



## Original article

# Large variability found in musculoskeletal physiotherapy scope of practice throughout WCPT and IFOMPT affiliated countries: An international survey<sup>☆</sup>

Frédéric P. Froment<sup>a,\*</sup>, Kenneth A. Olson<sup>b,c</sup>, Troy L. Hooper<sup>a</sup>, Stephen M. Shaffer<sup>d</sup>, Phillip S. Sizer<sup>a</sup>, Linda J. Woodhouse<sup>e</sup>, Jean-Michel Brismée<sup>a</sup>

<sup>a</sup> Department of Rehabilitation Sciences, School of Health Professions, Texas Tech University Health Sciences Center, Lubbock, TX, USA

<sup>b</sup> Northern Rehab Physical Therapy Specialists, DeKalb, Illinois, USA

<sup>c</sup> International Federation of Orthopaedic Manipulative Physical Therapists, New Zealand

<sup>d</sup> Doctor of Physical Therapy Program, Congdon School of Health Sciences, High Point University, High Point, NC, USA

<sup>e</sup> Department of Physical Therapy, Faculty of Rehabilitation Medicine, University of Alberta, Alberta, Canada

## ARTICLE INFO

## Keywords:

Scope of practice  
Advanced practice physiotherapy  
Physical therapy  
Musculoskeletal

## ABSTRACT

**Background:** Advanced practice physiotherapy (APP) rights are part of the evolution of the Physical Therapy profession. To date, no study has investigated musculoskeletal APP rights within the World Confederation for Physical Therapy (WCPT).

**Objective:** To investigate musculoskeletal APP rights for physical therapists worldwide and examine the relationship between level of education (entry and post-professional) and direct access for countries that are vs. are not members of the International Federation of Orthopaedic Manipulative Physical Therapists (IFOMPT).

**Design:** Cross-sectional study with descriptive and exploratory online surveys.

**Methods:** An electronic survey-based descriptive and exploratory investigation was conducted. We assessed variability between WCPT member organizations descriptively and the strength of the relationships among the number and types of APP rights with: (1) country affiliation to IFOMPT; (2) entry-level professional degree; (3) post-professional training; and (4) direct access.

**Results:** Some countries reported having the right to practice all 20 APP rights while others reported no APP rights. Countries with IFOMPT member organization countries displayed fair correlation ( $r_s = .48$ ,  $p < .03$ ) between entry-level physical therapy degrees and number of APP rights. IFOMPT member organization countries were less likely to require post-professional training for direct access and manipulation.

**Conclusion:** APP rights for countries with direct access were significantly higher than for countries without direct access. IFOMPT member organizations demonstrated higher APP rights prevalence and were less likely to require post-professional training to obtain the right to direct access and perform manipulation.

## 1. Background

Acceptance of the International Federation of Orthopaedic Manipulative Physical Therapists (IFOMPT) as the first clinical speciality subgroup within the World Confederation for Physical Therapy (WCPT) in 1978 was the impetus for the development and standardization of post-professional musculoskeletal training in physical therapy worldwide (IFOMPT website, 2017). IFOMPT's right is to develop, implement and evaluate standards for musculoskeletal physical therapy and advance the physical therapy profession ("Vision", 2017). The

IFOMPT member organizations' educational programs are required to be evaluated every six years to meet and maintain standards of excellence in musculoskeletal physical therapy care. One potential progression of the physical therapy profession relates to advanced practice physiotherapy (APP) (Desmeules et al., 2012), which is defined by WCPT as advanced clinical competence and is described as "the demonstration of knowledge and skills beyond those required for entry to basic professional practice" ("Advanced Clinical Competence", 2017).

Additionally, WCPT supports the right of its member organizations to develop national policies that encourage practice specialization,

<sup>☆</sup> This study protocol was exempted by the Texas Tech University Health Sciences Center Institutional Review Board, Lubbock, Texas, USA.

\* Corresponding author. 13 rue Saint Brice 28000 Chartres, France.

E-mail address: [frederic.froment@iampt.fr](mailto:frederic.froment@iampt.fr) (F.P. Froment).

which benefits the public and the profession by promoting high physical therapy standards (“Policy Statement: Physical Therapist Practice Specialization”, 2017). The WCPT further states that physical therapy scope of practice is dynamic, evolving with changes in the evidence, policy and needs of service users (“Scope of Practice”, 2017). Other designations, such as “extended or advanced practice physiotherapy/physiotherapists” and “extended scope of practice”, are used in the literature to define a practice or practitioners that go beyond the traditional or common model of competencies.

Delayed access to musculoskeletal care (Desmeules et al., 2013), increased waiting lists and a lack of primary care provider availability (Aiken et al., 2008; Durrell, 1996) can lead to challenges maintaining healthcare quality. Variables like these have caused countries such as Australia (Kilner and Sheppard, 2010), Canada (Bath et al., 2015; Gillis et al., 2014), England (Addley et al., 2010; Pearse et al., 2006), the Netherlands (Leemrijse et al., 2008), and some jurisdictions within the United States of America (USA) (Jason, 2017; McCallum and DiAngelis, 2012) to develop advanced practice physiotherapists in attempts to overcome these shortcomings (Desjardins-Charbonneau et al., 2016; Bishop et al., 2017).

Bury and Stokes showed that direct access, or patient self-referral to physical therapists, is a manifestation of professional autonomy. In countries where direct access exists, there was a positive bearing on physical therapists' scope of practice in terms of assessment, diagnosis and referral to medical specialists (Bury and Stokes, 2013). Additionally, a large number of studies investigated the cost-effectiveness, decision-making process, patient/clinician interaction, clinical outcomes and patient satisfaction related to APP rights implementation (Desmeules et al., 2012, 2013; Pearse et al., 2006; Bishop et al., 2017; Fennelly et al., 2017; Boissonnault and Lovely, 2016; Crowell et al., 2016; Riley et al., 2016; de Gruchy et al., 2015; Mintken et al., 2015; Bishop et al., 2015; Fritz et al., 2012; Van Rossen and Withrington, 2012; Stanhope et al., 2012; Morris et al., 2015; Daker-White et al., 1999). These investigations have consistently shown a positive effect of APP rights delivery on healthcare systems. More recently, a systematic review that emphasized physical therapists' decision-making process and patient/clinician interaction reported broad support for physical therapy extended scope practitioners' right with evidence of favorable musculoskeletal care outcomes (Thompson et al., 2017).

However, the boundaries of the APP definition provided by WCPT (“Advanced Clinical Competence”, 2017) remain vague, combining skills (e.g. perform injections, manipulations, ultrasound imaging), knowledge (e.g. triage, diagnose, interpretation of imaging) and system health policy (e.g. direct access or the right to prescribe imaging or communicate a diagnosis) and are currently under review. For example, the right to perform joint manipulations, order imaging or laboratory tests, or perform injections varies between countries (Bury and Stokes, 2013). Thompson et al. identified this issue concerning appropriate keyword selection (Thompson et al., 2017), which has been complicated by the diverse and changing descriptions of the physiotherapy extended scope practitioner in the literature. Few investigations have been completed to depict the emergence of APP rights. For example, only Bury and Stokes (2013) completed an international survey providing a global international view of direct access, including facilitators and barriers.

Finally, information is sparse regarding entry-level or post-professional education requirements to obtain APP rights. Few researchers have surveyed new and existing physical therapy programs in the USA regarding joint manipulation APP curricula (W. Boissonnault, Bryan, and Fox, 2004; Bryan et al., 1997; Noteboom et al., 2015) or the status of diagnostic and procedural imaging curricula within the physical therapy professional degree programs (Boissonnault et al., 2014).

