



Research

Management, health, and abnormal behaviors of horses: A survey in small equestrian centers in Brazil



Denise Pereira Leme^{a,*}, Ana Beatriz H. Parsekian^b, Vanessa Kanaan^c, Maria José Hötzel^a

^a LETA - Laboratório de Etologia Aplicada e Bem-Estar Animal, Departamento de Zootecnia e Desenvolvimento Rural, Universidade Federal de Santa Catarina, Florianópolis, Santa Catarina, Brazil

^b Equine Practitioner, Atibaia, SP, Brazil

^c Universidade Federal de Santa Catarina

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ABSTRACT

Care conditions of horses housed in small equestrian establishments and the occurrence of health and behavioral problems were assessed in 197 animals. Based on questionnaires and direct observations of the animals, it was noted that 8% of all animals were fed exclusively on pasture, whereas 92% received commercial concentrate or grain with limited or no grass. Sixty percent of the horses spent 20–24 hours/day in the stalls, 30% spent 12 hours/day, and 10% were kept outdoors. Eighty five percent exercised regularly, whereas 15% did not exercise at all. Wounds (18%), colic (6%), and strangles (3%) were the most cited diseases in the interviews. Fifty-six percent of the horses showed behavioral problems; the frequency and type of abnormal behavior varied according to horse use ($P < 0.001$). The management of the horses presented numerous concerns regarding feeding and housing, probably leading to increased behavioral problems. The results presented here would be a useful tool for the education of owners and caretakers.

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Introduction

An influential report of the Confederation of Agriculture and Livestock of Brazil estimated a population of 5.8 million of horses in Brazil, which contributes with 3.7 billion of dollars for their national economy (Lima et al., 2006). Also according to the report, there is a wide geographic distribution of equestrian centers in Brazil, which house approximately 800,000 horses for a large variety of purposes. As in industrialized countries, most of those horses are used as companion animals in sports and recreation (Lima et al., 2006; Visser and Van Wijk-Jansen, 2012). In equestrian centers, horses kept for competition, leisure, and working horses are often housed in stables (Goodwin, 1999).

In contrast to free-running horses, which spend most of the day in groups searching for a wide and safe place for food and rest, stabled horses are fed by humans and not allowed to have social

interactions (Mills and Clarke, 2002). Today, in urban areas where there is not enough land to keep horses, equestrian centers can offer a unique opportunity to allow humans and horses to have close contact. Although stabling appears to be a good fit for the human's needs, the stall is the opposite of a natural environment and many do not meet the horses' needs (Goodwin, 1999; Bird, 2004). Many factors such as management, housing system, feeding practices, types of activities, and preventive health care may affect directly the welfare of horses (Casey, 2002; Thorne et al., 2005; Visser et al., 2008).

In horse husbandry, tradition is a significant way through which information about animal care is passed forward. However, not all information is based on professional expertise. Unfortunately, the most important source of information about horse husbandry is obtained by personal contact with other horse enthusiasts; besides not being technical, the information can arise from owners or caretakers with little or no agricultural background (Hotchkiss et al., 2007; Visser et al., 2008; Visser and Van Wijk-Jansen, 2012). Also, differences between owners' perceptions and the actual problems of their horses can indicate that there is a problem of identification of abnormal situations by the person who could pass forward the information about horses (McGowan et al., 2010; Visser

* Address for reprint requests and correspondence: Denise Pereira Leme, DVM, PhD, Universidade Federal de Santa Catarina, Departamento de Zootecnia e Desenvolvimento Rural, Laboratório de Etologia Aplicada e Bem-Estar Animal, Rod. Admar Gonzaga, 1346, Itacorubi, 88034-001 Florianópolis, Santa Catarina, Brazil, Tel/fax: 55 48 3721 2661.

E-mail address: denise.leme@ufsc.br (D.P. Leme).

and Van Wijk-Jansen, 2012). Horses spending more time inside the stalls results in limited access to outdoor activities, artificial feeding, and lack of social interactions (Mills and Clarke, 2002), which may lead to the onset of abnormal behaviors (Goodwin, 1999) and an increased risk of health problems (Casey, 2002; Cooper and McGreevy, 2002). It has been estimated that 18.4% of the horses kept in stables perform some form of stereotypic behavior (Mason and Rushen, 2006). Other studies have reported between 5% and 15% (e.g., McGreevy et al., 1995; Luescher et al., 1998) or more than 35% (Waters et al., 2002) of stabled horses presenting stereotypic behaviors. Considering the possible concerns involved with keeping horses in an unnatural way, the objective of the present study was to describe the management practiced in small equestrian centers in Atibaia, Brazil, and the occurrence of behavioral problems and common physical diseases.

Materials and methods

Data collection

The horse population in Atibaia (23°07'01"S 46°33'01"W), São Paulo State, Brazil, was 1959 in 2008, distributed in 289 properties; from those, only 20 properties had facilities appropriate for housing horses (Atibaia, 2008). Data were collected from 10 different equestrian centers with horses for leisure, sport competition, and riding school. Horses were housed mostly in stables with small individual stalls. Facilities included paddocks, pasture area with native grass, and arenas for riding lessons.

