

# Knowledge and involvement on ethical principles of animal experimentation in undergraduate physiotherapy

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## Abstract

This article analyzes a sample of university students from the Physiotherapy Course, the indicators of ethical use of animals in research and teaching to the level of knowledge and interest of the students on the topic of animal ethics. A questionnaire was distributed to the students of the first and second semesters of Physiotherapy, which was filled out in the classroom voluntarily. Data was analyzed and a descriptive discussion took place subsequently. The questionnaire was completed by 193 students. Among the surveyed students, the majority had prior knowledge on the topic of animal ethics, but never attended classes with practical use of animals and claimed they have never thought about replacing animals by alternative methods. Students were sensitized on the number of animals used in teaching and research and demonstrated knowledge of the subject.

**Key words:** Ethics, -Ethics, Research-, Ethics Committees, -Ethics Committees, Research-, Animal Experimentation, Bioethics

## Resumo

### Conhecimento e envolvimento de graduandos em fisioterapia acerca dos preceitos éticos da experimentação animal

O artigo analisa em amostra de universitários do curso de fisioterapia indicadores éticos ao uso de animais na pesquisa e no ensino e o nível de conhecimento e interesse dos alunos sobre o tema ética animal. Foi distribuído um questionário aos alunos do primeiro e segundo semestres do curso de fisioterapia, cujo preenchimento ocorreu em sala de aula de forma voluntária. Os dados obtidos foram analisados e posteriormente colocados à discussão de forma descritiva. O questionário foi preenchido por 193 universitários; a maioria dos alunos pesquisados tinha conhecimento prévio sobre o tema ética animal, porém nunca participaram de aulas práticas com uso de animais e afirmam nunca ter pensando sobre a substituição dos animais por métodos alternativos. Os alunos se sensibilizaram quanto ao número de animais utilizados no ensino e nas pesquisas e demonstraram conhecimento a respeito do tema.

**Palavras-chave:** Ética. Ética em pesquisa. Comissão de ética. Comitês de ética em pesquisa. Experimentação animal. Bioética.

## Resumen

### El conocimiento y la participación en los principios éticos de experimentación animal de los graduandos en fisioterapia.

El artículo analiza en una muestra de universitarios del curso de fisioterapia, los indicadores para el uso de los animales en la investigación y en la enseñanza, y el nivel de conocimiento e interés de los estudiantes sobre el tema de la ética animal. Se distribuyó un cuestionario a los alumnos de primer y segundo semestres del curso de fisioterapia, que se llevó a cabo el relleno en el salón de clases voluntariamente. Los datos obtenidos fueron analizados y, posteriormente, sometido a discusión de manera descriptiva. El cuestionario fue completado por 193 universitarios; la mayoría de los encuestados tenía conocimiento previo acerca del tema ética animal, pero nunca asistieron a las clases prácticas con el uso de animales y garantizan que nunca han pensado en reemplazar los animales por métodos alternativos. Los estudiantes se sensibilizaron con el número de animales utilizados en la enseñanza y la investigación y demostraron conocimiento del tema.

**Palabras-clave:** Ética. Ética en investigación. Comitês de ética. Comitês de ética en investigación. Experimentación animal. Bioética..

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The large scientific and technological development of our era is responsible for many conflict situations experienced daily. In this scenario bioethics gains space, specifying the right use of knowledge achieved by the science<sup>1</sup>. The animal ethic is inserted in bioethics, knowledge area which also requires a multidisciplinary reflection about the limits of human being's acts to the nonhuman animals<sup>2</sup>.

In education and research, many activities are performed using different environmental resources aiming to deepen the knowledge related to a determined topic. Among those, is the use of animals to scientific educational experiences seeking knowledge and benefits to humans and animals<sup>3</sup>.

The use of animals in universities, in education or research, must be guided by humanitarian principles of animal experimentation determined by the British men Russell and Burch and defined as the 3R Principle. This principles consist of: reduction – consider the use and suffering applied to the animals in relation to the objectives and desired benefits with the objective of reducing the number of guinea pigs; refinement – preoccupation with the well-being of the animals in general with adequate facilities and elimination of the pain; replacement – stimulates the search for alternative methods to the animal model<sup>4-7</sup>. Additionally, the National Council for the Control of Animal Experimentation (Concea), created by the law 11.794 October 08<sup>th</sup>, 2008, establishing that the constitution of ethical committee for the use of animals (Ceua), in all institutions including education or research activities with animals is essential for its effective accreditation<sup>8</sup>.