To date, no study has explored in detail musculoskeletal APP rights across countries that are WCPT member organizations. Additionally, no investigations have sought to determine whether membership in IFOMPT, as a subgroup promoting musculoskeletal care quality

(“Vision”, 2017), is associated with variations in scope of practice or if meeting IFOMPT standards of excellence alters the scope of physical therapy practice. Within the musculoskeletal domain and across countries that were WCPT member organizations, this study aimed to investigate: (1) the prevalence of APP rights; (2) the educational level required for entry to practice as physical therapist and to acquire additional APP rights; (3) discrepancies in APP rights prevalence between countries affiliated or not with IFOMPT; and (4) the association between direct access and the other APP rights allowed within WCPT countries.

## 2. Methods

### 2.1. Research design and setting

A cross-sectional study using descriptive and exploratory surveys was constructed using the online Qualtrics® platform. The surveys included closed- and open-ended questions and were electronically distributed with an invitation email requesting participation in this international survey (cover letter signed by the IFOMPT President) to all WCPT and IFOMPT delegates.

### 2.2. Participants

At the time of the survey, WCPT was represented in 111 countries (Michelott, 2018) and IFOMPT encompassed 22 member organizations (“Member Organizations”, 2017) and 13 registered interest groups (“Registered Interest Groups”, 2017). An IFOMPT member organization is defined as a full member when there is at least one educational program within the country that meets IFOMPT standards. The registered interest groups demonstrate an interest in the musculoskeletal domain but do not offer such educational programs. Each country appoints one delegate who serves as liaison and spokesperson for the national organization.

The principal investigator received an email list of IFOMPT delegates from the IFOMPT Executive Director and gathered email contact information from the WCPT website. Two different surveys were sent to the following categories of participants: (1) 35 IFOMPT delegates (member organizations or registered interest groups) completed an IFOMPT survey (Appendix A); and (2) 111 WCPT delegates completed a WCPT survey (Appendix B).

### 2.3. Survey instrument

The surveys were structured as follows: (1) IFOMPT delegates survey: Four descriptive and specific questions for IFOMPT member organizations or registered interest groups, as well as two additional questions common to those addressed to WCPT member organizations in order to triangulate the responses; and (2) WCPT delegates survey: One descriptive and specific question to WCPT member organizations and two additional questions common to those addressed to IFOMPT member organizations or registered interest groups.

The descriptive survey asked questions regarding geographic location, membership status (whether IFOMPT “full member” or registered interest group), the number of members within their nation's group, the number of Orthopaedic Manual Physical Therapist (OMPT) specialists credentialed within the IFOMPT framework or with equivalent certification, the highest educational degree obtainable at entry-level to practice physical therapy, the types of APP rights allowed for each country, and which APP rights required post-professional training. Authors of this study including a representative from IFOMPT with expertise in this research domain provided twenty APP rights investigated for this international survey (Table 1). This list was not exclusive as the responders could add any APP rights that were not included in the survey. In order to enhance the survey validity, the number of physical therapists and OMPT specialists from each country

**Table 1**

Percentages of APP rights allowed in WCPT countries with and without IFOMPT member organization (MO) or registered interest group (RIG), \* indicates significance ( $p < .05$ ).

APP Rights Allowed	WCPT countries % (N)	WCPT countries WITHOUT IFOMPT MO/RIG % (N)	WCPT countries WITH IFOMPT MO % (N)	WCPT countries WITH IFOMPT RIG % (N)
Manipulation	85.0 (68)	80.0 (36)	95.5 (21)	84.6 (11)
Perform dry needling	67.5 (54)	55.6* (25)	81.8* (18)	84.6 (11)
		$p = .04$		
Direct Access	55.0 (44)	44.4* (20)	72.7* (16)	61.5 (8)
		$p = .03$		
Order exemptions for patients' sport activities	53.8 (43)	57.8 (26)	54.5 (12)	38.5 (5)
Perform acupuncture	53.8 (43)	40.0* (18)	68.2* (15)	76.9 (10)
		$p = .03$		
Directly refer patients for surgical consultation to surgeons for surgical procedures	53.8 (43)	55.6 (25)	45.5 (10)	61.5 (8)
Interpret Radiographs (X-rays)	43.8 (35)	48.9 (22)	36.4 (8)	38.5 (5)
Determine return to work status for injured workers	38.8 (31)	42.2 (19)	40.9 (9)	23.1 (3)
Order Radiographs (X-rays)	35.0 (28)	37.8 (17)	40.9 (9)	15.4 (2)
Prescribe dietary supplements	31.3 (25)	33.3 (15)	31.8 (7)	23.1 (3)
Perform and interpret Diagnostic Ultrasound Imaging	30.0 (24)	20.0* (9)	45.5* (10)	38.5 (5)
		$p = .03$		
Order Diagnostic Ultrasound Imaging	27.5 (22)	20.0 (9)	40.9 (8)	38.5 (5)
Interpret advanced imaging such as MRI/CT	25.0 (20)	22.2 (10)	31.8 (7)	23.1 (3)
Order time off from work with paid leave for patients	25.0 (20)	28.9 (13)	31.8 (7)	0 (0)
Order nerve conduction studies	22.5 (18)	20.0 (9)	13.6 (3)	23.1 (6)
Order advanced imaging such as Magnetic Resonance Imaging (MRI)/Computed Tomography (CT)	20.0 (16)	17.8 (8)	27.3 (6)	15.4 (2)
Order pathology laboratory tests (blood tests)	16.3 (13)	11.1 (5)	22.7 (5)	23.1 (3)
Perform injections of medications into joints, soft tissues	11.3 (9)	6.7* (3)	27.3* (6)	0 (0)
		$p = .05$		
Independently prescribe medications with limitations	8.8 (7)	11.1 (5)	4.5 (1)	7.7 (1)
Independently prescribe medications without limitations	2.5 (2)	2.2 (1)	4.5 (1)	0 (0)

was gathered from the WCPT and IFOMPT websites to triangulate survey responses.

A cover letter introduced each survey, explained the project's goals, provided a dedicated email address for obtaining assistance and indicated the date by which the survey response was due. Moreover, definitions for selected APP rights such as “direct access” and “manipulation” were provided to minimize potential ambiguity (Appendix A). Finally, the Texas Tech University Health Sciences Center Institutional Review Board acknowledged and exempted this research project as not requiring full review.

To examine content validity requirements and the clarity of each question, the survey was piloted using five selected international reviewers for understanding and the length of time to complete the survey. To improve the web survey's quality, the principal investigator used the Checklist for Reporting Results of Internet E-Surveys (CHERRIES) (Eysenbach, 2004).

#### 2.4. Timeline

At the end of October 2017, the appropriate letter (WCPT or IFOMPT) with a link to the online survey was emailed to respective delegates, asking them to complete and return the survey by the end of December 2017. To enhance the response rate, four reminders were sent with iterative updated delegates lists taking into account bounced emails. The surveys were closed at the end of January 2018.

### 3. Data analysis

Descriptive statistics as mean, median, range, frequency counts and percentages were used to describe data and assess variability between groups (i.e. across countries that were IFOMPT member organizations or registered interest groups and those that were neither member organizations nor registered interest groups of IFOMPT) regarding APP rights, highest educational degrees (4° options) obtainable upon completion of an entry-level education program to practice physical therapy and post-professional training needed to practice APP rights.

Inferential analyses were completed using: (1) *Spearman rank correlation coefficient* to examine the relationship between highest entry-to-practice educational degree obtainable (4° options) and the number of APP rights that were within entry-to-practice physical therapy scope of practice; (2) *Pearson Chi-Square* and *Fisher's Exact tests* to compare each APP type for countries that were IFOMPT member organizations versus those that were not IFOMPT affiliated. These statistical tests were used to compare APP rights prevalence, APP rights that did not require post-professional training between countries affiliated or not affiliated with IFOMPT and to examine associations between direct access and the other APP rights allowed; (3) *Point biserial correlation coefficient* was used to correlate whether direct access and the total number of APP rights allowed in the respective WCPT member organizations; (4) *Mann-Whitney U test* to determine if there were differences for the number of APP rights between countries with direct access and those without direct access; and finally (5) *Phi coefficient* to determine the strength of the association between direct access and the other APP rights allowed.