Questionnaires were applied to obtain information from owners or caretakers regarding the horses. Data about housing and feeding were recorded for group of horses under the same practices, and data about work and health history were recorded on individual sheets for each horse or a group of horses. Most questions had an open response format. Abnormal behaviors were only recorded by direct observation by the same person who also recorded the owners' answers on each questionnaire. Each horse was observed separately. The occurrence of abnormal behaviors presented by each horse during the sequence of 30 minutes of observation was recorded on individual sheets. The abnormal behaviors observed included coprophagia, licking (parts of stall), wood chewing, crib biting, wind sucking, weaving, and aggression/biting, according to the definitions adapted from the study by Broom and Fraser (2007), presented in Table 1.

A total of 197 horses kept in small equestrian centers were included in this study. From the total of horses, 182 were older than

Table 1
Description of abnormal behaviors observed in 197 horses kept in individual stalls from 10 equestrian centers of Atibaia, São Paulo State, Brazil

Abnormal behavior	Description
Coprophagia	Eating its own feces
Licking	Applying the tongue repeatedly in parts of stall or bed with occasional ingestion of materials
Wood chewing	Grasping wood surfaces with incisors teeth performing chewing movements
Crib biting	Grasping the edge of feeder or other fixed surface with incisor teeth
Wind sucking	Opening the mouth and flexing the neck to suck in air with or without fixing the incisor teeth in a fixed surface
Weaving	Moving the body from side to side inside the stall in front of the door
Aggression/biting	Aggressive behavior as kicking, pawing, or moving the head violently against human, horses, and other animals/attempts to bite humans, horses, and other animals

Adapted from Broom and Fraser, 2007.

Table 2

Percentage of frequencies of commercial concentrate or grain feeding for 197 horses kept in individual stalls from 10 equestrian centers of Atibaia, São Paulo State, Brazil and classified according to horseback riding (n = 59), rental (n = 33), show jumping (n = 28), horse reining (n = 40), rodeo (barrel racing and pole bending) (n = 22), and foals (n = 15)

Frequency	Horseback riding	Rental	Show jumping	Reining	Rodeo	Foals	Mean
2-3 kg/3×/day	16.95	0.00	0.00	100.00	45.45	13.33	29.29
2-4 kg/2×/day	79.66	78.79	100.00	0.00	54.55	60.00	62.17
Corn grain 3×/day	3.39	0.00	0.00	0.00	0.00	0.00	0.56
None	0.00	21.21	0.00	0.00	0.00	26.67	7.98

4 years and 15 were foals between 2 and 3 years old. Horses were divided into the following categories: horseback riding (n = 59), reining (n = 40), rental (n = 33), show jumping (n = 28), rodeo (barrel racing and pole bending) (n = 22), and foals (n = 15). All horses were in good health conditions and received general farrier work and preventive care for worms and common infectious diseases.

Data analysis

Results about management were grouped according to answers given by owners or caretakers, and percentages of horses and mean of percentages for each type of care given are presented in tables as follows: frequency and type of feeding regimen, frequency of work periods, hours continuously spent in stalls, health problem history, and the presence of behavioral problems.

Data were subjected to chi-square test to check the independence between the frequencies of abnormal behaviors according to horse use, with a significance level of 5% error, with the software (R Development Core Team, 2011).

Results

Data on feeding type and frequency of meals are shown in Tables 2 and 3. The frequency of feeding with commercial concentrate or grain varied between 2 (62.2%) and 3 (29.8%) times a day for 92% of horses; an exception were 8% of horses (some foals and rental horses) that were fed exclusively on pasture. Approximately 87% of horses received limited or no grass (2%) in contrast with 11% that were allowed to graze *ad libitum* (including 3% of the

Table 3

Percentages of frequencies of grass feeding for 197 horses kept in individual stalls from 10 equestrian centers of Atibaia, São Paulo State, Brazil and classified according to horseback riding (n = 59), rental (n = 33), show jumping (n = 28), horse reining (n = 40), rodeo (barrel racing and pole bending) (n = 22), and foals (n = 15)

Grass type	Horseback riding	Rental	Show jumping	Reining	Rodeo	Foals	Mean
Molasses grass 6 kg/6×/day	28.81	0.00	0.00	0.00	45.45	0.00	12.38
Molasses grass 8 kg/2×/day	33.90	0.00	0.00	0.00	0.00	0.00	5.65
Molasses grass 10 kg/2×/day	0.00	0.00	100.00	100.00	0.00	0.00	33.33
Chopped elephant grass 4 kg/2×/day	30.51	66.67	0.00	0.00	54.55	60.00	35.29
Grazing native pasture "ad libitum"	6.78	33.33	0.00	0.00	0.00	26.67	11.13
No grass	0.00	0.00	0.00	0.00	0.00	13.33	2.22

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