However, the abusive use of animals carried by many representatives of the scientific community motivated discussions from ethical and scientific character involving professionals from biomedical area among others related to the moral philosophy which seeks to ensure ethically

adequate actions to these sentient beings and to establish limits to this utilization which culminated on the creation of the law 11.794/08<sup>2,8</sup>. The ethical debate about the use of the animals in researches has attracted the society's attention, with different views relate to the theme, although it is not properly a new debate<sup>1,8</sup>.

The open discussions about the indiscriminate use of animals, whether in science or education, encouraged the conception and creation of institutional committees for use and care of animals with intention of subsidizing scientists, professors, students and the public in general regarding the management of these sentient beings in a morally correct form<sup>2</sup>.

The institutional ethic committees in the use of animals are organs which establish the policies that ensure the observation of strict ethic norms on the work with animals to the light of the present legislation, if it exists or within the limits established by the committee to that institution where it acts<sup>9-12</sup>. According to Law 11.794/08, it is Ceua's responsibility to previously examine all the procedures of education and research involving animals, verifying the enforcement of the applicable guidelines to animal's utilization, especially in the Concea's resolutions<sup>8</sup>.

It is important that the members the ethics' committee assume and respect the vulnerability of the animal, establishing actions from the discussion of moral principles that will base its normative proportions. These principles have been discussed by many moral philosophers and might serve as parameters to the institutional ethics' committee for the use of animals<sup>8,13,14</sup>.

In this perspective, the study proposes to investigate ethic indicators for the use of animals in the scientific research and education of university students of a physiotherapy course in the state of São Paulo.

## Method

For the realization of this descriptive study, students from the first and second semesters of a physiotherapy course of a higher education institution of the metropolitan region of São Paulo were interviewed. To investigate the level of knowledge and the interest of the students about the animal ethics issue, the interview used a questionnaire adapted from Feijó *et al*<sup>2</sup> containing ten questions.

The study was submitted to the appreciation of the Research Ethics Committee from Universidade Paulista (Unip) and the collection of data started after their approval. The responsible person was contacted made by the administration of the physiotherapy course in each campus involved. After the authorization, the professors were previously contacted and clarified about the research, they distributed and collected the questionnaire of

students which was filled out in class by them in a volunteer way.

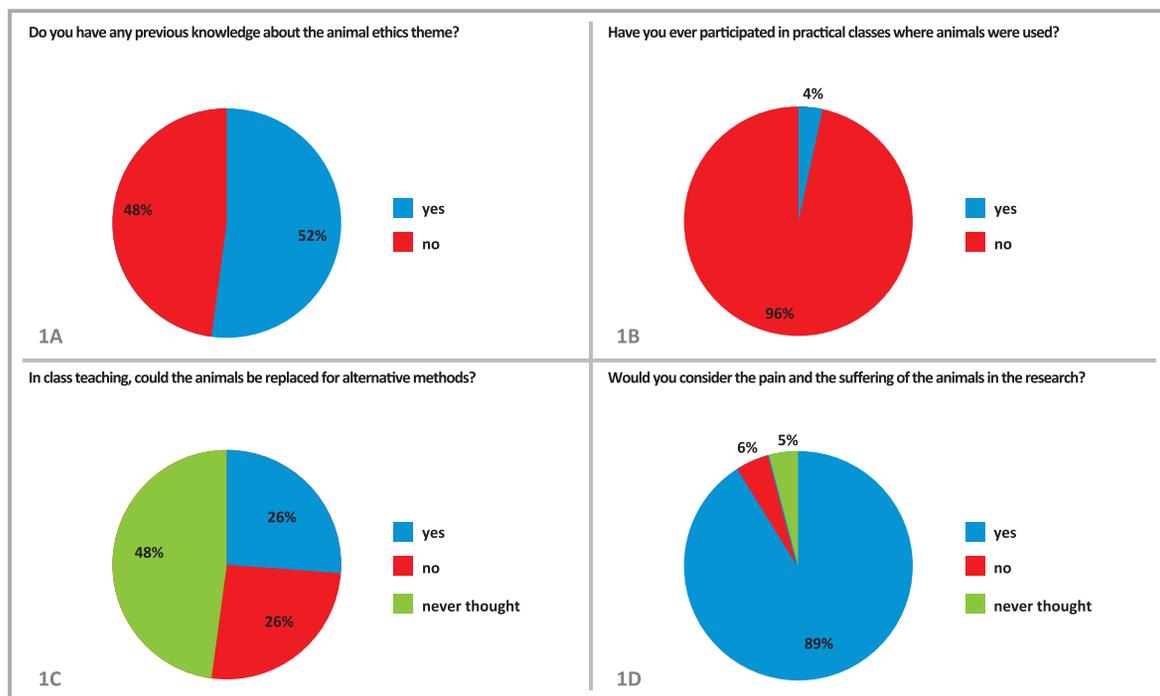
There was no term's signature of a free and clarified consent by the students because the questionnaire contained in the header explanations about the project, objectives and the researcher's data.

