

## Homeopathic Treatments in 17 Horses with Stereotypic Behaviours

Çağla PARKAN YARAMIŞ<sup>1</sup>  Marie-Noelle ISSAUTIER<sup>2</sup> Sinem ULGEN SAKA<sup>3</sup>  
Berjan DEMİRTAŞ<sup>1</sup> Dilek OLGUN ERDİKMEN<sup>4</sup> Mehmet Erman OR<sup>3</sup>

<sup>1</sup> İstanbul University, Vocational School of Veterinary Medicine, Equine and Equine Training Program, TR-34320 Avcılar, İstanbul - TURKEY

<sup>2</sup> Veterinary Surgeon, Expert and Consultant in Veterinary Homeopathy, Lyon - FRANCE

<sup>3</sup> İstanbul University, Faculty of Veterinary Medicine, Department of Internal Medicine, TR-34320 Avcılar, İstanbul - TURKEY

<sup>4</sup> İstanbul University, Faculty of Veterinary Medicine, Department of Surgery, TR-34320 Avcılar, İstanbul - TURKEY

Article Code: KVFD-2016-15418 Received: 23.02.2016 Accepted: 27.04.2016 Published Online: 27.04.2016

### Abstract

Many stabled horses perform a variety of stereotypic behaviours such as cribbing, circling, wall kicking, self-mutilation, weaving and headshaking. It is difficult to know why exactly each horse performs these behaviours, there may be specific causal factors for these activities in the horse. Homeopathy can contribute to the treatment of these disorders, because it approaches the organism as the sum of the specific characteristics of an animal when it is in a state of health or illness, at the physical, mental and psychological level. The application of homeopathic laws during anamnesis allows us to achieve a deeper understanding of the horse, considering all its special characteristics. This study has been conducted with 17 horses showing one of the stereotypic behaviours of cribbing, circling, wall kicking and self mutilation. Homeopathic remedies are determined specifically according to the constitution and stereotypic behaviour problem of each horse. One month after the beginning of the treatment, the symptoms of stereotypical behaviours were found to be decreased and after two months considerable regression were detected. Cribbing and self-mutilation were completely treated. Circling and wall kicking were decreased. To our knowledge, this study is the first report to cure the stereotypic behaviours of horses with using homeopathic remedies. This study suggests that homeopathy is as an effective therapy method which is used uncommonly in stereotypic behaviours of horses.

**Keywords:** Horse, Stereotypic behaviours, Homeopathy

## Sterotipik Davranış Bozukluğu Gösteren 17 Atın Homeopati İle Tedavisi

### Özet

Ahırda bakılan atlarda yel yutma, ahırda dönme, duvar tekmeleme, kendine zarar verme gibi stereotipik davranış bozukluklarına sıklıkla rastlanabilmektedir. Atların bu tip davranış bozukluklarını yapmalarının sebebi tam olarak bilinmemekle birlikte, her atın kendine ait nedensel faktörleri olabileceği düşünülmektedir. Homeopati organizmaya, sağlık veya hastalık durumunda, fiziksel, zihinsel ve psikolojik düzeyde, hayvanın tüm karakteristik özelliklerini bir bütün olarak görüp yaklaşır. Vakanın geçmişe ait hikayesini alırken uygulanan homeopati prensipleri, bize davranış bozukluğu gösteren atı daha derin bir anlayış ile tanıma olanağı sağlar. Çalışmamız yel yutma, ahırda dönme, duvar tekmeleme ve kendine zarar verme stereotipik davranışlarından birini gösteren 17 at ile yapılmıştır. Homeopatik ilaçlar her at için özel olarak, atın yapısal özelliklerine ve stereotipik davranışına göre belirlenmiştir. Tedavinin birinci ayının sonunda, stereotipik davranışlarda azalma; ikinci ayın sonunda ise önemli bir gerileme ve iyileşme saptanmıştır. Yel yutma ve kendine zarar verme tamamen iyileşmiş; ahırda dönme ve duvar tekmeleme belirgin şekilde azalmıştır. Çalışma, tarafımızca yapılan araştırmalara göre, atlarda stereotipik davranışların homeopati ile tedavisinde bildirilen ilk rapordur. Bu çalışmada, atların stereotipik davranışlarının tedavisinde ender kullanılan homeopatinin etkili bir sağaltım yöntemi olarak kullanılabileceği sonucuna varılmıştır.

**Anahtar sözcükler:** At, Sterotipik davranışlar, Homeopati

### INTRODUCTION

There are a wide range of seemingly bizzare behaviour patterns considered undesirable by horse owners for which they may seek veterinary advice and treatment.