Excel software (Microsoft® Corp 2013, Redmond, Washington) was utilized for the descriptive statistics and SPSS software (IBM® Corp. Released 2013. IBM SPSS Statistics for Macintosh, Version 22.0. Armonk, NY: IBM® Corp.) to conduct the inferential statistical analyses. The alpha level for significance was set at 0.05.

## 4. Results

### 4.1. Survey response rate

The overall survey response rate was 72.1% (80 countries) for all WCPT countries, with 59.2% responding (45 countries) for countries that were not IFOMPT affiliated and 100% responding (22 IFOMPT member organizations and 13 IFOMPT registered interest groups) for those that were IFOMPT affiliated.

#### 4.2. APP rights allowed

Summary responses to the survey for APP rights allowed in each responding WCPT country are provided in Table 1. The three most frequently allowed APP rights among the 20 listed in the survey for all WCPT member organizations were: (1) manipulation (85.0%), (2) perform dry needling (67.5%), and (3) direct access (55.0%). The five APP rights that had statistically significant higher prevalence in countries that were IFOMPT member organizations versus those that were not affiliated with IFOMPT, respectively, included: (1) direct access 72.7% versus 44.4% ( $p = .03$ ), (2) right to perform dry needling 81.8% versus 55.6% ( $p = .04$ ), (3) right to perform acupuncture 68.2% versus 40.0% ( $p = .03$ ), (4) right to perform and interpret diagnostic ultrasound imaging 45.5% versus 20.0% ( $p = .03$ ), and (5) right to perform injections of medications into joints, soft tissues 27.3% versus 6.7% ( $p = .02$ ). The average number of APP rights for countries that were IFOMPT member organizations, registered interest groups and those that were not affiliated with IFOMPT was 8.14 (median = 7.00), 7.00 (median = 6) and 6.56 (median = 6), respectively. There was no correlation between IFOMPT status (IFOMPT member or not) and the number of APP rights allowed in that country.

#### 4.3. Educational requirements and APP rights allowed

The highest degree (of 4 possible degrees) required for entry-level to physical therapy practice and the number of APP rights allowed for each WCPT member organization are reported in Table 2. A Clinical (Professional) Doctoral Degree was the highest degree obtained for physical therapists in the United States of America (an IFOMPT member). A large majority of countries (76.3%) reported that a bachelor's degree was required for entry-to-practice physical therapy. Additionally, 13.6% of IFOMPT member organization countries required physical therapy entry-to-practice degrees beyond the bachelor's degree versus 6.6% for countries that were not IFOMPT affiliated. The details are provided in Table 3.

From the data collected and reported in Table 2, the average number of APP rights allowed that were designated as entry-to-practice skills (i.e. that did not require post-professional training) was 3.50 (median = 2.50), 3.31 (median = 2.00) and 2.8 (median = 1.00) for countries that were IFOMPT member organizations, registered interest groups and not IFOMPT affiliated, respectively. There was a fair significant correlation ( $r_s = 0.48$ ,  $p = .03$ ) between the highest physical therapist professional educational degrees required for entry-to-practice physical therapy and the number of APP rights allowed for countries that had IFOMPT member organizations. There was no significant correlation between entry-to-practice degree required and the number of APP rights allowed for the other WCPT member organizations.

APP rights allowed across all countries, either requiring or not requiring post-professional training, are reported in Table 4. Two APP rights showed a significant difference and were less likely to require post-professional training for countries that were affiliated with IFOMPT versus those not affiliated with IFOMPT: (1) direct access post-professional training requirement prevalence of 4.2% versus 35% ( $p = .02$ ); and (2) manipulation post-professional training prevalence of 37.5% versus 63.9% ( $p = .03$ ).

#### 4.4. Correlations between direct access and number of APP rights

First, we assessed homoscedasticity and normality of distribution for the number of APP rights. There was homogeneity of variances ( $p > .24$ ) and normality ( $p > .08$ ) for the number of APP rights with direct access versus without direct access for countries that had IFOMPT member organizations and those that were not IFOMPT affiliated. There was moderate positive correlation between direct access and the number of APP rights allowed for all WCPT member organizations ( $r_{pb} > .50$ ,  $p \leq .001$ ). Additionally, distributions of the APP

**Table 2**

Number of APP rights allowed with or without special post-professional training by country arranged in order from highest to lowest APP rights allowed (IFOMPT Status: “MO = member organization” or “RIG = registered interest group”. Entry-level physical therapy education: “PB” = certification prior bachelor degree; “B” = Bachelor; “M” = Master; and “D” = Doctorate).

WCPT Country	# APP	# APP with Special Training	# APP without Special Training	Entry-Level PT Education	IFOMPT Status
Bangladesh	20	10	10	B	
United Kingdom	20	16	4	B	MO
Norway	17	17	0	B	MO
Colombia	16	8	8	PB	RIG
Pakistan	16	13	3	B	
Macau	15	0	15	B	
Australia	15	4	11	B	MO
Spain	15	5	10	B	MO
Singapore	14	0	14	M	
Brazil	13	2	11	B	RIG
New Zealand	13	2	11	B	MO
United States	12	2	10	D	MO
Argentina	11	2	9	B	
Zambia	11	4	7	M	
Canada	11	8	3	M	MO
Cyprus	11	9	2	B	RIG
Mexico	11	11	0	B	
South Africa	10	4	6	PB	MO
Zimbabwe	10	6	4	B	
Sri Lanka	10	9	1	B	
Rwanda	10	10	0	B	
Tanzania	9	1	8	M	
Benin	9	6	3	B	
Ireland	9	6	3	B	MO
Malaysia	9	6	3	B	
Israel	9	8	1	PB	
Niger	9	8	1	B	
Belgium	9	9	0	PB	MO
Ghana	8	0	8	B	
United Arab Emirates	8	0	8	B	RIG
Barbados	8	4	4	B	
Chile	8	6	2	B	RIG
Sweden	8	7	1	B	MO
Taiwan	8	7	1	B	
Namibia	7	0	7	B	
Bermuda	7	3	4	B	
Guyana	7	6	1	B	
Philippines	7	7	0	B	MO
Lebanon	6	0	6	PB	
Malawi	6	1	5	B	
Iceland	6	2	4	B	RIG
Denmark	6	3	3	M	MO
Finland	6	4	2	B	MO
Afghanistan	6	5	1	B	
Malta	6	5	1	B	
Montenegro	6	6	0	PB	
Thailand	6	6	0	B	
Hong Kong	5	2	3	B	MO
Netherlands	5	3	2	B	MO
Portugal	5	3	2	B	MO
Bahamas	5	5	0	B	
Egypt	5	5	0	B	RIG
Estonia	5	5	0	B	
Switzerland	5	5	0	B	MO
Italy	4	0	4	M	MO
Poland	4	2	2	B	RIG
France	4	3	1	B	RIG
Hungary	4	3	1	M	RIG
Puerto Rico	4	4	0	M	
Uruguay	4	4	0	B	
Cambodia	3	1	2	PB	
Korea (South)	3	1	2	B	
Iran	3	2	1	B	
Liechtenstein	3	3	0	B	

(continued on next page)

**Table 2** (continued)

WCPT Country	# APP	# APP with Special Training	# APP without Special Training	Entry-Level PT Education	IFOMPT Status
Trinidad and Tobago	3	3	0	B	
Greece	2	0	2	B	
Serbia	2	0	2	B	
Slovenia	2	0	2	B	
Czech Republic	2	1	1	B	
Luxembourg	2	1	1	B	
Saudi Arabia	2	1	1	B	
Suriname	2	1	1	M	
Austria	1	1	0	B	MO
Japan	1	1	0	PB	MO
Slovakia	1	1	0	B	
Germany	0	0	0	PB	MO
Guatemala	0	0	0	PB	
Jordan	0	0	0	B	
Lithuania	0	0	0	B	
Sudan	0	0	0	B	

rights number between countries with direct access and those without direct access were not similar, as assessed by visual inspection (Fig. 1). The mean number of APP rights was 4.44 (median 4) in countries without direct access and 9.20 (median 9) in countries with direct access. The number of APP rights for countries with direct access (mean rank = 27.64) were significantly higher than for countries without direct access (mean rank = 51.02,  $U = 329$ ,  $z = -4.489$ ,  $p \leq .001$ ).

