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3 **Impact of training on the use of the International Classification of Functioning, Disability**
4 **and Health**

5

6 ***Impacto de um treinamento para o uso da Classificação Internacional de Funcionalidade,***
7 ***Incapacidade e Saúde***

8

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21

22 ABSTRACT

23 Training aimed at professionals could be a simple and effective approach for increasing the use
24 of International Classification of Functioning, Disability and Health (ICF) as a tool for practice by
25 professionals. In this case, training was crucial for its correct use as a classification as well as
26 showing its usefulness in daily clinical practice, particularly in multidisciplinary teams. **Objective:**

27 The aim of the present study was to verify the impact of a training course on ICF in the
28 knowledge of physical therapists and occupational therapists. **Methods:** This was an
29 experimental study that used a structured questionnaire to evaluate the knowledge of
30 professionals about the ICF before and after participating in a training course. Data from both
31 moments were compared using the percentage of correct answers and the chi-square test
32 ($\alpha=0.05$). **Results:** 434 professionals were investigated, with graduation time of 9.3 ± 7.2 years.
33 It was observed that the course was effective, since there was a higher percentage of correct
34 answers in the post course; additionally, the statistical analysis showed a significant difference
35 between the two course moments in most of the questions ($18.91 < \chi^2 < 292.90$, $p < 0.01$).

36 **Conclusions:** The training course was able to significantly increase the level of knowledge of
37 these professionals, who are currently able to understand and use the ICF, however, the
38 absence of a follow up period does not allow the measurement of the content retained by the
39 participants.

40

41 **Keywords:** International Classification of Functioning, Disability and Health,
42 Physiotherapy, Occupational Therapy, Training

43

44 RESUMO

45 O treinamento voltado para profissionais poderia ser uma abordagem simples e eficaz para
46 aumentar o uso da Classificação Internacional de Funcionalidade, Incapacidade e Saúde (CIF)

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47 como uma ferramenta para a prática dos profissionais. Nesse caso, o treinamento pode ser
48 crucial para seu uso correto como uma classificação, além de mostrar sua utilidade na prática
49 clínica diária, principalmente em equipes multidisciplinares. **Objetivo:** O objetivo do presente
50 estudo foi verificar o impacto de um curso de formação em CIF no conhecimento de
51 fisioterapeutas e terapeutas ocupacionais. **Métodos:** Estudo experimental que utilizou
52 questionário estruturado para avaliar o conhecimento dos profissionais sobre a CIF antes e
53 depois de participar de um curso de treinamento. Os dados dos dois momentos foram
54 comparados com o percentual de acertos e o teste do qui-quadrado ($\alpha = 0,05$). **Resultados:**
55 foram investigados 434 profissionais, com tempo de graduação de $9,3 \pm 7,2$ anos. Observou-se
56 que o curso foi eficaz, pois houve maior percentual de respostas corretas no pós-curso; além
57 disso, a análise estatística mostrou uma diferença significativa entre os dois momentos do curso
58 na maioria das perguntas ($18,91 < \chi^2 < 292,90$, $p < 0,01$). **Conclusões:** O curso de treinamento
59 foi capaz de aumentar significativamente o nível de conhecimento desses profissionais, que
60 atualmente são capazes de entender e usar a CIF, contudo a ausência de um período de *follow*
61 *up* não permite a mensuração do conteúdo retido pelos participantes.

62
63 **Palavras-chave:** Classificação Internacional de Funcionalidade, Incapacidade e Saúde,
64 Fisioterapia, Terapia Ocupacional, Capacitação

65 66 INTRODUCTION

67
68 The International Classification of Functioning, Disability and Health (ICF) is an instrument put
69 forth by the World Health Organization (WHO) with the objective of creating a unified language
70 to describe health aspects of people and populations.¹ Adoption of this model could streamline
71 thinking processes and clinical decision making by health teams.² Use of ICF could also improve
72 multi-professional communication, strengthen the positions of physiotherapy and occupational
73 therapy within health teams, and improve service resolution.^{2,3}

74
75 Despite the advantages associated with the use of ICF in the clinical context, observations to
76 date reveal limited and incipient use of the classification system by health professionals,
77 including physical therapists and occupational therapists.^{2,4} Professionals claim an inability to
78 integrate ICF into their daily routine, citing a high workload combined with superficial knowledge
79 of the instrument and the need to invest time and money to learn to use it.⁵⁻⁷ Inadequate use of
80 ICF can result in incomplete applications, oversimplification and incomprehension of the
81 complexity of classification, and misuse of ICF as an evaluating tool rather than for
82 classification.⁸

