

The Actual State of Proprioceptive Neuromuscular Facilitation Education in Physical Therapy Schools in Japan

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Abstract. [Purpose] In this paper we examine the changes in and the actual state of proprioceptive neuromuscular facilitation (PNF) education in physical therapy (PT) training schools in the 2003 and 2008 academic years. [Subjects and Methods] The questionnaire was sent to 163 schools in 2003 and 233 schools in 2008. The contents of PNF course were compared between the two surveys. [Results] PNF courses were present in 90.7% of PT schools in 2003 and 87.7% in 2008. In 2008, it was a compulsory subject in 81.0% of PT schools. There has been an increase in the number of courses entitled “PNF” or similar. In terms of content, there was a trend toward a decrease in schools teaching special techniques and clinical application. [Conclusion] There is variation in PNF course hours and course content across PT schools, and it appears that graduates do not attain the same level of knowledge and technique through their college education. Therefore, postgraduate education seems desirable, not only in PNF, but also in activities in various branches of PT.

Key words: Proprioceptive neuromuscular facilitation (PNF), Education, Questionnaire

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INTRODUCTION

Proprioceptive neuromuscular facilitation (PNF) education was first introduced to Japan by Michele Eisemann Shimizu at the Kochi Rehabilitation Institute in 1969. PNF has been incorporated into education at physical therapy (PT) training schools, but mastery of PNF requires time¹⁾, and it is considered to be difficult to master PNF solely through college education.

Torii²⁾ reported that 75% of PT graduates do not use PNF. The main reasons that graduates do not use PNF are ‘lack of knowledge and skills’ and ‘lack of clarity about methods of clinical application’. Consequently, it can be seen that, in Japanese PT, PNF is studied in college, but the methods of clinical application and the situations of use are poorly understood. The author also learned PNF and understood PNF patterns in college, but entered PT employment without a clear understanding of the methods of clinical application. Understanding of PNF was only deepened through learning PNF after graduation and studying methods of clinical application.

Within this context, a written questionnaire survey was conducted in the 2003³⁾ and 2008⁴⁾ academic years in order to ascertain the actual state of PNF education, which requires time for mastery of techniques, in college

education.

SUBJECTS AND METHODS

A questionnaire survey was sent to 163 PT schools in 2003 and 233 PT schools in 2008. The questionnaire was administered in February on both occasions, and 1 month was allowed for return of responses.

The content of the questionnaire covered the existence of PNF courses, the title of the course, the text used (10 options), the academic grade in which the course was provided, course hours (7 options), course content (7 options), employment status of the teacher in charge, how the teacher learned PNF (6 options), difficulties experienced in teaching activities (free response), and strategies used in teaching activities (free response, 2008 only). It was possible for PT schools to return questionnaires anonymously.

RESULTS

The valid response rate was 65.0% in 2003 and 48.9% in 2008. PNF courses were present in 90.7% of PT schools in 2003 and 87.7% in 2008. In 2008, it was a compulsory subject in 81.0% of PT schools.

Table 1. The contents of the PNF course in 2003 and 2008 academic years

		in 2003 (n=107 schools)	in 2008 (n=100 schools)
Year of implementation	3-year college	1st year	3.8%
		2nd year	51.0%
		3rd year	46.7%
	4-year college	3rd year	43.3%
		2nd year	20.0%
		3rd year	14.3%
Course hours		4th year	74.3%
			5.7%
		1~2 hours	3.7%
		3~5 hours	11.0%
		6~10 hours	17.8%
		11~15 hours	20.0%
		16~30 hours	26.2%
		31~45 hours	21.0%
Course title		46 hours or more	16.8%
			26.0%
		Therapeutic exercise	15.9%
		Theory of physical therapy techniques	18.0%
		Special lecture	3.0%
		PNF	12.0%
		Physical therapy therapeutics	3.0%
		Physical therapy studies of nervous system	10.0%
Text		Special procedures	3.3%
		Advanced Physical Therapy	4.0%
		Teacher-made materials	41.8%
		Rigakuryouhou Handbook	27.0%
		Proprioceptive neuromuscular facilitation	34.1%
		PNF Manual	27.0%
		PNF Handbook	14.0%
		Without textbooks	18.7%
Course contents		Rigakuryouhougijyutu Guide	31.0%
		Rinsyou PNF	11.0%
		PNF theory+U/E, L/E PNF patterns	11.0%
		PNF theory+U/E, L/E PNF patterns+Scapula, Pelvis, Trunk PNF patterns+Special Techniques	6.0%
		+Basic movement and applied movement	3.3%
		PNF theory+U/E, L/E PNF patterns+Scapula, Pelvis, Trunk PNF patterns+Special Techniques	2.2%
		PNF theory+U/E, L/E PNF patterns+Scapula, Pelvis, Trunk PNF patterns	5.0%
		U/E, L/E PNF patterns	2.0%

Table 1 shows the year of implementation, course hours, course title, text used, and course content for both years. PNF courses were most often provided for 3rd year students in both 3- and 4-year PT schools. The number of courses allocated 11~15 hours, with the percentage allocated 1~2 hours increasing to 11.0%. There was an increase in courses entitled "PNF" or similar. In both years, the PNF Manual and the Rigakuryouhou Handbook accounted for the majority of texts used. However, there was a switch in the proportion using each of these texts in 2008. In terms of content, there was a trend toward a decrease in schools teaching special techniques and clinical application.