The six APP rights that displayed fair to moderate association with direct access for countries that were not IFOMPT affiliated included: (1) manipulation,  $\phi = 0.34$ ,  $p = .02$ ; (2) order radiographs imaging,  $\phi = 0.50$ ,  $p = .001$ ; (3) order laboratory tests,  $\phi = 0.40$ ,  $p = .01$ ; (4) order time off,  $\phi = 0.32$ ,  $p = .03$ ; (5) order exemption sport activities,  $\phi = 0.40$ ,  $p = .01$ ; and (6) able to make direct referral of patients for surgical consultation,  $\phi = 0.44$ ,  $p = .01$ . Only three APP rights were weakly to moderately associated with direct access for the countries that had IFOMPT member organizations: (1) order radiographs imaging,  $\phi = 0.51$ ,  $p = .02$ ; (2) order diagnostic ultrasound,  $\phi = 0.46$ ,  $p = .03$ ; and (3) perform dry needling,  $\phi = 0.51$ ,  $p = .02$ .

**5. Discussion**

This is the first study to explore and evaluate the relationship between entry-to-practice and post-professional levels of education with the scope of practice rights allowed in a large number of WCPT member organizations that are/are not affiliated with IFOMPT. The WCPT definition of advanced clinical competence renders comparisons of APP rights between countries elusive as it does not consider that: (1) entry-to-practice educational requirements differ across the countries, (2) educational models and thus interpretation of degrees varies as there is no accepted international-standard for classifying education degrees (Statistics, 2012) (e.g. physical therapists in select countries earn “state diplomas” without an academic degrees), and (3) there are differences in the stage of healthcare systems development and legislative governance of healthcare.

**Table 3**  
Percentage of highest entry-level physical therapy degrees in WCPT countries.

Highest PT Educational Entry-Level Degrees	Certification prior to a Bachelor's Degree (N)	Bachelor's Degree (N)	Master's Degree(N)	Clinical (Professional)Doctorate Degree (N)
WCPT MOs	12.5 (10)	76.3 (61)	10 (8)	1.2 (1)
Countries without IFOMPT MO/RIG	15.6 (7)	77.8 (35)	6.6 (3)	0 (0)
Countries with IFOMPT MO	9.1 (2)	77.3 (17)	9.1 (2)	4.5 (1)
Countries with IFOMPT RIG	7.7 (1)	69.2 (9)	23.1 (3)	0 (0)

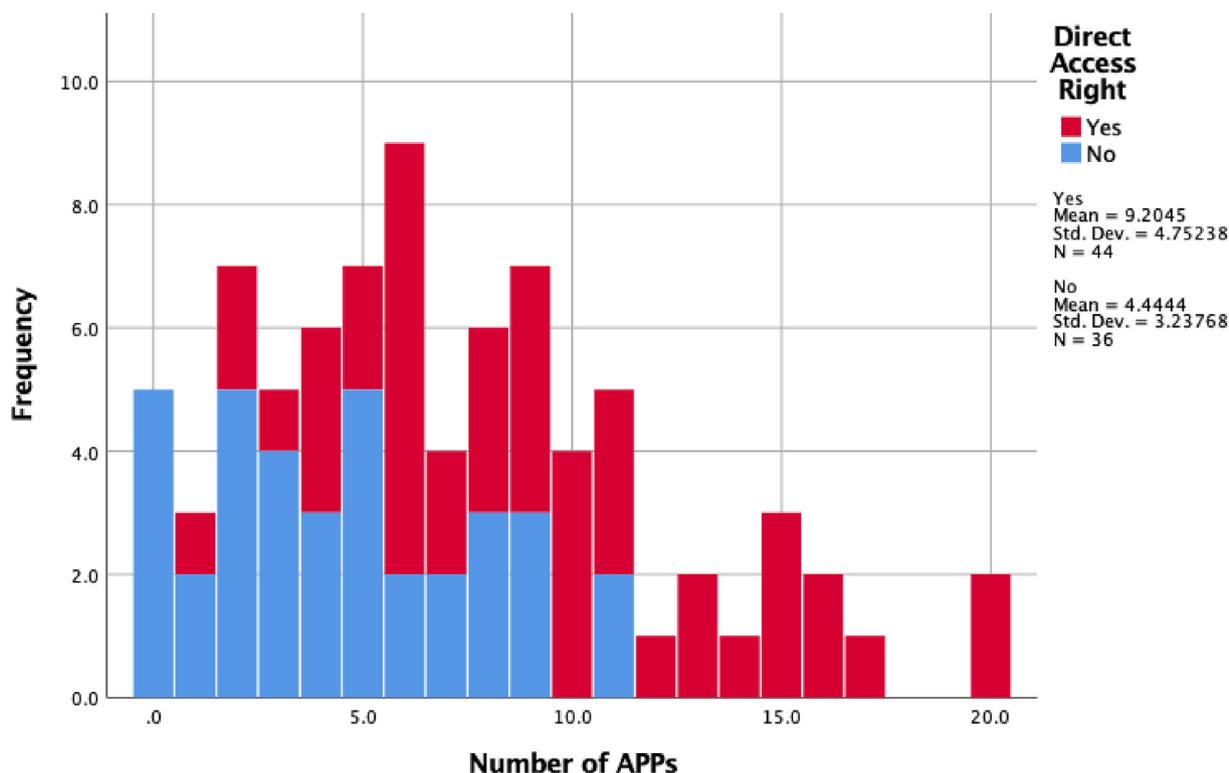
To overcome these obstacles, we considered each APP right based on its presence in at least one country in order to take into account the disparity between entry-level physical therapy educational degrees. Although there was a positive correlation between the entry-level physical therapy education and number of APP rights allowed for countries with IFOMPT member organizations, WCPT member organizations without IFOMPT affiliations displayed no such correlation. Additionally, the number of APP rights allowed was not correlated with an affiliation to IFOMPT. For example, some non-affiliated countries such as Bangladesh, Pakistan and Macau reported a high number of APP rights while select affiliated countries such as Austria, Japan and Germany reported either very low or no APP rights. These results suggest that factors other than entry-level physical therapy education, such as a lack of skilled healthcare practitioners in some musculoskeletal areas and societal needs (Aiken et al., 2008; Desmeules et al., 2013; Durrell, 1996), are likely driving decisions about advancing physical therapy scope of practice. For instance, the greatest disparity in physical therapy rights was the difference in ability to perform joint and soft tissue injections with a ratio of 1:4 in favor of countries with IFOMPT member organizations. In most countries, joint injections are performed under a medical directive from physicians who enable advanced practice physiotherapists to perform this task by transferring their designated authority to do so, which is similar to task reallocation for advanced practice nurses and nurse practitioners (Niezen and Mathijssen, 2014). However, such APP rights could remain restricted and beyond the post-professional training requirements, as it can be performed only under medical supervision in selected countries/jurisdictions (“Physical Therapy Board of California”, 2018). Further studies are warranted to evaluate which factors are barriers and/or facilitators of advances in physical therapy scope of practice.

Considering such advances in physical therapy scope of practice, physical therapists could assume major rights in the management of specific conditions when they practice in interprofessional settings, such as emergency departments or in collaboration with physician specialists (de Gruchy et al., 2015). Multidisciplinary teams allow sharing the different professions' skills into a unified entity that works toward a common goal, demonstrating that a more advanced physical therapy scope of practice does not conflict with other professions but instead creates a synergy to improve quality of care (Morphet et al., 2016) and decrease healthcare costs (Standfield et al., 2016).