83
84 Training aimed at professionals could be a simple and effective approach for increasing the use
85 of ICF as a tool for practice by professionals.^{9,10} However, its complexity requires a rigorous
86 teaching methodology that incorporates both technical aspects and the ethical implications of
87 its use.⁸

88
89 In addition to the implementation of ICF training courses, evaluation of the impact of these
90 courses is necessary to obtain feedback on errors of concept and use among participants, as
91 well as determine the best strategies for teaching and distribution. The goal in this study is to
92 evaluate the adequacy of course content and minimize misunderstandings in professional
93 practice.

94
95 A study carried out in Europe pointed out that the main drawback observed before trainings
96 commenced was misapprehension of ICF as an evaluation tool. In this case, training was crucial

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97 for its correct use as a classification as well as showing its usefulness in daily clinical practice,
98 particularly in multidisciplinary teams.⁸

99

100 OBJECTIVE

101

102 To verify the impact of a training course on the knowledge about and use of ICF by
103 physiotherapists and occupational therapists the state of Minas Gerais, Brazil.

104

105 METHODS

106

107 This is an experimental study, with evaluations conducted pre- and post-training on the use
108 of ICF. This research was approved by the Human Research Ethics Committee of UNIFOR-MG,
109 n. 1.429.054.

110

111 Instrument and data collect

112

113 Eight trainings were carried out in seven cities in the state of Minas Gerais, Brazil, to obtain data
114 from different macro-regions of the state; cities where the training was given were specified by
115 the Regional Council of Physical Therapy and Occupational Therapy of the 4th Region
116 (CREFITO-4). Sites, dates, and times of the training were divulged via email to the professionals
117 enrolled in the official website of the municipality. Informed, written, signed consent was
118 obtained from all individuals who participated in the training courses and who voluntarily agreed
119 to respond to the questionnaires given before and after training.

120

121 The questionnaire applied specifically to training participants (Figure 1) and contained questions
122 related to the individual's time and professional training as well as ICF knowledge. The
123 questionnaire was structured as a set of 15 multiple choice questions, each with four possible
124 answers, and was developed by three professionals directly involved in the use and teaching of
125 ICF.

126

127 The questionnaire was administered twice; once in advance of the training and once
128 immediately after completion of the course. References to bibliographic materials or other notes
129 were not permitted during the filling out of the questionnaire.

130

1) Gender <input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Other	2) How old are you? _____	3) How long have you been graduated? _____
4) What kind of institution did you graduate in? <input type="checkbox"/> Private <input type="checkbox"/> Public		
5) What is your highest level of academic education? <input type="checkbox"/> Higher education <input type="checkbox"/> Graduate – Lato Sensu <input type="checkbox"/> Master <input type="checkbox"/> Doctorate		
6) When did you first get in touch with ICF? <input type="checkbox"/> Never <input type="checkbox"/> During the graduation <input type="checkbox"/> After graduation <input type="checkbox"/> Other		
7) What does the acronym ICF mean? <input type="checkbox"/> Integrated Physiotherapy Clinics <input type="checkbox"/> International Classification of Functioning, Disability and Health <input type="checkbox"/> International Classification of Role Activity and Participation <input type="checkbox"/> International Classification of Physical Therapy and Occupational Therapy		
8) What are the components of the ICF? <input type="checkbox"/> Activity and restriction, participation and functional disability <input type="checkbox"/> Activity of daily living, cognitive activity, practical activity and well-being <input type="checkbox"/> Body structure and function, activity and restriction <input type="checkbox"/> Body functions and structures, activity and participation, contextual factors		