Tables 2 and 3 show the status of employment of teachers responsible for PNF courses, together with how they learned PNF. There was a tendency for PT schools to have full-time teachers teaching PNF courses. Regarding the method by which teachers learned PNF, there was a striking increase in

the number of full-time teachers who had taken the PNF course of the PNF Society of Japan. Among part-time teachers, many had taken PNF course of Kaiser Foundation Rehabilitation Center, but fewer had done so in 2008 than in 2003.

Table 4 shows the difficulties and strategies in teaching activities, summarized using the KJ method. In both years, the main opinions regarding difficulty in PNF teaching activities were clinical application, together with 'lack of manpower' and 'limited time'. In terms of strategies regarding PNF teaching activities, 'application to ADL etc.' was the main issue.

DISCUSSION

A questionnaire survey on the topic of PNF courses was conducted in PT schools in the 2003 and 2008 academic

Table 2. Status of employment of teachers

		in 2003 (n=107 schools)	in 2008 (n=100 schools)
Status of employment of teachers	Full-time	59.3%	67.0%
	Part-time	22.0%	25.0%
	Full and part-time	18.7%	8.0%

Table 3. How the teachers learned PNF

		in 2003 (n=107 schools)	in 2008 (n=100 schools)
Full-time	Physical therapy Seminar of JPTA*	29.1%	29.3%
	Seminar in each prefecture	19.8%	14.7%
	PNF course of the PNF Society of Japan	15.1%	25.3%
	Only education of the PT school	14.0%	12.0%
	Other	12.8%	13.3%
	KFRC PNF course**	7.0%	5.3%
Part-time	KFRC PNF course**	72.7%	51.6%
	PNF course of the PNF Society of Japan	19.0%	22.6%
	Other	19.0%	12.9%
	Physical therapy Seminar of JPTA*	4.8%	6.5%
	Seminar in each prefecture	0.0%	3.2%
	Only education of the PT school	0.0%	3.2%

*JPTA: Japan Physical Therapy Association. **KFRC: Kaiser Foundation Rehabilitation Center

Table 4. Difficulties experienced in teaching activities and strategies used in teaching activities

		in 2003	in 2008
Difficulties	Clinical application	12	14
	Lack of manpower	8	11
	Limited time	6	14
	Resistance method	3	0
	Image persistence	2	0
	Maximum amount of teaching	0	2
	Understanding can not be obtained in clinical practice	0	2
	Changes in terminology	0	2
Strategies (2008 only)	Application to ADL etc.		14
	Using visual materials		6
	Related to basic medical		5
	Improvement of manpower		5

years. There was a high rate of implementation of PNF courses in both years. However, there have been changes in the number of course hours over the 5-year period, which may have been influenced by curriculum organization in each PT school. It can also be assumed that the number of course hours is affected by the securing of and employment status of PNF course teachers.

An increasing number of courses are called “PNF” or similar, suggesting that PNF courses are being developed as independent courses. This may be because mastery of PNF takes time, and it is taught as a special therapeutic exercise. An increasing number of PNF teachers acquired their knowledge through PNF course of the PNF Society of Japan. It can be surmised that, as the PNF Society of Japan uses the PNF Manual as a designated text, an increasing number of PT schools are also using this as a text. As far as course content was concerned, 24.0% of PT schools were

covering the range from PNF theory to clinical applications. Put another way, it can be conjectured that 76.0% of PT schools were not teaching clinical applications. In other words, it seems highly likely that PT students are learning about PNF, but that they graduate without a clear understanding of the methods of PNF use. The reasons for this would seem to be the difficulties noted in the area of PNF teaching activities, namely, ‘limited time’ and ‘lack of manpower’. Alternatively, it cannot be denied that this item is also affected by the teacher’s own ability to apply PNF in a clinical situation. In the 2008 questionnaire, there was a comment stating that, “when students carry out PNF in clinical practice, they do not obtain the understanding of their supervisors”; this may be due to supervisor’s own lack of sufficient PNF education before graduation. While these types of difficulties do arise, a variety of strategies for PNF teaching activities were also apparent. Examples include

linking PNF patterns to ADL through the course, or using other teachers and senior students as teaching assistants to secure manpower. There were also examples of using visual materials such as DVDs as a strategy to conceptualize treatments for cases through images.

Recently, with the expansion of the PT professional field and the increasing number of people being provided with PT, PT schools face the need to design a curriculum that is capable of spanning a wide range of fields. For this reason, there is variation in PNF course hours and course content across PT schools, and it appears that graduates do not attain the same level of knowledge and technique through their college education. Therefore, postgraduate education seems desirable, not only in PNF, but also in activities in various branches of PT. Furthermore, since various strategies are

needed to teach students PNF within the limited course time available, it may be necessary for PNF teachers to trial initiatives through such means as Faculty Development (FD), which became compulsory in universities starting in the 2008 academic year.

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