The WCPT claims physical therapists are autonomous professionals and encourages its member organizations to support and work towards acquiring direct access (“Policy Statement: Autonomy”, n.d.). A systematic review showed that direct access for physical therapists is valuable for quality of care and cost savings (Ojha et al., 2014). Barriers and facilitators to direct access were investigated by Bury and Stokes (2013) with an international survey through WCPT member organizations in 2010. The authors reported that direct access had a positive bearing on physical therapists' scope of practice in terms of assessment, diagnosis and referral to specialists. Regarding the prevalence of direct access, the results of our study (55%) are consistent with both a statement made on the WCPT website (59%) (“WCPT Launches New Infographics Profiling the Profession Globally”, n.d.) and the results reported by Bury and Stokes (58%) in 2013 (Bury and Stokes, 2013). Our study adds new insights by identifying differences associated with organization affiliation and by showing that countries with IFOMPT

**Table 4**  
Percentages and number of APP rights (Yes/No) in WCPT countries with or without post-professional training.

Advanced Practice Physiotherapy Rights	No % (N)	Yes, with special/advanced training % (N)	Yes, without special/advanced training % (N)
Direct Access	45 (36)	10 (8)	45 (36)
Manipulation	15 (12)	43.8 (35)	41.2 (33)
Order Radiographs (X-rays)	65 (52)	16.2 (13)	18.8 (15)
Interpret Radiographs (X-rays)	56.3 (45)	22.5 (18)	21.3 (17)
Order advanced imaging such as Magnetic Resonance Imaging (MRI)/Computed Tomography (CT)	80 (64)	7.5 (6)	12.5 (10)
Interpret advanced imaging such as MRI/CT	75 (60)	17.5 (14)	7.5 (6)
Order Diagnostic Ultrasound Imaging	72.5 (68)	15 (12)	12.5 (10)
Perform and interpret Diagnostic Ultrasound Imaging	70 (56)	25 (20)	5 (4)
Order pathology laboratory tests (blood tests)	83.8 (67)	11.25 (9)	5 (4)
Order nerve conduction studies	77.5 (62)	15 (12)	7.5 (6)
Order time off from work with paid leave for patients	75 (60)	12.5 (10)	12.5 (10)
Determine return to work status for injured workers	61.3 (49)	22.5 (18)	16.2 (13)
Order exemptions for patients' sport activities	46.3 (37)	28.7 (23)	25 (20)
Perform dry needling	32.5 (26)	52.5 (42)	15 (12)
Perform acupuncture	46.3 (37)	41.2 (33)	12.5 (10)
Perform injections of medications into joints, soft tissues	88.8 (71)	11.2 (9)	0 (0)
Independently prescribe medications with certain limitations	91.3 (73)	6.2 (5)	2.5 (2)
Independently prescribe medications without certain limitations	97.4 (78)	1.3 (1)	1.3 (1)
Prescribe dietary supplements	68.8 (55)	17.5 (14)	13.7 (11)
Directly refer patients for surgical procedures	46.3 (37)	21.3 (17)	32.4 (26)



**Fig. 1.** Histogram of APP rights numbers by direct access right.

member organizations were more likely to have direct access to physical therapy compared to countries that did not have IFOMPT member organizations/registered interest groups. Furthermore, this investigation demonstrates that direct access is moderately correlated with the number of APP rights allowed for all WCPT member organizations and the right to practice other APP rights.

Associations between direct access and the type of APP rights allowed were different for countries that had IFOMPT member organizations versus those that did not. Direct access in countries affiliated with IFOMPT was more associated with APP rights related to their specialization and practice in the musculoskeletal domain such as ordering ultrasound and performing dry needling. The countries not

affiliated with IFOMPT presented additional APP rights that were more associated with physical therapists involved in patient triage. Such rights included the ability to order radiographs, laboratory tests, give patients time off work, or exemption from sports activities and to refer directly to a specialist (e.g. orthopaedic surgeon for surgical consultation) and less related to specialized physical therapy practice (especially treatment) in the musculoskeletal domain. These later types of APP rights are specific for triage and helpful to alleviate potential general practitioner workload and might be best suited to specific country healthcare system necessities to meet societal needs. Additionally, direct access seems to facilitate a broader scope of practice with higher number of APP rights allowed for these countries.

Finally, we can argue that direct access is a particular and multifactorial APP rights that may strengthen specialization practice but is influenced by the healthcare system context.

## 6. Limitations

A limitation of this study is that the status of APP rights may be heterogenous within a country/jurisdiction. However, this study was designed to investigate scope of practice tendencies between nations on a worldwide scale as opposed to within national borders. Moreover, this investigation was survey-based and therefore relied upon the accuracy of reports made by delegates, which may have been flawed in some instances. The triangulation process of answers between WCPT member organizations and IFOMPT member organizations/registered interest groups and website information was designed to maximize the survey accuracy.

## 7. Conclusion

Developing an advanced scope of practice is crucial for the expansion of autonomy for the physical therapy profession (Sandstrom, 2007). Our study serves as a foundation for future research aimed at evaluating the mechanisms regulating physical therapy scope of practice enhancements. Only countries with IFOMPT member organizations showed a correlation between entry-level physical therapy education program degree and the number of APP rights suggesting that the number of APP rights allowed for each country is a multifactorial process. Countries with IFOMPT member organizations were less likely to require post-professional training for direct access and manipulation APP rights. We hypothesize that implementing the educational standards that are required to create IFOMPT member organizations and the influence of the presence of musculoskeletal physical therapy specialists who graduate from IFOMPT-approved programs in these countries may play a role in these findings.

Direct access was correlated with a broader scope of practice and

countries with direct access had more than twice as many APP rights. Direct access prevalence worldwide has not evolved further since 2010. Further investigations should be completed to assess the reasons for this stagnation. We demonstrated that direct access was more prevalent in IFOMPT member organization countries. Therefore, IFOMPT affiliation may be valuable to acquire this APP right.

Finally, advanced scope of practice should not be reduced to the number of APP rights alone. Advanced scope of practice is complex to characterize and further research to classify and thoroughly explain APP rights acquisition is warranted as well as investigations to determine how such changes can benefit patients, healthcare systems and society as a whole.

## Conflicts of interest

The authors declare that there is no conflict of interest.

## Ethical approval

This study was exempted by the TTUHSC IRB.

## Funding

The authors affirm that they have no financial affiliation (including research funding) or involvement with any commercial organization that has a direct financial interest in any matter included in this manuscript.

## Acknowledgements

The authors would like to thank the WCPT and IFOMPT Executive Committees for their support of this project. The authors are also grateful to Mr. Donnie Ramos from the Texas Tech University Health Sciences Center IT Department for his assistance with using the Qualtrics® platform.

## Appendix A. Survey for the IFOMPT member organizations & registered interest groups (all member organizations & registered interest groups delegates)

### DESCRIPTIVE SURVEY

1. Which country/jurisdiction do you represent within International Federation of Orthopaedic Manipulative Physical therapists (IFOMPT)?
  - Australia (MO & RIG)
  - Austria
  - Brazil
  - Belgium
  - Canada
  - Chile (RIG)
  - Colombia (RIG)
  - Cyprus
  - Denmark
  - Egypt (RIG)
  - Finland
  - France (RIG)
  - Germany
  - Greece
  - Hong Kong
  - Hungary (RIG)
  - Ireland
  - Iceland (RIG)
  - Italy
  - Japan
  - Korea (2 RIG)
  - New Zealand
  - Norway
  - Philippines (RIG)

- Poland (RIG)
  - Portugal
  - Slovenia (RIG)
  - South Africa
  - Spain
  - Sweden
  - Switzerland
  - The Netherlands
  - Turkey (RIG)
  - United Kingdom
  - United States
2. Do you represent a Member Organization (MO) or a Registered Interest Group (RIG)?
- MO
  - RIG
3. In your country/jurisdiction, how many Orthopaedic Manual Physical Therapy (OMPT) specialists or the equivalent certifications are members of your MO/RIG of IFOMPT?
4. In your country/jurisdiction, how many physical therapists are members of your MO/RIG of IFOMPT?
5. What is the highest entry-level degree that Physical Therapists earn to enter the physical therapy profession in your country/jurisdiction? (If some disparities exist in your country between states or provinces, please indicate the highest level).
- Certification prior to a Bachelor's Degree
  - Bachelor's Degree
  - Master's Degree
  - Clinical (Professional) Doctorate
6. Upon completion of your entry-level physical therapy education in your country/jurisdiction, which of the following **advanced practice physiotherapy (APP)** items are allowed for Orthopaedic Manual Physical Therapy (OMPT) specialists or equivalent certifications and under which conditions? Please select all that apply and for that advanced practice physiotherapy requiring some **advanced training/certification**, indicate the approximate **minimum number of hours required to acquire these APP privileges**.