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- 9) What are the meanings of the letters that initiate each category of the CIF?**
 b - Well being, s - Health, d - Pain, and - Structure
 b - Function, s - Structure, d - Activity and Participation, e - Environmental Factors
 b - Quality of life, s - Security, d - Domain, e - Studies
 b - Well-being, s - Environmental Factors, d - Diagnosis, and - Structure and Function
- 10) Which of the following categories represents a second level category?**
 b1 b11 b110 b1101
- 11) What are the negative aspects related to the components of the ICF?**
 Disability, limitation, restriction, barrier
 Difficulty, disability, problem and disability
 Disease, disability, disorders and limitation
 Disability, problem, impact and limitation
- 12) Which of the numbers below does not represent a ICF qualifier?**
 1 9 10 0
- 13) What is the suggested number of qualifiers for coding body structures?**
 1 2 3 4
- 14) In relation to capacity and performance, mark the correct alternative:**
 Performance is what the person does only in a standardized environment
 Capacity is what one can do in their natural environment
 Capacity is what the person can do in a standardized environment
 Performance is when the person is fully functional
- 15) Which of the following categories refers to the sensation of pain?**
 b280 d220 s430 e570

131 **Figure 1.** Questionnaire applied specifically to training participants

132

133 Each training course lasted six hours and included the following topics: conceptualization,
134 history, objectives, scope, organization, biopsychosocial model, coding system, ICF usage
135 modes and exercises for practice in ICF coding. Comprehensive and summarized core sets,
136 validated assessment tools, coded assessment sheets and checklists were presented, their
137 positive and negative points were discussed. Issues related to public policies were worked,
138 essentially through the scientific articles. During the course, the teaching method predominantly
139 used was that of lectures, but at times it was encouraged to read and discuss scientific articles
140 according to the Team Based Learning (TBL) methodology.¹¹

141

142 **Data analysis**

143

144 Descriptive statistics were used to characterize the sample and to compare percentages of
145 correct answers pre- and post-training. Measures of central tendency and dispersion were used
146 (mean, standard deviation) as well as absolute (n) and relative (%) values. A chi-square test (χ^2)
147 was used to evaluate if observed frequencies differed from expected frequencies in the
148 questions on the knowledge of the ICF questionnaire. All analyses were performed with the
149 Statistical Package for Social Sciences (SPSS) 19.0, with a significance level set at $\alpha = 0.05$.

150

151 **RESULTS**

152

153 The sample consisted of 434 professional physiotherapists and occupational therapists, 81%
154 female and 19% male, with a mean age of 34.3 ± 7.9 [22-60] years and a mean time since
155 graduation of 9.3 ± 7.2 [1-37] years. The vast majority of professionals (74%) completed their
156 higher education in a private institution. More than half (59%) reported having Post-Graduation
157 Lato Sensu and 41% of professionals reported that their first contact with the ICF was following
158 graduation.

159

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160 Of the 434 professionals who took the course, 419 (96.5%) individuals answered the pre-course
161 questionnaire and 388 (89.4%) answered the post-course questionnaire resulting in an average
162 of 92.6% professionals who answered the questionnaire before or after completion of training.
163

164 Regarding the question "what is the meaning of the acronym ICF?" It was observed that 98%
165 (411) individuals answered correctly pre-course and the same percentage of volunteers
166 correctly answered this question at the end of the training. The chi-square test revealed no
167 statistically significant differences in the frequencies observed versus frequencies expected in
168 this question ($\chi^2 = 3.10$; $p = 0.37$).
169

170 Regarding the components of the ICF, it was observed that 55% (223) of the individuals selected
171 the correct answer pre-course, and 82% (311) of the individuals answered this question correctly
172 post-course. There were statistically significant differences in frequencies observed versus
173 expected frequencies in this question ($\chi^2 = 90.68$; $p < 0.01$), and professionals selected the
174 correct answer significantly more times than anticipated.
175

176 When questioned about the meanings of the letters that corresponded to different categories of
177 ICF, 74% (288) of the individuals selected the correct answer pre-course and 99% (382)
178 selected the correct answer post-course. The chi-square test revealed statistically significant
179 differences in the frequencies observed versus expected frequencies in this question, and the
180 professionals were correct more frequently ($\chi^2 = 107.40$, $p < 0.01$) in the post course.
181

182 Regarding a question that represented a second level category, 19% (63) answered correctly
183 pre-course and 67% (249) answered correctly post-course. There were statistically significant
184 differences in the frequencies observed versus expected frequencies in this question ($\chi^2 =$
185 171.29 ; $p < 0.01$), and the professionals selected the correct answer significantly more times
186 post-course.
187

