

# Physical therapists understanding and attitudes toward non-steroid anti-inflammatory drugs\*

*Conhecimento e atitudes de fisioterapeutas sobre fármacos anti-inflamatórios não esteroides*

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## ABSTRACT

**BACKGROUND AND OBJECTIVES:** There are few, if any, Brazilian studies on physical therapists' understanding of the use of non-steroid anti-inflammatory drugs (NSAIDs). This study aimed at investigating the understanding of its use by physical therapists of the city of Fortaleza.

**METHOD:** The study consisted of a questionnaire with 18 structured questions, encompassing demographic aspects, current understanding, current practice and professionals' position about the use of NSAIDs.

**RESULTS:** We have evaluated 119 professionals, of whom 84.9% attended the discipline of Pharmacology. Results indicate the need for further education with regard to current legislation about drug prescription, since 47.8% stated advising, 3.3% prescribing and 21% recommending the use of NSAIDs, which is not allowed for these professionals.

**CONCLUSION:** There is poor understanding of physical therapists with regard to the use of NSAIDs, especially the non identification of adverse reactions, drug interactions and knowledge of the legislation.

**Keywords:** Non-steroid anti-inflammatory drugs, Physical Therapists, Understanding.

## RESUMO

**JUSTIFICATIVA E OBJETIVOS:** No Brasil, estudos sobre o conhecimento de fisioterapeutas sobre a utilização dos fármacos anti-inflamatórios não esteroides (AINES) são raros ou mesmo inexistentes. O objetivo deste estudo foi investigar o conhecimento dos fisioterapeutas no município de Fortaleza sobre o seu uso.

**MÉTODO:** Utilizou-se um questionário com 18 perguntas estruturadas, englobando aspectos demográficos, conhecimento atual, prática atual e a posição do profissional quanto ao uso das AINES.

**RESULTADOS:** Foram avaliados 119 profissionais, destes, 84,9% cursaram a disciplina de Farmacologia. Os resultados indicam a necessidade de maior educação em relação à legislação corrente sobre a prescrição de fármacos, já que 47,8% afirmam aconselhar, 3,3% prescrever e 21% recomendar o uso de AINES, atos não permitidos para esses profissionais.

**CONCLUSÃO:** Identificou-se fragilidade no conhecimento do profissional fisioterapeuta acerca da utilização do uso dos AINES, ressaltando-se a não identificação de reações adversas, interações farmacológicas e o conhecimento sobre a legislação.

**Descritores:** Anti-inflamatórios não esteroides, Conhecimento, Fisioterapeutas.

## INTRODUCTION

The search for knowledge update in different professional areas is mandatory today, especially in public health areas. Drugs have been object of concerns and several studies carried out worldwide in the medical area, emphasizing issues regarding their potential adverse reactions, prescription standards and the influence of advertising on their choice<sup>1,2</sup>.

According to the Code of Professional Ethics in Physical Therapy and Occupational Therapy, approved by the Resolution Cofito-10, from July 03, 1978, physical therapists are forbidden to prescribe drugs. However, they should know how physical therapy may affect drug therapy and vice-versa<sup>3</sup>.

Aiming at providing drug knowledge to these professionals, the pharmacology discipline is mandatory for Physical Therapy students in most Brazilian courses, being classically ministered for each class of drugs: pharmacodynamics, pharmacokinetics, major drugs, clinical use and side effects<sup>4</sup>.

However, an Australian study has pointed to the need for better education of physical therapists about drugs, especially anti-inflammatory uses, indications, contraindications, pharmacological interactions and side effects<sup>5</sup>. Among drugs with excessive number of prescriptions there are non-steroid anti-inflammatory drugs (NSAIDs), with emphasis to the so-called selective cyclo-oxygenases-2 (COX-2) inhibitors<sup>6</sup>.

Many NSAIDs have gone from the status of prescription drugs to

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over-the-counter drugs. Although recognizing the role of physical therapists in pain management, the change in their selling profile has not been followed by their pharmacological education<sup>7</sup>.