Advanced practice physiotherapy	No (OMPT specialists do not have this privilege in our country)	Yes, even in certain settings and conditions and/or in certain jurisdictions/provinces with special/advanced training	Yes, even in certain settings and conditions and/or in certain jurisdictions/provinces without special/advanced training	What is the approximate minimum number of hours of advanced training/certification required to acquire each APP	Check the box if OMPT specialists obtain a certification after completion of the training
Direct Access (physical therapy services is a term used to describe a clinical situation when patients can directly access the services of a physical therapist without the requirement of first visiting a physician to obtain a referral or prescription for physical therapy)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Manipulation (passive, high velocity, low amplitude thrust applied to a joint complex within its anatomical limit with the intent to restore optimal motion, function, and/or to reduce pain)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Order Radiographs (X-rays)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Interpret Radiographs (X-rays)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Order advanced imaging such as Magnetic Resonance Imaging (MRI)/Computed Tomography (CT)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>

Interpret advanced imaging such as MRI/CT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Order Diagnostic Ultrasound Imaging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Perform and interpret Diagnostic Ultrasound Imaging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Order pathology laboratory tests (blood tests)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Order nerve conduction studies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Order time off from work with paid leave for patients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>

Determine return to work status for injured workers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Order exemptions for patients' sport activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Perform dry needling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Perform acupuncture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Perform injections of medications into joints, soft tissues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Independently prescribe medications with certain limitations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Independently prescribe medications without certain limitations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>

Prescribe dietary supplements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Directly refer patients for surgical procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Other (please explain)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>

**Appendix B. Survey for the WCPT member organizations (all WCPT delegates)**

*DESCRIPTIVE SURVEY*

1. Which country/jurisdiction do you represent within World Confederation for Physical Therapy (WCPT)

- Estonia
- Fiji
- Finland
- France
- Germany

- Ghana
- Greece
- Guatemala
- Guyana
- Hong Kong
- Hungary
- Iceland
- Indonesia
- Iran
- Ireland
- Israel
- Italy
- Jamaica
- Japan
- Jordan
- Kenya
- Korea (South)
- Kuwait
- Latvia
- Lebanon
- Liechtenstein
- Lithuania
- Luxembourg
- Macau
- Malawi
- Malaysia
- Malta
- Mauritius
- Mexico
- Mongolia
- Montenegro
- Myanmar
- Namibia
- Nepal
- Netherlands
- New Zealand
- Niger
- Nigeria
- Norway
- Pakistan
- Panama
- Peru
- Philippines
- Poland
- Portugal
- Puerto Rico
- Romania
- Rwanda
- Saudi Arabia
- Serbia
- Singapore
- Slovakia
- Slovenia
- South Africa
- Spain
- Sri Lanka
- St Lucia
- Sudan
- Suriname
- Swaziland
- Sweden
- Switzerland
- Syria
- Taiwan
- Tanzania
- Thailand

- Togo
- Trinidad and Tobago
- Turkey
- Uganda
- Ukraine
- United Arab Emirates
- United Kingdom
- United States
- Uruguay
- Venezuela
- Zambia
- Zimbabwe
- Macau
- Malawi
- Malaysia
- Malta
- Mauritius
- Mexico
- Mongolia
- Montenegro
- Myanmar
- Namibia
- Nepal
- Netherlands
- New Zealand
- Niger
- Nigeria
- Norway
- Pakistan
- Panama
- Peru
- Philippines
- Poland
- Portugal
- Puerto Rico
- Romania
- Rwanda
- Saudi Arabia
- Serbia
- Singapore
- Slovakia
- Slovenia
- South Africa
- Spain
- Sri Lanka
- St Lucia
- Sudan
- Suriname
- Swaziland
- Sweden
- Switzerland
- Syria
- Taiwan
- Tanzania
- Thailand
- Togo
- Trinidad and Tobago
- Turkey
- Uganda
- Ukraine
- United Arab Emirates
- United Kingdom
- United States
- Uruguay
- Venezuela
- Zambia

- Zimbabwe
- Slovakia
- Slovenia
- South Africa
- Spain
- Sri Lanka
- St Lucia
- Sudan
- Suriname
- Swaziland
- Sweden
- Switzerland
- Syria
- Taiwan
- Tanzania
- Thailand
- Togo
- Trinidad and Tobago
- Turkey
- Uganda
- Ukraine
- United Arab Emirates
- United Kingdom
- United States
- Uruguay
- Venezuela
- Zambia
- Zimbabwe
- Zambia
- Zimbabwe
- Afghanistan
- Albania
- Argentina
- Australia
- Austria
- Bahamas
- Bahrain
- Bangladesh
- Barbados
- Belgium
- Benin
- Bermuda
- Bolivia
- Bosnia and Herzegovina
- Brazil
- Bulgaria
- Cambodia
- Canada
- Chile
- Colombia
- Congo (Democratic Republic)
- Croatia
- Curaçao
- Cyprus
- Czech Republic
- Denmark
- Ecuador
- Egypt
- Estonia
- Fiji
- Finland
- France
- Germany
- Ghana
- Greece
- Guatemala

- Guyana
- Hong Kong
- Hungary
- Iceland
- Indonesia
- Iran
- Ireland
- Israel
- Italy
- Jamaica
- Japan
- Jordan
- Kenya
- Korea (South)
- Kuwait
- Latvia
- Lebanon
- Liechtenstein
- Lithuania
- Luxembourg
- Macau
- Malawi
- Malaysia
- Malta
- Mauritius
- Mexico
- Mongolia
- Montenegro
- Myanmar
- Namibia
- Nepal
- Netherlands
- New Zealand
- Niger
- Nigeria
- Norway
- Pakistan
- Panama
- Peru
- Philippines
- Poland
- Portugal
- Puerto Rico
- Romania
- Rwanda
- Saudi Arabia
- Serbia
- Singapore
- Slovakia
- Slovenia
- South Africa
- Spain
- Sri Lanka
- St Lucia
- Sudan
- Suriname
- Swaziland
- Sweden
- Switzerland
- Syria
- Taiwan
- Tanzania
- Thailand
- Togo
- Trinidad and Tobago
- Turkey

- Uganda
  - Ukraine
  - United Arab Emirates
  - United Kingdom
  - United States
  - Uruguay
  - Venezuela
  - Zambia
  - Zimbabwe
2. What is the highest entry-level degree that Physical Therapists earn to enter the physical therapy profession in your country/jurisdiction? (If some disparities exist in your country between states or provinces, please indicate the highest level).
- Certification prior to a Bachelor's Degree
  - Bachelor's Degree
  - Master's Degree
  - Clinical (Professional) Doctorate
3. Upon completion of your entry-level physical therapy education in your country/jurisdiction, which of the following **advanced practice physiotherapy (APP)** are allowed for Orthopaedic Manual Physical Therapy (OMPT) specialists or equivalent certifications and under which conditions? Please select all that apply and for that advanced practice physiotherapy requiring some **advanced training/certification**, indicate the approximate **minimum number of hours required to acquire these APP privileges**.