188 Regarding the question about the negative aspects related to ICF, it was observed that pre-
189 course 35% (123) answered correctly, while post course the percentage of correct answers was
190 82% (300). Again, the chi-square test revealed that this frequency was significantly higher than
191 the expected frequency ($\chi^2 = 89.74$, $p < 0.01$).
192

193 When questioned about an answer that did not represent a suitable qualifier, 35% (123) of the
194 individuals selected the correct answer pre-course, and 93% (350) of the individuals chose the
195 correct answer regarding this question post-course. This difference between frequencies
196 observed versus expected frequencies was significant ($\chi^2 = 275.07$, $p < 0.01$).
197

198 When questioned about the minimum number of qualifiers for the body structure category, it was
199 observed that 18% (70) of the individuals selected the correct answer pre-course, and post-
200 course the percentage of correct answers was 77% (289 individuals). There were statistically
201 significant differences in the frequencies observed versus frequencies expected in this question
202 ($\chi^2 = 18.91$, $p < 0.01$). The professionals selected the correct answer significantly more times in
203 the post course.
204

205 Concerning the question related to the correct meaning of capacity and performance, it was
206 observed that 18% (70) of the professionals selected the correct answer pre-course and 77%
207 (289) answered the question correctly post-course; the observed frequency was significantly
208 higher than the expected frequency ($\chi^2 = 292.90$, $p < 0.01$).
209

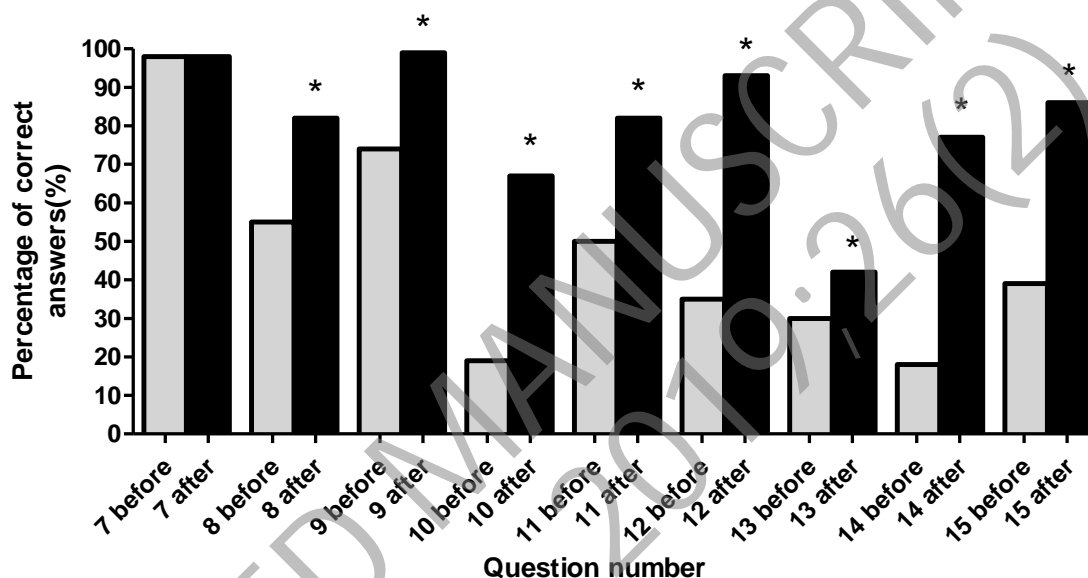
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210 When questioned about which of the categories represented "pain," 39% (123) of the
211 professionals selected the correct answer pre-course and 86% (324) did so post-course. The
212 chi-square test revealed statistically significant differences in the frequencies observed versus
213 the frequencies expected in this question ($\chi^2 = 172.23$; $p < 0.01$). Again, the professionals
214 selected the correct answers more frequently at the end of the course.

215

216 Correct answers for each question on the pre- and post-course questionnaires can be found in
217 Figure 2. The asterisks signal as marker differences $p \leq 0.05$ in the chi-square test.

218



219

220 **Figure 2.** Percentage of correct responses marked in the pre and post training period

221

222 DISCUSSION

223

224 This study demonstrated that the training course for physical therapists and occupational
225 therapists in the state of Minas Gerais on the use of ICF examined in this study could be
226 effective, with the chi-square test demonstrating a significant increase in the number of correct
227 answers post-course compared with pre-course. The only question for which a difference was
228 not observed was "what does acronym ICF stand for?" which was correctly answered at the
229 same frequency both pre- and post-course.