As with other drugs, NSAIDs have potential to induce adverse reactions due to their toxicity on several systems. Among reported effects one may mention propensity to thrombosis, loss of COX-2 up-regulation protective effect on myocardial ischemia and acute myocardial infarction, acute renal failure and increased mean blood pressure. NSAIDs most important side effects are seen in the gastrointestinal tract. Approximately 20% of patients do not tolerate NSAIDs due to effects such as abdominal pain, heartburn and diarrhea. Long term treatment may cause erosions and gastric and duodenal ulcers<sup>8</sup>.

In Brazil, specific studies about NSAIDs and the factors related to their use are scarce or even nonexistent, although the understanding of these issues is critical for the adequate therapeutic use of this class<sup>9</sup>. Since studies about education in Pharmacology for physical therapists are limited, this study aimed at investigating the understanding of physical therapists of the city of Fortaleza about NSAIDs. We believe that such information will contribute to determine whether there is the need for specific physical therapists education and which should be the focus of such education.

## METHOD

This was a transversal and quantitative study carried out from October 2011 to May 2012 in offices, clinics, public or private hospitals and universities where physical therapists act.

Target population of the study were physical therapists registered before the Regional Council of Physical Therapy and Occupational Therapy of the Sixth Region of Ceará and Piauí (CREFITO-6) who work in Fortaleza, regardless of gender, age, working place or time in the profession. Sample was made up of 119 professionals (4.76%) who agreed to participate in the study by signing the Free and Informed Consent Term (FICT).

A questionnaire previously prepared by researchers was used with 18 structured questions based on the study by Grimmer et al.<sup>5</sup>, involving demographic aspects, current knowledge, current practice and professionals' position as to the use of NSAIDs. Data were collected by previously trained researchers for approximately 15 minutes for each respondent.

Results were presented in mean  $\pm$  standard deviation or in percentages, and were expressed in tables. Categorical parameters results were descriptively analyzed by Chi-square or Fisher Exact tests and numerical parameters were analyzed by the parametrical test using the Statistical Package for the Social Sciences (SPSS) program version 17.0, considering statistically significant  $p < 0.05$ .

The study complied with Resolution 196/96 of the National Council of Health and was approved by the Human Beings Research Ethics Committee of the University of Fortaleza – COE-TICA/UNIFOR, opinion 010/2011.

## RESULTS

Participated in this study 119 professionals of whom 84 (70.6%) were graduated in Physical Therapy by the University of Fortaleza

and 101 (84.9%) were graduated in Pharmacology. When asked about their predominant work place, 46 (38.7%) have stated working in private clinics, 36 (30.3%) in hospitals and 37 (31%) in other places.

With regard to the understanding about getting drugs, professionals were asked about the requirement of medical prescription to purchase some popular drugs; 14 (11.7%) respondents stated that aspirin is only sold with prescription, 56 (47%) tablets of Cataflan® and 38 (31.9%) Voltaren Gel®, all considered over-the-counter drugs.

The understanding of physical therapists about the legislation addressing the use of NSAIDs in their clinical practice is shown in table 1. These results indicate the need for further education with regard to current legislation on drugs prescription, since 57 (47.8%) have stated advising, 4 (3.3%) prescribing and 25 (21%) recommending the use of NSAIDs, which is not allowed for such professionals.

Table 1 – Understanding of physical therapists of the legislation regarding the use of non-steroid anti-inflammatory drugs.

Understanding	Legislation Allows (%)	Legislation does not Allow (%)
Advising NSAIDs	47.8	52.1
Prescribing NSAIDs	3.3	96.6
Recommending NSAIDs	21.0	78.9
Having oral NSAIDs inventory for clinical use	2.5	97.4
Having topic NSAIDs inventory for clinical use	20.1	79.8
Using NSAIDs to treat patients	28.5	71.4

NSAIDs = non-steroid anti-inflammatory drugs.