The data obtained with the questionnaire's application was tabulated by Microsoft Excel program® and properly placed in discussion in the development of this academic work.

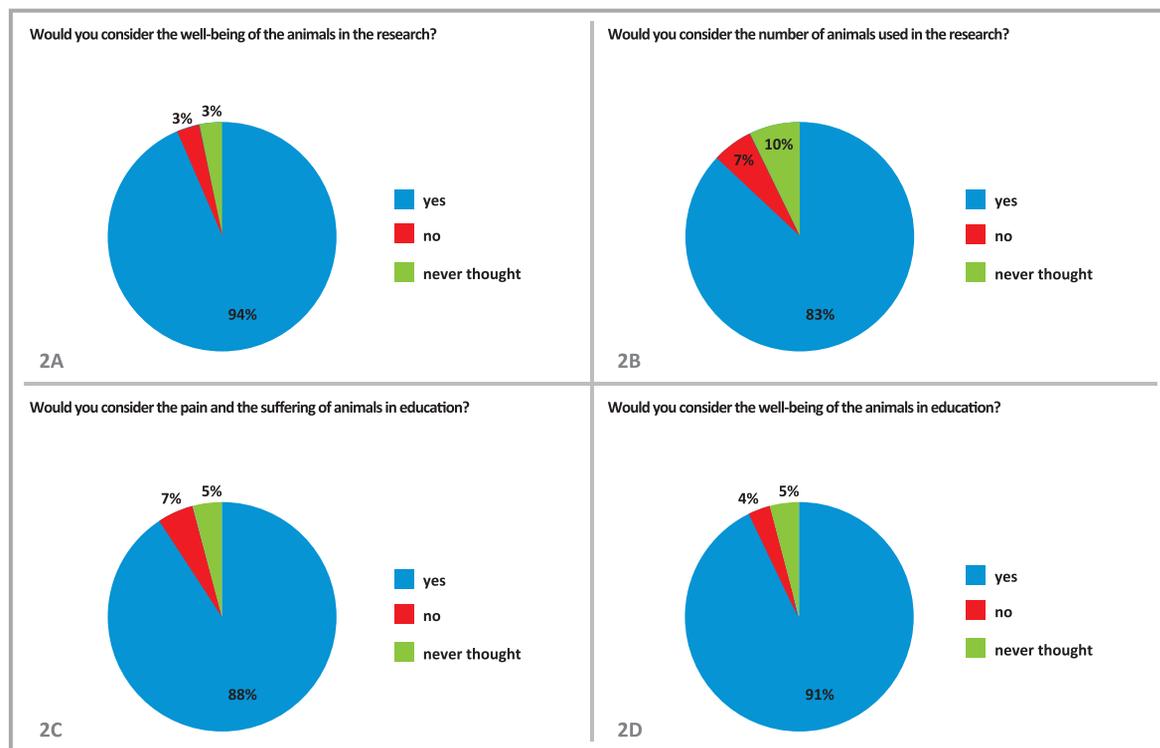
## Results

The questionnaire was filled out and returned by 193 university students. The age of the students varied from 18 to 50 years old, 83% women and 17% men. The results are described, separated by questions as follows:

**Figures. 1A.** Expression of the interviewees in relation to the previous knowledge about the animal ethic's theme; **1B.** Expression of the interviewees regarding the participation in practical classes using guinea pigs; **1C.** Expression of the interviewees who consider viable the replacement of animal for alternative methods in teaching; **1D.** Expression of the interviewees who consider the pain and the suffering of animals in research.