230

231 Although the use of ICF is recommended by the World Health Organization (WHO),¹²
232 determined by the National Health Council (CNS) - Resolution 452/12,¹³ and regulated by the
233 Federal Council of Occupational Therapy and Therapy (COFFITO) - Resolution COFFITO
234 370/2009,¹⁴ the data from the present study, obtained at the pre-course stage, showed that
235 physical therapists and occupational therapists lack adequate knowledge about ICF. If we are
236 unable to expand the knowledge of these professionals about ICF, it will remain impracticable
237 in clinical practice, research, or otherwise.¹⁵

238

239 The WHO which created and recommended the use of the ICF has already identified problems
240 related to the instrument. According to WHO, diversity of resources, and the breadth and
241 complexity of the components of this instrument, associated with a lack of adequate training,
242 make it difficult to use by professionals.^{1,15} To alleviate this problem, a training course was
243 prepared and offered free of charge to physiotherapists and occupational therapists in the state
244 of Minas Gerais. Because this is the fourth largest state in the federation and the second most

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245 populous state in Brazil,^{16,17} a strategy of dividing the state into six mesoregions (North, South,
246 East, West, Central and Triangle Mineiro) was adopted.

247
248 A city polo of each mesoregion received the face-to-face training course (Montes Claros, Poços
249 de Caldas, Juiz de Fora, Governador Valadares, Belo Horizonte, and Uberlândia), with the city
250 of Belo Horizonte being part of the most populous mesoregion and offering two course
251 opportunities.

252
253 There are currently 21,864 physical therapists and 1,939 occupational therapists enrolled in
254 Minas Gerais.¹⁸ The profile of the professionals included in the present study corroborates data
255 on the profile of university students in Brazil presented by the Census on Higher Education in
256 2012 by the Ministry of Education and Culture, where the average student is female (55.5%),
257 studies at a private institution (73%), attends face-to-face courses (84.2%), and opts for
258 baccalaureate courses (67.1%). It is important to highlight that in Brazil, physiotherapy and
259 occupational therapy courses are offered exclusively in the classroom and for baccalaureate
260 study.¹⁹

261
262 Several professionals answered that their first contact with the ICF occurred upon graduation.
263 The state of Minas Gerais offers 62 physical therapy courses and three courses of occupational
264 therapy.²⁰ Despite the large number of courses authorized in the state, ICF teaching in
265 undergraduate courses does not seem to meet the needs of students. This statement can be
266 supported by data from a previous study,¹⁰ which observed that most of the professionals who
267 participated in the study reported intending to use ICF but not having done so because of lack
268 of knowledge or difficulty in understanding the instrument.¹⁰

269
270 The superficial approach to this instrument in undergraduate courses was revealed in the
271 present study; 98% of respondents pre-course knew the meaning of the acronym ICF, but this
272 success rate dropped off precipitously as the questions grew more complex. Pre-course, only
273 19% of the volunteers were able to identify a second-level category, and only 35% of the
274 participants correctly answered questions related to ICF qualifiers or negative aspects of the
275 instrument. The greatest lack of knowledge was observed regarding the minimum number of
276 qualifiers for body structures and the meaning of capacity and performance, both with only 18%
277 accuracy in the pre-course period. These data suggest that a systematized and in-depth
278 treatment of ICF in undergraduate courses is sorely needed.⁹

279
280 It is important to highlight that the training course had a positive impact on ICF knowledge in the
281 participants. In fourteen of the fifteen questions evaluated, the post-course success rate was
282 significantly higher than the pre-course rate. Only for one of the questions (what is the meaning
283 of ICF?) did the level of knowledge remain unchanged; however, as to be expected, pre-course
284 knowledge of this acronym was quite high (98%). The highest percentage of improvement was
285 observed in questions related to the number of qualifiers used for body structures and a question
286 regarding capacity and performance. In both, the success rate improved from 18% in the pre-
287 course period to 77% in the post-course period, an addition of 59% more correct answers.

288
289 The questions that presented the least improvement after the end of the training were related to
290 the components of ICF and to the letters that signify the categories of ICF. In this first question,
291 the percentage of correct answers rose from 55% to 82%, an improvement of 27% and in the
292 second question, the percentage of correct answers rose from 74% to 99%, an improvement of
293 25%. It should be noted that pre-course correct answers were more frequent for these questions
294 than others, such that even though the percentage of hits increased to a lesser degree, it was
295 still an important improvement.