Stereotypies are invariant and repetitive behaviour patterns that seemingly have no function<sup>[1,2]</sup>. Development and continued performance of stereotypic behaviour have been linked to suboptimal environments<sup>[3]</sup>. Specifically, stereotypic behaviour can develop within the following contexts:



**İletişim (Correspondence)**



+90 530 6457484



cparkan@istanbul.edu.tr

When an animal is unable to execute a behaviour pattern that it is highly motivated to perform, such as feeding or foraging behaviour, when it can't escape or avoid a stressful or fearful situation, or when it is kept in confinement or social isolation <sup>[4,5]</sup>.

The performance of stereotypic behaviour has been used as an indicator of poor welfare although it is often difficult to determine whether the behaviour is the result of poor welfare in the past or due to current adverse conditions <sup>[6]</sup>. Studies conducted in Canada <sup>[7]</sup> and the United Kingdom <sup>[8]</sup> have reported that greater than 13% of domesticated horses exhibit stereotypies. Stereotypic behaviour patterns observed in domestic horses can be listed as cribbing, weaving, circling, wall kicking, pawing, head shaking and self-mutilation which can be observed as flank-biting, chest-biting, shoulder-biting <sup>[9,10]</sup>.

Behavioural disorders have minor effects on the horse's health or performance like cribbing, however, some of them like self-mutilation, head shaking in show horses and race horses probably can result in euthanasia <sup>[2,5]</sup>. There are many studies on the neuropharmacological, surgical or mechanical therapy of stereotypies, but little is known about their causation. Behavioral disorders can be treated with tranquilisers or anxiolytics. The most well-known tranquilisers or anxiolytics are those of the benzodiazepine family <sup>[11,12]</sup>. The common side effects of the conventional therapeutic drugs made the homeopathy increasingly popular in treatment of horse behavioural disorders and also homeopathic remedies can help enormously without fear of breaking the rules of International Federation of Equestrian Sports on prohibited substances or causing sedation <sup>[13]</sup>.

Homeopathy is a safe, gentle, and natural system of healing that works with the body to relieve symptoms, restore itself and improve the overall health. Homeopathy is a 200 years old therapeutic method involving 'preparations of substances whose effects when administered to healthy subjects correspond to the manifestations of the disorder (symptoms, clinical signs, pathological states) in the individual patient'. The aspects of the mechanism of action still remain unclear however, the principle of the homeopathy is based on "like cures like". The term homeopathy is derived from two Greek words, 'homoios', meaning 'like', and 'pathos', which is translated as suffering <sup>[13-15]</sup>.

Homeopathic remedies can contain an unlimited number of plant, animal and mineral compounds, can be supplied in a number of forms, including tablets, creams, powders, liquids, and pellets <sup>[16]</sup>. Remedies generally come in the form of tiny tablets or liquid and are designed to be absorbed through the tongue and not put down the throat; since neither tablets nor liquid has much taste, administration is usually quite easy. Homeopathic remedies are very safe to use. Generally, no side effects are observed, if the remedy is used correctly. However, in the hands of persons with

little or no knowledge of homeopathy, remedies may be overused or, much more commonly, the wrong remedy is used, and no effect at all will be seen. This obviously does not harm the patient, but it does it no good either and is one of the reasons why, in the recent past, homeopathy was seen as a treatment with little or no effectiveness <sup>[17]</sup>.

Homeopathy can be used to treat a surprising number of conditions in both large and small animals. It can be used as therapy in trauma, acute injuries and in many types of inflammatory conditions such as acute and chronic diarrhea, chronic gingivitis, acute and chronic respiratory conditions, renal insufficiency, behaviour disorders etc. <sup>[17,18]</sup>. Homeopathy can contribute to the treatment of these disorders, because it approaches the organism taking its idiosyncrasy into consideration. Idiosyncrasy is defined as the sum of the specific characteristics of an animal when it is in a state of health or illness, at the physical, mental and psychological levels <sup>[19]</sup>.

Veterinary studies in homeopathy to date has typically studied the effect of a pre-selected homeopathic medicine in groups rather than using individualised prescribing <sup>[15,17]</sup>. One of the most powerful ways of dealing with behavioural problems by homeopathy is using homeopathic remedies according the complaint of the animal and using the constitutional remedies <sup>[13]</sup>.

There are few studies about equine homeopathic treatments, however to our knowledge there is not a research article about the effects of homeopathic treatments on equine behavioural problems.