**Figures. 2A.** Expression of the interviewees who consider the well-being of the animals in research; **2B.** Expression of the interviewees who consider the number of animals used in research; **2C.** Expression of the interviewees who consider the pain and the suffering of animals in education; **2D.** Expression of the interviewees who consider the well-being of animals in education.



In the question 9, related to the amount of individuals who consider the number of animals used in education 81% of the interviewees answered yes; 7% said no and 12% never thought about it.

In the question 10, about the opinion related to animals which might be used in scientific experiments, a variety of species were mentioned: the rat was the most refereed (42%), followed by the rabbit (16%), mouse (8%) monkey (6,2%), rodents (4,3%), dog (3,6), snake (3,3%), frog (3,3%), pig (3,3%), horse (2,2%), cat (2,2%), pigeon (1,1%), lizard (0,7%), spider (0,7), cockroach (0,4%), poultry (0,4%), reptiles (0,4%), whale (0,4), ant (0,4%), worm (0,4) and fish (0,4%).

### Discussion

When the students were questioned about the issue on animal ethics, it was observed that there was equivalence in answers from those who affirmed having knowledge or not about the subject. The study conducted by Feijó <sup>2</sup> showed that the majority of the group affirmed having knowledge about the issue in discussion, which conflicts

with the data obtained in the present analysis. It is common in some areas of Health Sciences, the use of animals in experiments. That is why, the theme is approached (in theory) during graduation which does not occur in the physiotherapy course from the institution analyzed, justified in parts, by the lack of knowledge of the group studied. The positioning of the students who claim to have knowledge about the theme is the same proportion as the ones who do not to affirm to have this knowledge.

96% of the students affirmed they never had experience in practical classes with the use of animals when they were questioned about it, data that could be justified by animal experiments not being common in the physiotherapy course of the institution. It means that the students who did not have contact with this practice also did not have contact out of the institution because of the Law 6.638, May 08<sup>th</sup> 1979, in art. 3 established that the vivisection is forbidden in elementary and high school establishments of education and in any place frequented by under age<sup>15</sup>people.

Question 3 relates to the replacement of animals by alternative methods enabled the verification that there is no consensus by the students: 26%

agreed, 26% did not agree and 48% never thought about it. The alternative methods are the procedures which can reduce or replace the use of live animals in a way to reduce the pain and suffering<sup>4</sup>. It is important to know that the use of animals in education and research must abide the Law 11.794/08<sup>8,16</sup>.

The majority of students were really sensitive about the situations related to the pain and suffering of the animal, the well-being and the number of animals used in research and education which confirm the data of Feijó's study<sup>2</sup>.

The concerns expressed by society do not limit to a simple notion of pain, in other words, is not just the presence or absence of pain that will indicate suffering or the well-being of animals. Independent of the pain, the level of well-being is linked to the situation where the animal is. The first step to achieve the well-being of the experimentation animal comes from the education of people who work that they become eligible to treat them in a correct form, with a respectful attitude to reduce the stress caused by inadequate control.

An important data for animal ethics indicated in this study, is the concern demonstrated by the students in reducing the number of animals in experiments, highlighting their sensitizations to the

topic. The awareness of the need to treat animals with dignity and respect must occur by lectures and courses which approach themes like ethics, well-being, alternative methods, and improvement of techniques and exchange of knowledge<sup>17,18</sup>.

The use of animals depends on the objective of the study, because there are biological models appropriate for each specific type. The lineage of each animal is considered an important aspect during the selection of the experiment for animal monitoring<sup>19</sup>. The opinion of the students in relation to the animals used in experiments, the rat was the most quoted with 42%, in second place were the rabbit with 16% and the mouse with 8% of the answers.

### Final Considerations

From the data obtained in this study is possible to conclude that the students present ethical awareness about the conduction of researches with the use of animals. Despite of simple previous knowledge about the theme, they showed sensitivity to the pain, suffering, well-being, and the amount of animals used in the scientific experiments, displaying interest for the ethical aspect of the animal.