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296 Evaluating the impact of the training course on participants' responses makes it possible to make
297 adjustments to the content provided in future trainings to further improve course outcomes and
298 minimize misconceptions by professionals in clinical practice.⁸

299
300 Studies with similar objectives are rare in the literature, which prevents confirmation or
301 disagreement among findings. In the only study that sought to assess the impact of an ICF
302 training in Italy, main difficulties encountered were the use of qualifiers and an erroneous view
303 of ICF as an evaluation tool. The authors highlight as the main positive effect of the course the
304 improvement in understanding and use of ICF in daily practice, particularly in multidisciplinary
305 teams.⁸

306
307 In the present study, both the course and the questionnaire were based on basic knowledge
308 related to the ICF and therefore did not address complex issues related to the use of the
309 instrument in clinical practice. However, it is noteworthy that the acquisition of knowledge, even
310 basic, is a basic premise for those who wish to delve into the subject and or use the classification
311 in clinical practice. Moreover, it should be noted that the increase in the frequency of correct
312 answers after participating in training does not necessarily represent that participants really
313 absorbed the course content, after all, the absence of a follow-up period prevents the
314 measurement of retained content.

315
316 Although no data were collected about the region of training of the professionals included in the
317 present study, it is assumed that most of them graduated from programs in state of Minas
318 Gerais. Thus, results regarding pre-course knowledge cannot be definitively extended to other
319 states of the country. However, the results presented here demonstrate that professionals who
320 have undergone training have improved their knowledge about ICF and that this is a plausible
321 strategy to improve knowledge and use in the rest of the country.

322
323 The main limitations of this study were the absence of a follow-up period to detect the amount
324 of knowledge retained by participants. The inability to discuss more in-depth content, especially
325 those related to the use of ICF in clinical practice, given the logistics and workload of the
326 courses, as well as the limited prior knowledge of participants. In addition, it is believed that the
327 choice of lectures in relation to active teaching methodologies, can be pointed as a limitation of
328 the study, since knowledge acquisition can be done more effectively through active
329 methodologies.

330 331 **CONCLUSION**

332
333 The present study demonstrated that the training course for physical therapists and occupational
334 therapists in the state of Minas Gerais on the use of ICF was effective, and a significant increase
335 in the number of correct answers was observed when comparing post-course to pre-course
336 results. The absence of a follow-up period does not allow the measurement of the content
337 retained by participants over time. In the future, it is intended to implement a follow-up period,
338 as well as to elaborate a new course with more in-depth content based on active teaching
339 methodologies.

340 341 **REFERENCES**

- 342
343 1. World Health Organization. International Classification of Functioning, Disability, and
344 Health: children & youth version. Geneva: WHO; 2007.

