correlated significantly with their attitudes toward legalization.<sup>10</sup>

Within the United States, sixty-four percent of Colorado medical students support the legalization of medical marijuana and believe cannabis can play a future role in the treatment of various medical conditions.<sup>12</sup> In the same study however, many respondents cited the potential psychological (77%) and physical (68%) harm associated with marijuana. There was no correlation of findings between participants age or gender, though did note a positive acceptance of marijuana correlated with those living in Colorado prior to medical school. Colorado legalized marijuana in 2014 for recreational purposes and in 2000 for medicinal use.<sup>12</sup> Pharmacy students have also reported a lack of confidence in cannabis related knowledge with the exception their ability to retrieve related drug information.<sup>10</sup> A survey of allied health and nursing students at a large University in Florida reported 59% of the respondents feeling as though cannabis products should be legal for medicinal purposes and recreational use (36%).<sup>13</sup>

Although there have been multiple studies to better understand cannabis in other health care professions, little has been completed to understand knowledge and perceptions of athletic training (AT) and physical therapy (PT) faculty. Therefore, the purpose of this study was to better understand faculty's knowledge and perceptions of cannabis related topics. A secondary goal was to identify what topics, if any, are being taught within the curricula.

## METHODS

This study was approved by the university institutional review board. A survey-based research design was used to understand the extent to which healthcare educators include cannabis-related topics into their curricula.

### Participants

A total of 89 AT educators and 23 PT educators completed the survey and demographic information can be found in Table 1 and 2. The survey was sent out to all AT and PT educators. Inclusion criteria included being 1) able to read and write in English, 2) a health care professional educator, and at least 18 years of age.

**Table 1.** Educators' degrees who teach cannabis-related topics

Degree	Frequency (Percentage)
Masters	18 (16%)
Academic Doctorate	75 (68%)
Clinical Doctorate	18 (16%)

### Instrumentation

The 23-item web-based questionnaire included closed-ended demographic questions, where they sought cannabis-related information, and whether program curricula included cannabis-related topics. The survey items were developed based on the current literature. Once developed, the survey was evaluated by three content experts before data collection to establish content validity. The content experts were selected based on their knowledge of cannabis, their expertise as healthcare educators, and experience with survey development. Feedback from the content experts was implemented into the final survey.

### Procedures

An email was sent to all program directors of AT and PT programs in the US. The email contained a formal invitation and a link to the Qualtrics™ survey. After the initial email, a reminder email was sent out two and four weeks from the original invitation to participate. The survey remained open for six total weeks.

### Data Analysis

All data was analyzed using SPSS (version 25; SPSS Inc., Chicago, IL). Means, standard deviations, frequencies, and percentages were computed for sources of cannabis-related information and whether program curriculum included cannabis-related topics.

### Results

A total of 111 participants from 40 states responded to the survey (male=53; female=58) with 88 AT educators and 23 PT educators. The highest level of education is displayed in Table 1 and age ranges are displayed in Table 2.

**Table 2.** Educators' age ranges who teach cannabis-related topics

Age	Frequency (Percentage)
20-30	1 (1%)
31-40	29 (26%)
41-50	41 (38%)
51-60	31 (27%)
60+	9 (8%)

Sixty of the 111 (54%) participants stated they had not received information or completed any training related to cannabis. Of the 51 who had received information, 26 (23%) received training from live lectures, 24 (21%) from peer-reviewed manuscripts, or 21 (19%) from social media/news. Respondents had the option to select all applicable learning categories, so the total is more than n=51. Figure 1 displays the distribution of how educators received cannabis related information.

A total of 43 (38%) participants stated that they teach cannabis-related topics in their curricula, and 27 of those reported spending 1-2 hours (73%), while 10 participants (27%) reported 3-5 hours on the topic. The classes were primarily taught by educators with the following degrees: academic degree 26 (70%), masters' degree 8 (22%) and bachelor's degree 3 (8%). Thirty-three (89%) of the instructors were full time faculty while 3 were adjunct (8%) and 1 (2%) was a business owner. Of the 43 participants who taught the material, 29 stated that they had training on cannabis in the form of live lecture or workshop, online coursework, peer-reviewed manuscripts, or some combination of those. Figure 2 displays the classes in which cannabis-related topics were taught.