Respondents were asked about drugs interacting with NSAIDs, being more frequently mentioned paracetamol (28.5%), acetylsalicylic acid (AAS) (25.1%) and ibuprofen (20.1%). As to NSAIDs clinical indications, most frequently mentioned were tendinitis (30.2%), arthritis (28.5%) and bursitis (25.2%). Major contraindications were ulcers (31%), systemic hypertension (21%) and dengue (18.4%). Nausea (33.6%), allergies (32.7%) and vertigo (18.4%) were listed as most common NSAIDs adverse reactions. No respondent has stated having observed the presence of adverse reactions on their patients.

As to attending NSAIDs updates, 34 (28.6%) physical therapists stated that they never attended; 25 (21%) attended in the last year; 41 (34.5%) attended in the last five years and 19 (15.9%) for more than five years.

With regard to current practice, 35 (29.4%) respondents stated that they normally recommend NSAIDs for their patients, being over-the-counter topic drugs the most commonly recommended and mentioned by 31 (26.1%) physical therapists; however, 79 (66.4%) professionals stated not recording in medical charts any discussion about drugs.

As to sources to study NSAIDs, 26 (21.8%) respondents stated using the Internet, 20 (16.8%) used pharmaceutical industry information, 14 (11.8%) consulted pharmacist professional and 34 (28.5%) used different research sources; however 25 (21%) physical therapists have stated not using any source to study NSAIDs (Table 2).

Table 2 – Ways to get information about non-steroid anti-inflammatory drugs.

Sources	Frequency	%
Therapeutic dictionary	04	3.4
Pharmaceutical industry information	20	16.8
Internet	26	21.8
Physician	11	9.2
Pharmacist	14	11.8
Scientific article	06	5.0
Packet inserts	04	3.4
Others	09	7.6
None	25	21.0
Total	119	100.0

When asked about being qualified to prescribe NSAIDs, 86 (72.3%) physical therapists stated not being qualified for such role. With regard to their current knowledge about NSAIDs, 100 (84%) respondents stated that their knowledge is insufficient to safely recommend their use.

With regard to providing information about NSAIDs for physical therapists, 41 (34.5%) respondents believe that this is a role of the university, 28 (23.5%) of pharmacists, 12 (10.1%) of physicians, 10 (8.4%) of the pharmaceutical industry and 28 (23.5%) of others (Table 3).

Table 3 – Who should be responsible for providing information about non-steroid anti-inflammatory drugs to physical therapists?

Answers	n	%
Physical therapists themselves	08	6.7
Pharmaceutical industry	10	8.4
Regional/Federal Council	09	7.6
Pharmacists	28	23.5
Physicians	12	10.1
Universities	41	34.5
Scientific meetings	10	8.4
Others	01	0.8

## DISCUSSION

Over-the-counter NSAIDs have been commonly used as adjuncts to physical therapy treatment and this may lead to a potential increase in the inadequate use of these drugs<sup>10</sup>.

Among health professionals dealing with drugs in their practice, physical therapists may use some associated to physical therapy methods or techniques, such as therapeutic ultrasound (TUS), increasingly being used associated to anti-inflammatory drugs, technique known as phonophoresis, common in rehabilitation clinics<sup>11</sup>. Similarly to phonophoresis, ionophoresis is a noninvasive technique commonly used in the clinical practice, which uses elec-

tric current to transfer ionized drugs from the skin to tissues<sup>12</sup>.

With regard to the fact that physical therapists are qualified or not to prescribe NSAIDs, our study confirms the above-mentioned author, who shows the poor mastering of professionals of the subject, reaffirming the need for further professional qualification with regard to basic NSAIDs knowledge<sup>13</sup>.

It is important to stress that some interviewed professionals in this study have stated advising (47.8%), prescribing (3.3%) and recommending (21%) the use of drugs, when in reality it is not for the physical therapists to have any of such behaviors.