<b>Advanced practice physiotherapy</b>	No (OMPT specialists do not have this privilege in our country)	Yes, even in certain settings and conditions and/or in certain jurisdictions/provinces with special/advanced training	Yes, even in certain settings and conditions and/or in certain jurisdictions/provinces without special/advanced training	What is the approximate minimum number of hours of advanced training/certification required to acquire each APP	Check the box if OMPT specialists obtain a certification after completion of the training?
Direct Access (physical therapy services is a term used to describe a clinical situation when patients can directly access the services of a physical therapist without the requirement of first visiting a physician to obtain a referral or prescription for physical therapy)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Manipulation (passive, high velocity, low amplitude thrust applied to a joint complex within its anatomical limit with the intent to restore optimal motion, function, and/or to reduce pain)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Order Radiographs (X-rays)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Interpret Radiographs (X-rays)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Order advanced imaging such as Magnetic Resonance Imaging (MRI)/Computed Tomography (CT)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>

Interpret advanced imaging such as MRI/CT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Order Diagnostic Ultrasound Imaging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Perform and interpret Diagnostic Ultrasound Imaging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Order pathology laboratory tests (blood tests)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Order nerve conduction studies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Order time off from work with paid leave for patients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>

Determine return to work status for injured workers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Order exemptions for patients' sport activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Perform dry needling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Perform acupuncture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Perform injections of medications into joints, soft tissues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Independently prescribe medications with certain limitations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Independently prescribe medications without certain limitations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>

Prescribe dietary supplements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Directly refer patients for surgical procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>
Other (please explain)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	...	<input type="checkbox"/>

**References**

Advanced Clinical Competence | World Confederation for Physical Therapy. WCPT Website, Advanced Clinical Competence. 2017. <http://www.wcpt.org/node/47691>.  
 Addley, K., Burke, C., McQuillan, P., 2010. Impact of a direct access occupational physiotherapy treatment service. *Occup. Med. (Oxf. Engl.)* 60 (8), 651–653. <https://doi.org/10.1093/occmed/kqq160>.

Aiken, Alice B., Harrison, Mark M., Atkinson, Marg, Hope, John, 2008. Easing the burden for joint replacement wait times: the role of the expanded practice physiotherapist. *Healthcare Q. (Toronto, Ont.)* 11 (2), 62–66.  
 Bath, Brenna, Gabrush, Jeffery, Fritzier, Rachel, Dickson, Nathan, Bisaro, Derek, Bryan, Kyla, Shah, Tayyab I., 2015. Mapping the physiotherapy profession in saskatchewan: examining rural versus urban practice patterns. *Physiother. Can. Physiother. Can.* 67 (3), 221–231. <https://doi.org/10.3138/ptc.2014-53>.  
 Bishop, Annette, Tooth, Stephanie, Protheroe, Joanne, Salisbury, Chris, Ogollah, Reuben