The most commonly taught topics are included in Table 3. The topics with 6 or less responses included research (n=6), dosing (n=3), dispensary (n=2), social justice (n=2), business (n=1), strains (n=6), terpenes (n=1), or cultivation (n=0). Other topics that were described, but not options, in the initial question included the National Collegiate Athletic Association (NCAA) guidelines and pain management.

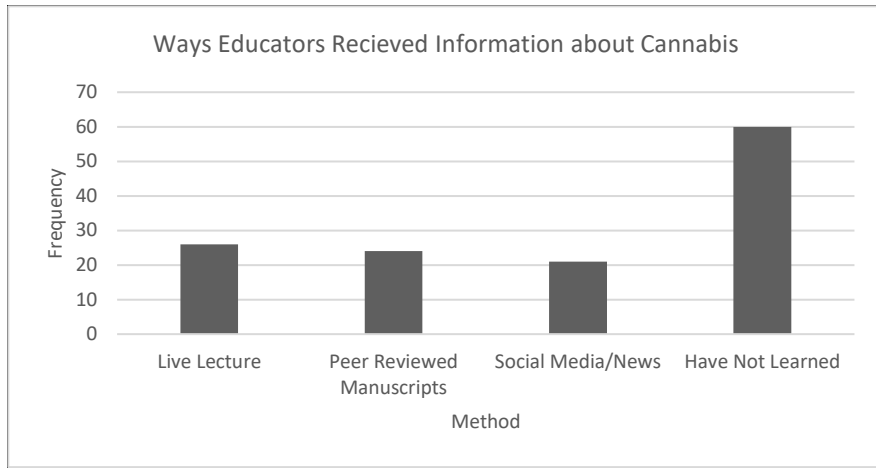


Figure 1. Reported ways educators have learned about cannabis-related topics

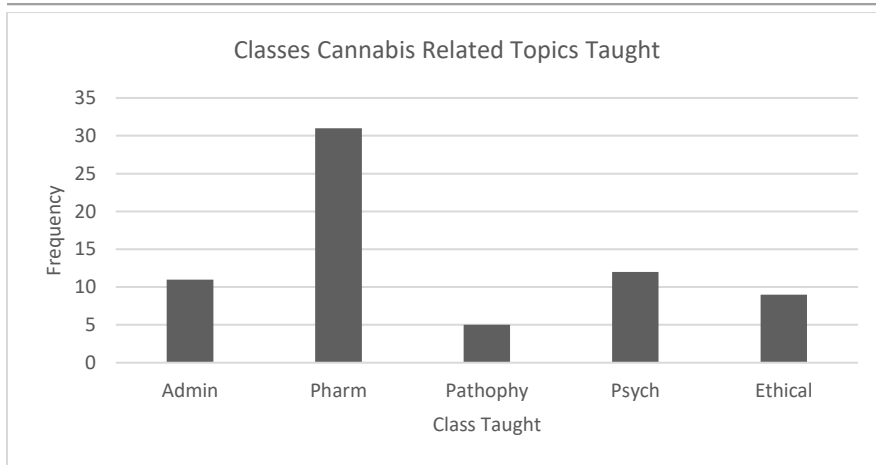


Figure 2. Classes in which cannabis-related topics are taught

Table 3. Most common cannabis-related topics taught in curricula

Topic	Totals (%) n=206**
Medical Marijuana	24 (11.7%)
State or Federal Law	24 (11.7%)
Drug Education/Testing	21 (10.2%)
THC vs. CBD	21 (10.2%)
Side Effects	20 (9.7%)
Recreational Marijuana	19 (9.2%)
Adverse Effects	18 (8.7%)
Ethics	14 (6.8%)
Endocannabinoid System	9 (4.4%)
Healthcare System	9 (4.4%)
Rehabilitation	8 (3.9%)

**DISCUSSION**

The increased prevalence of cannabis availability for both medical and recreational use represents a cultural shift that calls for increased knowledge by all healthcare providers. This requires proper training and education of cannabis and the related topics of health care providers. The negative attitudes against cannabis are decreasing, and cannabis products are increasingly used by the general population to self-treat a variety of conditions.