Although being prohibited for physical therapists to prescribe drugs, according to the Code of Professional Ethics in Physical Therapy and Occupational Therapy, approved by Resolution Cofito-10, an Australian study points to the need of further physical therapists education about drugs, especially NSAIDs uses, indications, contraindications, pharmacological interactions and side effects<sup>5</sup>.

In our study, the predominant professional practice work places were private rehabilitation clinics, where techniques such as phonophoresis are common, so these professionals routinely deal with NSAIDs<sup>12</sup>.

With regard to ongoing updates on NSAIDs by physical therapists, many respondents (28.6%) have stated that they never attended updates about their use. This study is in line with Carvalho, Borgatto and Lopes<sup>14</sup>, who have observed that most respondents (41.3%) had insufficient level of update about these drugs and that this is possibly due to the fact that health professionals have excessive workload, which prevents them to look for new knowledge sources<sup>14</sup>.

When asked about most common NSAIDs adverse reactions, 36.6% have reported nausea, although no physical therapist has reported knowing about the presence of side effects of these drugs on their patients. Some authors stress the major potential of this group of drugs to induce severe reactions. However, an Australian study has pointed out that the best documented reaction is related to gastrointestinal lesions, which may go from abdominal discomfort to mucosal erosion, to bleeding and perforation, and even to death<sup>13</sup>. The undue use of drugs, even those considered “banal” by the population, may bring several consequences such as bacterial resistance, hypersensitivity reactions, addiction, digestive bleeding, withdrawal symptoms and even may increase the risk for some cancers. In addition, the momentary relief of symptoms masks the underlying disease which goes unnoticed and so may progress<sup>15</sup>.

AAS is an over-the-counter drug; however in our study 11.7% of participants have stated that AAS is obtained through medical prescription. With this, it could be observed that physical therapists still not have the needed knowledge about which drugs may be freely sold, being needed more programs with actions aimed at their clinical practice, or more theoretical basis regarding their use on part of universities<sup>5</sup>.

When asked about who should be responsible for providing information about these drugs, 34.5% of participants have answered that universities should be major knowledge providers. However, it is necessary that health graduation courses be constantly updated with regard to drug therapy concepts and protocols<sup>16</sup>.

With regard to drugs interacting with NSAIDs, participants

have answered that those more closely related are AAS (25.2%), paracetamol (28.5%) and ibuprofen (20.1%); however, all of them are also part of this class of anti-inflammatory drugs and their concomitant use may exacerbate their effects, thus bringing further risks for patients<sup>17</sup>.

Our study has also evaluated the pathological conditions in which NSAIDs are contraindicated and a large part of respondents have reported that systemic hypertension (SH) (21%) and ulcers (31%) are the most contraindicated diseases. These results are in line with a study reporting that the association of NSAIDs and anti-hypertensive drugs used by patients with SH, may bring the risk of abrupt blood pressure increase, impairing patients' clinical conditions<sup>18</sup>.

In a different study with health professionals, it was observed that 50% of respondents stated giving priority to hypertension during medical history; however, these same professionals have reported not knowing pharmacological changes between NSAIDs and anti-hypertensive drugs<sup>14</sup>. This is of paramount importance since the literature has already described the interactions between NSAIDs and selective COX-2 inhibitors, beta-blockers, diuretics and other anti-hypertensive drugs<sup>1,2,19</sup>.

The fact that physical therapists do not know how to adequately use these drugs or their contraindications and potential side effects, makes it mandatory that these professionals have further knowledge about current NSAIDs legislation.

## CONCLUSION

We have identified fragility in physical therapists' knowledge about the use of NSAIDs, stressing the non identification of adverse reactions, pharmacological interactions and poor knowledge about the legislation.