345

Article in Press

- 346 2. Stucki G. International Classification of Functioning, Disability, and Health (ICF): a
347 promising framework and classification for rehabilitation medicine. *Am J Phys Med*
348 *Rehabil.* 2005;84(10):733-40. DOI: <https://doi.org/10.1097/01.phm.0000179521.70639.83>
349
- 350 3. Stucki G, Ewert T, Cieza A. Value and application of the ICF in rehabilitation medicine.
351 *Disabil Rehabil.* 2002;24(17):932-8. DOI: <https://doi.org/10.1080/09638280210148594>
352
- 353 4. de Kleijn-de Vrankrijker MW. The long way from the International Classification of
354 Impairments, Disabilities and Handicaps (ICIDH) to the International Classification of
355 Functioning, Disability and Health (ICF). *Disabil Rehabil.* 2003;25(11-12):561-4. DOI:
356 <https://doi.org/10.1080/09638280110110879>
357
- 358 5. Jacob T. The implementation of the ICF among Israeli rehabilitation centers--the case of
359 physical therapy. *Physiother Theory Pract.* 2013;29(7):536-46. DOI:
360 <https://doi.org/10.3109/09593985.2013.765935>
361
- 362 6. Maini M, Nocentini U, Prevedini A, Giardini A, Muscolo E. An Italian experience in the ICF
363 implementation in rehabilitation: preliminary theoretical and practical considerations.
364 *Disabil Rehabil.* 2008;30(15):1146-52. DOI: <https://doi.org/10.1080/09638280701478397>
365
- 366 7. Zhang HX, Enderby P, Sang L. Application of the International Classification of
367 Functioning, Disability and Health in China. *Chin Med J (Engl).* 2011;124(21):3588-91.
368 DOI: <https://doi.org/10.3760/cma.j.issn.0366-6999.2011.21.027>
369
- 370 8. Leonardi M, Bickenbach J, Raggi A, Sala M, Guzzon P, Valsecchi MR, et al. Training on
371 the International Classification of Functioning, Disability and Health (ICF): the ICF-DIN
372 Basic and the ICF-DIN Advanced Course developed by the Disability Italian Network. *J*
373 *Headache Pain.* 2005;6(3):159-64. DOI: <https://doi.org/10.1007/s10194-005-0173-2>
374
- 375 9. Ruaro JA, Ruaro MB, Souza DE, Fréz AR, Guerra RO. An overview and profile of the ICF's
376 use in Brazil--a decade of history. *Rev Bras Fisioter.* 2012;16(6):454-62. DOI:
377 <https://doi.org/10.1590/s1413-35552012005000063>
378
- 379 10. Pernambuco AP, Lana RC, Polese JC. Opinião de profissionais acerca da viabilidade do
380 uso da CIF. *Rev CIF Brasil.* 2015;2(2):25-33.
381
- 382 11. Reimschisel T, Herring AL, Huang J, Minor TJ. A systematic review of the published
383 literature on team-based learning in health professions education. *Med Teach.*
384 2017;39(12):1227-37. DOI: <https://doi.org/10.1080/0142159X.2017.1340636>
385
- 386 12. World Health Organization. International Classification of Functioning, Disability and
387 Health, resolutionI WHA 54.21. Geneva: WHO; 2001.
388
- 389 13. Brasil. Ministério da Saude. Conselho Nacional de Saúde. Resolução n. 452, de 10 de
390 Maio de 2012. Resolve que a Classificação Internacional de Funcionalidade, Incapacidade
391 e Saúde - CIF seja utilizada no Sistema Único de Saúde, inclusive na Saúde Suplementar.
392 Diário Oficial da Republica Federativa do Brasil, Brasília (DF); 2012 Jun 6; Seção 1: 137.
- 393 14. Conselho Federal de Fisioterapia e Terapia Ocupacional - COFFITO. Resolução n. 370,
394 de 6 de Novembro de 2009. Dispõe sobre a adoção da Classificação Internacional de
395 Funcionalidade, Incapacidade e Saúde (CIF) da Organização Mundial de Saúde por

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- 396 Fisioterapeutas e Terapeutas Ocupacionais. Diário Oficial da Republica Federativa do
397 Brasil, Brasília (DF); 2009 Nov 25; Seção 1: 101.
398
- 399 15. World Health Organization. Towards a Common Language for Functioning, Disability and
400 Health ICF. Geneva; WHO; 2002.
401
- 402 16. Instituto Brasileiro de Geografia e Estatística. Official territorial area - consultation by unit
403 of the federation [text on the Internet]. Rio de Janeiro: IBGE [cited 2018 Sep 10]. Available
404 from: <https://ibge.gov.br/>
405
- 406 17. Instituto Brasileiro de Geografia e Estatística. Estimates of the resident population in Brazil
407 and Federative Units with reference date on July 1, 2015 [text on the Internet]. Rio de
408 Janeiro: IBGE [cited 2018 Sep 10]. Available from: <https://ibge.gov.br/>
409
- 410 18. Conselho Regional de Fisioterapia e Terapia Ocupacional - 4a Região [homepage na
411 Internet. Belo Horizonte: CREFITO 4; c2018 [citado 2018 Set 10]. Disponível em:
412 <http://crefito4.org.br>
413
- 414 19. Ministério da Educação e Cultura. Results of the Census of Higher Education 2012 [text
415 on the Internet]. Brasília; MEC [cited 2018 Sep 10]. Available from: <http://portal.mec.gov.br>
416
- 417 20. Ministério da Educação e Cultura. Courses and institutions 2016 [text on the Internet].
418 Brasília; MEC [cited 2018 Sep 10]. Available from: <http://portal.mec.gov.br>