### References

1. Schatzmayr HG, Muller CA. As interfaces da bioética nas pesquisas com seres humanos e animais com a biossegurança. *Ciênc Vet Tróp.* 2008; 11(1): 130-4.
2. Feijó AGS, Sanders A, Centurião AD, Rodrigues GS, Schwanke CHA. Análise de indicadores éticos do uso de animais na investigação científica e no ensino em uma amostra universitária da área da saúde e das ciências biológicas. *Sci Med.* 2008;18(1):10-9.
3. Danielski JCR, Barros DM, Carvalho FAH. O uso de animais pelo ensino e pela pesquisa: prós e contras. *Reciis.* [Internet]. 2011 [acesso mar 2013];5(1):72-84. Disponível: <http://www.reciis.cict.fiocruz.br/index.php/reciis/article/view/397/795>
4. Diniz R, Duarte AA, Oliveira CAS, Romiti M. Animais em aulas práticas: podemos substituí-los com a mesma qualidade de ensino? *Rev Bras Educ Méd.* 2006;33(2):31-41.
5. Russel WMS, Burch L. The principles of human experimental techniques: special edition. London: Universities Federation for Animal Welfare; 1992.
6. Coelho RF. Experimentação com animais: ética e legislação. *Revista HU-USP.* 2000;10(2):3-15.
7. Garutti S, Palma B. Experimentação científica com animais: considerações sobre os comitês de ética. *Revista de História Comparada.* 2010;4(2):107-24.
8. Brasil. Lei nº 11.794, de 08 de outubro de 2008. Regulamenta o inciso VII do Parágrafo 1º do art. 225 da Constituição Federal, estabelecendo procedimentos para o uso científico de animais; revoga a Lei nº 6.638, de 8 de maio de 1979; e dá outras providências. *Diário Oficial da União.* 9 out 2008;(196):Seção 1; p.1-4.
9. Feijó AGS. A função dos comitês de ética institucionais ao uso de animais na investigação científica e docência. *Bioética.* 2006;12(2):11-22.
10. Bertomeu MJ. Implicações filosóficas na reflexão: discurso e ação dos comitês de ética. *Bioética.* 1995;3(1):21-7.
11. Cecconi E. Promotor defende bem-estar de porcos e frangos. *Zero Hora.* 14 out 2007; Geral:39.
12. Paixão RL. As comissões de ética no uso de animais. *Revista CFMV.* 2004;10:13-20.
13. Schnaider TB, Souza C. Aspectos éticos da experimentação animal. *Rev Bras Anestesiol.* 2003;53(2):278-85.
14. Pereira JO, Haag MC, Dall'Agnol TA, Urban CA. Ética em experimentação animal. *RUBS.* 2006;2(1):46-53.

15. Brasil. Lei nº 6.638, de 8 de maio de 1979. Normas para a prática didático-científica da vivissecção de animais. [Internet]. [acesso 13 jul 2007]. Disponível: [http://www.ufrgs.br/bioetica/lei\\_6638.htm](http://www.ufrgs.br/bioetica/lei_6638.htm)
16. Rodrigues GS, Sanders A, Feijó AGS. Estudo exploratório acerca da utilização de métodos alternativos em substituição aos animais não humanos. *Rev Bioet (Impr.)*. 2011;19(2):577-96.
17. Frajblat M, Amaral VLL, Rivera EAB. Bem estar em animais de laboratório. In: Christofolletti R, Beck AAH, organizadores. *Ética, ciência e desenvolvimento*. Itajaí: Editora da Universidade do Vale do Itajaí; 2006. p. 117-28.
18. Frajblat M, Amaral VLL, Rivera EAB. Bem-estar em animais de laboratório. [Internet] 2006. [acesso 10 nov 2012]. Disponível: [http://www.cobea.org.br/index.php?option=com\\_content&view=article&id=64%3Abem-estar-em-animais-de-laboratorio&catid=4](http://www.cobea.org.br/index.php?option=com_content&view=article&id=64%3Abem-estar-em-animais-de-laboratorio&catid=4)
19. Damy SB, Camargo RS, Chammas R, Figueiredo LFP. Aspectos fundamentais da experimentação animal: aplicações em cirurgia experimental. *Rev Assoc Med Bras*. 2010;56(1):103-11.

#### Authors' participation

Igor Fagioli Bordello Masson: idealization, conception and design of the study; survey and interpretation of data; essay and critical review. Cristiano Schiavinato Baldan: conception and design of the study; survey and interpretation of data; essay and critical review. Vanessa Ramalho: idealization of the study; survey and interpretation of data; essay. Ivaldo Esteves Junior: conception; essay and critical review. Daniela Fagioli Masson: conception; essay and critical review. Beatriz de Oliveira Peixoto: conception; essay and critical review. Cassio Marcus Vilicev: conception; essay and critical review. Thiago Saikali Farcic: conception; essay and critical review.