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## REFERENCES

1. Kummer CL, Coelho TCRB. Antiinflatórios não esteroidais inibidores da ciclooxigenase-2 (COX-2): aspectos atuais. *Rev Bras Anestesiol.* 2002;52(4):498-512.
2. Leite SN, Vieira M, Veber AP. Estudos de utilização de medicamentos: uma síntese de artigos publicados no Brasil e América Latina. *Ciênc Saúde Colet.* 2008;13(Sup):S793-802.
3. Dias M, Carneiro NM, Guerra LA, et al. Effects of electroacupuncture on local anaesthesia for inguinal hernia repair: a randomized placebo controlled trial. *Acupunct Med.* 2010;28(2):65-70.
4. Jarrar YB. Problem-based clinical cases increase the level of Pharmacology Education for Physiotherapy Students. *Am Med J.* 2011;2(1):29-31.
5. Grimmer K, Kumar S, Gilbert A, et al. Non-steroidal anti-inflammatory drugs (NSAIDs): Physiotherapists' use, knowledge and attitudes. *Aust J Physiother.* 2002;48(2):82-92.
6. Garbossa AF, Pegoraro F, Giacomelli GM, et al. Automedicação com analgésicos e antiinflatórios na cidade de Quedas do Iguaçu - PR. *Biol Health J.* 2007;1(1):9-15.
7. Moore RA, Tramer MR, Carroll D, et al. Quantitative systematic review of topically applied non-steroidal anti-inflammatory drugs. *BMJ* 1998;316(7128):333-8.
8. Batlouni M. Anti-inflatórios não esteroides: efeitos cardiovasculares, cérebro-vasculares e renais. *Arq Bras Cardiol.* 2010;94(4):556-63.
9. Ribeiro AQ, Sevalho G, Cesar CC. Prevalência e fatores associados ao uso de antiinflatórios não-esteróides por pacientes submetidos a endoscopia digestiva alta, Belo Horizonte, Minas Gerais, 2000. *Rev Bras Epidemiol.* 2005;8(3):306-15.
10. Braund R, Abbott H. Recommending NSAIDs and paracetamol: a survey of New Zealand physiotherapists' knowledge and behaviours. *Physiother Res Int.* 2011;16(1):43-9.
11. Parizotto NA, Koeke PU, Moreno, BGD, et al. Utilização da fonoforese em distúrbios músculo-esqueléticos: uma meta-análise. *Rev Bras Fisioter.* 2003;7(1):9-15.
12. Oliveira AS, Guaratini MI, Castro CES. Fundamentação teórica para iontoforese. *Rev Bras Fisioter.* 2005;9(1):1-7.
13. Luz TCB, Rozenfeld S, Lopes CS, et al. Fatores associados ao uso de antiinflatórios não-esteróides em população de funcionários de uma universidade no Rio de Janeiro: estudo pró-saúde. *Rev Bras Epidemiol.* 2006;9(4):514-26.
14. Carvalho VAP, Borgatto, AF, Lopes, LC. Nível de conhecimento dos cirurgiões dentistas de São José dos Campos sobre o uso de antiinflatórios não esteróides. *Ciênc Saúde Colet.* 2010;15(1):1773-8.
15. Casa Grande EF, Gomes EA, Lima LCB, et al. Estudo de utilização de medicamentos pela população universitária do município de Vassourá (RJ). *Infarma.* 2004;16(5/6):86-8.
16. Reis DM, Pitta DR, Ferreira HBM, et al. Educação em saúde como estratégia de promoção de saúde bucal em gestantes. *Ciênc Saúde Colet.* 2010;15(1):269-76.
17. Oliveira AS, Torres HP. O papel dos bloqueios anestésicos no tratamento da dor de origem cancerosa. *Rev Bras Anestesiol.* 2003;53(5):654-62.
18. Wang D, Wang M, Cheng I, et al. Cardiovascular hazard and non-steroidal antiinflammatory drugs. *Curr Opin Pharmacol.* 2005;5(2):204-10.
19. Wannmacher L, Bredemeier M. Antiinflatórios não-esteróides: uso indiscriminado de inibidores seletivos de ciclooxigenase-2. Brasília: OPAS; 2004.