The education of healthcare practitioners has not kept pace with the prevalence of use.<sup>4,13,14</sup> Some studies indicate that future healthcare professionals are not comfortable nor prepared to discuss the benefits and adverse effects associated with cannabis use with clients and patients.<sup>13</sup> However, acceptance of cannabis use for certain conditions has become more commonly accepted among these same future healthcare professionals. In the current study, only 43 of the 111 educators taught cannabis related topics in their courses and of those 29 had received some type of training. It is incumbent on health professions educators to keep curricula current to meet the changing needs of the population as it is highly likely that healthcare professionals will encounter patients and clients who are using a cannabis-related product

Cannabis related topics are being taught in some healthcare professionals' curricula. Sixty-two percent of pharmacy program are including cannabis related topics in their curricula, and 23% stated that they intend to incorporate it within the next year. The most commonly discussed topics in pharmacy programs included legal aspects, pharmacotherapeutics, and ethics of cannabis.<sup>15</sup> However, in a review of medical schools only 9% reported content on medical marijuana in the curricula and not surprising that 89% of residents and fellows did not feel prepared to prescribe or discuss questions related to cannabis.<sup>14</sup> Another study evaluating AT, occupational therapy, PT, nursing, health services administration, and communication sciences students also reported that 86.6% of respondents had not had cannabis related topics discussed during their education.<sup>13</sup> In the current study, only 38% of the respondents indicated that their program taught cannabis related topics. Most programs reported spending 2 hours or less on the topic, which suggests that students are only getting a snapshot of the issue. The topics most often discussed included information on medical marijuana (11.7%) and legal topics (11.7%). The next most common topics discussed were descriptions and comparisons of the components of tetrahydrocannabinol (THC), cannabidiol (CBD), and terpenes (10.2%). These elements are in cannabis products in varying amounts or are represented in information on drug education and testing (10.2%). Fewer programs teach information about the adverse effects related to THC (9.7%).

Our results suggest that there may be a disconnect between the prevalence of use of cannabis in society and the education of future healthcare professionals, a lack of a standard educational curricular component related to cannabis education, and a lack of standardized training of healthcare educators who teach cannabis-related topics.

Future studies should consider ways to incorporate cannabis related topics into the curriculum to better train our future health care professionals.

### **Clinical Implications**

Based on the findings of this research, we provide a few recommendations to help educators improve curriculum and practice of health care professionals. Data within the current study suggests that most educators are teaching cannabis in a few main areas: legal, ethical, and basic descriptions of cannabis. However, the topic can be discussed in most, if not all, coursework. In fact, trying to weave the content throughout curriculum may best benefit students because they then will receive a variety of topics (rehabilitation planning, patient practitioner interaction) related to cannabis.

It is clear that educators do not have adequate resources or are not incorporating topics related to cannabis into their curriculum. It is unclear if this is due to lack of factual resources or possible biases on the topic. However, as educators and health care providers we do have an obligation to our students and patients to provide the most current information. The best place for faculty to find the most accurate and up to date resources is from state websites, governmental agency, and peer reviewed literature. Furthermore, a standardized training curricula for those who teach this topic is highly recommended in comparison to the existing discrepancies of faculty-led content delivery.

### **Conclusion**

During the past decade there has been an overall increase the prevalence of cannabis use in society with accompanying state legislation affording legal use for both medicinal and recreational purposes. However, there is a disproportionate lag of education, particularly in healthcare curricula that have failed to address the educational needs of those providing care to patients. While it appears as though cannabis-related legislation and research findings will continue to evolve at a rapid pace, there remains a need for standardization of curricula in all healthcare related programs. Furthermore, a standardized education or training for those who teach this topic is highly recommended in comparison to the existing discrepancies of faculty-led content delivery.

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