- O., Jowett, Sue, Hay, Elaine M., Foster, Nadine E., STEMS study team, 2015. A pilot cluster randomised controlled trial to investigate the addition of direct access to physiotherapy to usual GP-led primary care for adults with musculoskeletal pain: the STEMS pilot trial protocol (ISRCTN23378642). *Pilot Feasibility Stud.* 1, 26. <https://doi.org/10.1186/s40814-015-0020-4>.
- Bishop, Annette, Reuben, O., Ogollah, Sue, Jowett, Jesse, Kigozi, Stephanie, Tooth, Joanne, Protheroe, Elaine, M. Hay, Chris, Salisbury, Foster, Nadine E., the STEMS study team, 2017. STEMS pilot trial: a pilot cluster randomised controlled trial to investigate the addition of patient direct access to physiotherapy to usual GP-led primary care for adults with musculoskeletal pain. *BMJ Open* 7 (3), e012987. <https://doi.org/10.1136/bmjopen-2016-012987>.
- Boissonnault, William G., Lovely, Karen, 2016. Hospital-based outpatient direct access to physical therapist services: current status in Wisconsin. *Phys. Ther.* 96 (11), 1695–1704. <https://doi.org/10.2522/ptj.20150540>.
- Boissonnault, William, Bryan, Jean M., Fox, Kristin J., 2004. Joint manipulation curricula in physical therapist professional degree programs. *J. Orthop. Sport. Phys. Ther.* 34 (4), 171–178. discussion 179–181. <https://doi.org/10.2519/jospt.2004.34.4.171>.
- Boissonnault, William G., White, Douglas M., Carney, Sara, Malin, Brittany, Smith, Wayne, 2014. Diagnostic and procedural imaging curricula in physical therapist professional degree programs. *J. Orthop. Sport. Phys. Ther.* 44 (8), 579–586. B1-12. <https://doi.org/10.2519/jospt.2014.5379>.
- Bryan, Jean M., McClune, Lyle D., Romito, Susan, Stetts, Deborah M., Finstuen, Kenn, 1997. Spinal mobilization curricula in professional physical therapy education programs. *J. Phys. Ther. Educ.* 11 (2), 11.
- Bury, Tracy J., Stokes, Emma K., 2013. A global view of direct access and patient self-referral to physical therapy: implications for the profession. *Phys. Ther.* 93 (4), 449–459. <https://doi.org/10.2522/ptj.20120060>.
- Crowell, Michael S., Dedekam, Erik A., Johnson, Michael R., Dembowski, Scott C., Westrick, Richard B., Goss, Donald L., 2016. Diagnostic imaging in a direct-access sports physical therapy clinic: a 2-year retrospective practice analysis. *Int. J. Sports Phys. Ther.* 11 (5), 708–717.
- Daker-White, G., Carr, A.J., Harvey, I., Woolhead, G., Bannister, G., Nelson, I., Kammerling, M., 1999. A randomised controlled trial. Shifting boundaries of doctors and physiotherapists in orthopaedic outpatient departments. *J. Epidemiol. Community Health* 53 (10), 643–650. <https://doi.org/10.1136/jech.53.10.643>.
- Desjardins-Charbonneau, Ariel, Jean-Sébastien Roy, Julie Thibault, Ciccone, Vincent T., Desmeules, François, 2016. Acceptability of physiotherapists as primary care practitioners and advanced practice physiotherapists for care of patients with musculoskeletal disorders: a survey of a university community within the province of Quebec. *BMC Musculoskelet. Disord.* 17 (1), 400. <https://doi.org/10.1186/s12891-016-1256-8>.
- Desmeules, François, Roy, Jean-Sébastien, MacDermid, Joy C., Champagne, François, Hinse, Odette, June Woodhouse, Linda, 2012. Advanced practice physiotherapy in patients with musculoskeletal disorders: a systematic review. *BMC Musculoskelet. Disord.* 13 (June), 107. <https://doi.org/10.1186/1471-2474-13-107>.
- Desmeules, François, Toliopoulos, Panagioti, Jean-Sébastien, Roy, Linda June, Woodhouse, Marc, Laccelle, Leroux, Manon, Girard, Steven, Feldman, Debbie E., Fernandes, Julio C., 2013. Validation of an advanced practice physiotherapy model of care in an orthopaedic outpatient clinic. *BMC Musculoskelet. Disord.* 14 (May), 162. <https://doi.org/10.1186/1471-2474-14-162>.
- Durrell, S., 1996. Expanding the scope of physiotherapy: clinical physiotherapy specialists in consultants' clinics. *Man. Ther.* 1 (4), 210–213. <https://doi.org/10.1054/math.1996.0271>.
- Eysenbach, Gunther, 2004. Improving the quality of web surveys: the checklist for reporting results of Internet E-surveys (CHERRIES). *J. Med. Internet Res.* 6 (3), e34.
- Fennelly, Orna, Blake, Catherine, Desmeules, François, Stokes, Diarmuid, Cunningham, Cairtriona, 2017. Patient-Reported Outcome Measures in Advanced Musculoskeletal Physiotherapy Practice: A Systematic Review. *Musculoskeletal Care June*. <https://doi.org/10.3138/msc.1200>.
- Fritz, Julie M., Childs, John D., Wainner, Robert S., Flynn, Timothy W., 2012. Primary care referral of patients with low back pain to physical therapy: impact on future health care utilization and costs. *Spine* 37 (25), 2114–2121. <https://doi.org/10.1097/BRS.0b013e31825d32f5>.
- Gillis, Katherine, Augruso, Alanna, Coe, Terelle, O'Neill, Andrea, Radford, Lindsay, Gibson, B.E., O'Callaghan, Lynda, Soever, Leslie, 2014. Physiotherapy extended-role practitioner for individuals with hip and knee arthritis: patient perspectives of a rural/urban partnership. *Physiother. Can. Physiother. Can.* 66 (1), 25–32. <https://doi.org/10.3138/ptc.2012-55>.
- de Gruchy, Adam, Granger, Catherine, Gorelik, Alexandra, 2015. Physical therapists as primary practitioners in the emergency department: six-month prospective practice analysis. *Phys. Ther.* 95 (9), 1207–1216. <https://doi.org/10.2522/ptj.20130552>.
- IFOMPT website, History, 2017. "History." 2017. <http://www.ifompt.org/About+IFOMPT/History.html>.
- Jason, 2017. Direct Access at the State Level. APTA Website Direct Access. 2017. <http://www.apta.org/StateIssues/DirectAccess/>.
- Kilner, Emily, Sheppard, Lorraine, 2010. "The 'lone ranger': a descriptive study of physiotherapy practice in Australian emergency departments. *Physiotherapy* 96 (3), 248–256. <https://doi.org/10.1016/j.physio.2010.01.002>.
- Leemrijse, Chantal J., Swinkels, Ilse C.S., Veenhof, Cindy, 2008. Direct access to physical therapy in The Netherlands: results from the first year in community-based physical therapy. *Phys. Ther.* 88 (8), 936–946. <https://doi.org/10.2522/ptj.20070308>.
- McCallum, Christine A., DiAngelis, Tom, 2012. Direct access: factors that affect physical therapist practice in the state of Ohio. *Phys. Ther.* 92 (5), 688–706. <https://doi.org/10.2522/ptj.20100358>.
- Member Organisations, 2017. IFOMPT Website, Member Organisations. <http://www.ifompt.org/MEMBERSHIP+ORGANISATIONS+AND+RIGs/Member+Organisations.html>.
- Michelotti, 2018. WCPTDataInfographic1 | Piktochart Visual Editor, Accessed June 12, 2018. <https://create.piktochart.com/output/5379562-wcptdatainfographic1>.
- Mintken, Paul E., Stephanie, C. Pascoe, Barsch, Andrea K., Cleland, Joshua A., 2015. Direct access to physical therapy services is safe in a university student health center setting. *J. Allied Health* 44 (3), 164–168.
- Morphet, Julia, Griffiths, Debra Lee, Crawford, Kimberley, Williams, Allison, Jones, Tamsin, Berry, Belinda, Innes, Kelli, 2016. Using transprofessional care in the emergency department to reduce patient Admissions: a retrospective audit of medical histories. *J. Interprofessional Care* 30 (2), 226–231. <https://doi.org/10.3109/13561820.2015.1115394>.
- Morris, J., Vine, K., Grimmer, K., 2015. Evaluation of performance quality of an advanced scope physiotherapy role in a hospital emergency department. *Patient Relat. Outcome Meas.* 6, 191–203. <https://doi.org/10.2147/PROM.S75173>.
- Niezen, M.G.H., Mathijssen, J.J.P., 2014. Reframing professional boundaries in health-care: a systematic review of facilitators and barriers to task reallocation from the domain of medicine to the nursing domain. *Health Policy* 117 (2), 151–169.
- Noteboom, J. Timothy, Little, Christian, Boissonnault, William, 2015. Thrust joint manipulation curricula in first-professional physical therapy education: 2012 update. *J. Orthop. Sport. Phys. Ther.* 45 (6), 471–476. <https://doi.org/10.2519/jospt.2015.5273>.
- Ojha, Heidi A., Snyder, Rachel S., Davenport, Todd E., 2014. Direct access compared with referred physical therapy episodes of care: a systematic review. *Phys. Ther.* 94 (1), 14–30. <https://doi.org/10.2522/ptj.20130096>.
- Pearse, E.O., Maclean, A., Ricketts, D.M., 2006. The extended scope physiotherapist in orthopaedic out-patients - an audit. *Ann. R. Coll. Surg. Engl.* 88 (7), 653–655. <https://doi.org/10.1308/003588406X149183>.
- Policy Statement, 2017. Physical Therapist Practice Specialisation | World Confederation for Physical Therapy. WCPT Website, Specialisation 2017. <http://www.wcpt.org/policy/ps-specialisation>.
- Policy Statement: Autonomy | World Confederation for Physical Therapy. n.d. WCPT Website. Accessed June 10, 2018. <https://www.wcpt.org/policy/ps-autonomy>.
- Publications - Physical Therapy Board of California, 2018. Physical Therapy Board of California Website. 2018. <https://www.ptbc.ca.gov/publications/index.shtml>.
- Registered Interest Groups, 2017. IFOMPT Website, RIG. 2017. <http://www.ifompt.org/MEMBERSHIP+ORGANISATIONS+AND+RIGs/Registered+Interest+Groups.html>.
- Riley, Sean P., Vincent, Tafuto, Brismée, Jean-Michel, 2016. Retrospective analysis of physical therapy utilization by the specificity of the diagnosis and order written on the referral. *Physiother. Theory Pract.* 32 (6), 461–467. <https://doi.org/10.3109/09593985.2016.1145310>.
- Sandstrom, Robert W., 2007. The meanings of autonomy for physical therapy. *Phys. Ther.* 87 (1), 98–106. <https://doi.org/10.2522/ptj.20050245>.
- Scope of Practice | World Confederation for Physical Therapy. WCPT Website 2017. <http://www.wcpt.org/node/29535#summit>.
- Standfield, L., Comans, T., Raymer, M., O'Leary, S., Moretto, N., Scuffham, P., 2016. The efficiency of increasing the capacity of physiotherapy screening clinics or traditional medical services to address unmet demand in orthopaedic outpatients: a practical application of discrete event simulation with dynamic queuing. *Appl. Health Econ. Health Policy* 14 (4), 479–491. <https://doi.org/10.1007/s40258-016-0246-1>.
- Stanhope, Jessica, Grimmer-Somers, Karen, Steve Milanese, Kumar, Saravana, Morris, Joanne, 2012. Extended scope physiotherapy roles for orthopedic outpatients: an update systematic review of the literature. *J. Multidiscip. Healthc.* 5, 37–45. <https://doi.org/10.2147/JMDH.S28891>.
- Statistics, UNESCO Institute for, 2012. International Standard Classification of Education: ISCED 2011. UNESCO Institute for Statistics, Montreal, Quebec. <http://www.uis.unesco.org/Education/Documents/iscsed-2011-en.pdf>.
- Thompson, Jonathan, Yoward, Samantha, Dawson, Pamela, 2017. The role of physiotherapy extended scope practitioners in musculoskeletal care with focus on decision making and clinical outcomes: a systematic review of quantitative and qualitative research. *Musculoskel. Care* 15 (2), 91–103. <https://doi.org/10.1002/msc.1152>.
- Van Rossen, Liz, Withington, Robin H., 2012. Improving the standard of care for people with ankylosing spondylitis and a new approach to developing specialist ESP-led AS clinics. *Musculoskel. Care* 10 (3), 171–177. <https://doi.org/10.1002/msc.1015>.
- Vision, 2017. IFOMPT Website, Vision. 2017. <http://www.ifompt.org/About+IFOMPT/Vision.html>.
- WCPT Launches New Infographics Profiling the Profession Globally | World confederation for physical therapy. n.d. Accessed January 16, 2019. <https://www.wcpt.org/news/Infographics-profile-profession-May15>.