According to the books written by experienced veterinarians specialized in homeopathy, the basic homeopathic remedies used for equine behavioural problems are: Ignatia, Gelsemium, Pulsatilla, Phosphorus, Lycopodium, Arnica Montana, Hepar Sulfur, Arsenicum Album, Nux Vomica, Thuya Occidentalis, Argentum Nitricum, Lachesis, Stramonium. It has been reported that the most commonly used ones are Ignatia and Gelsemium <sup>[13,18,20]</sup>.

Ignatia is one of the homeopathic remedies most commonly used in horses. This is the principal remedy to consider in treating grief, both silent grief and for the deeper effects of these emotional problems <sup>[13,21]</sup>. Gelsemium is described as a remedy for a variety of anxiety-like psychological and behavioral symptoms. In recent years, the effects of Ignatia and Gelsemium on emotional response are studied mostly in mice. It has been reported that Gelsemium reduced anxiety and fear in manner quantity comparable to the effects of normal anxiolytic drugs <sup>[22]</sup>. Marzotto et al. <sup>[23]</sup> have been reported that Ignatia has been shown to be able to modulate the emotional responses of mice.

Stereotypic behaviour problems are often observed in horses <sup>[7,8]</sup>. Horse owners try to solve this problem using chemical drugs or by traditional treatments. All these

so-called solutions can cause some harmful effects to the horses.

The aim of our study is to cure stereotypic behaviour problems which compromise the welfare and health of the horses with homeopathic remedies which can be used as an alternative way to the conventional therapy have low costs, respond fast, easy in usage and acceptable for racing rules.

## MATERIAL and METHODS

### Subjects

This study has been conducted with 17 show jumping horses (12 geldings, 5 mares), consulted by the owners of two riding centers with the stereotypic behaviours, between 2014 and 2015. Horse breeds were Hannover (6 horses), Holsteiner (5 horses), Irish Sport Horse (3 horses), Oldenburger (2 horses), Trakehner (1 horses). The age of the horses was varied between 7 and 14 years old.

Before treatment, a researcher took detailed anamneses from horse caretakers asking about the constitution of each horse (e.g. dominance in character, fearfulness, aggressiveness, fragility in nails, fragility in digestive system, feeling cold easily, sweating easily, neural sensitivity to smell and voices, fear from thunder, excitement before competition, head shy, excessive attention-seeking), the previous history of any illness and the current complaints of the horses.

A researcher also asked the feeding and exercise regimes of the horses and thereafter visited the horse riding centers to observe the horses at their own places.

The daily routine schedule of feeding and exercise regimes were same in both of the riding centers. Horses were fed five times a day; as a roughage, hay was given three times a day at 07:00 am, 13:00 pm and 19:00 pm, as a concentrate, a mix of crushed barley, oat and bran was given twice a day at 08:00 am in the morning and 20:00 pm in the evening. Horses allowed to drink water *ad libitum*. Two hours before or after the feeding, horses exercised by the trainers, once a day for 45-60 min. The same feeding and exercise regimes have been continued in the same manner during the treatment as well.

According to the detailed anamneses and observations, it is diagnosed that these 17 horses showed the stereotypic behaviour patterns of cribbing, circling, wall kicking and self mutilation. The distribution of these stereotypic behaviours in horses is shown in [Table 1](#). According to the anamneses the horses have had one of these stereotypic behaviours at least for 3 months and horses with cribbing and circling have not shown these behavioural patterns during feeding and exercising time and when they are in contact with people while horses with wall kicking and

self mutilation have continued to show these patterns in minimal level during feeding but not during exercising time.

Four horse caretakers (owner, trainer, groom and veterinarian) who belonged to the same riding center were appointed as an observer team. They were considered to understand the horse sufficiently through ordinary care and daily exercising. A scoring survey scale was given to each person in observation team ([Table 2](#)). For each horse, each person in observation team was asked to provide their impression about the pattern of stereotypic behaviour at the end of each month according to the everyday observations throughout the study. The observations were carried out especially during the times when the horses are not feeding or exercising since it has been reported that these stereotypic behaviour patterns had not been observed during feeding and exercising time. Each response was given based on a scale of 1-5, with one being never match with a diagnosed stereotypic behaviour pattern, 5 being the highest match in that pattern.

### Treatment

Horses were treated with homeopathic remedies with the requests of horse owners. These remedies are bought as granulated form (granules) in plastic tubes from by Boiron Laboratoires, Lyon, France. The remedies were granules already diluted and dynamized in 15CH (centesimal dilutions).

Homeopathic remedies are determined specifically according to the constitution and stereotypic behaviour problems of each horse ([Table 3](#)). Homeopathic Ignatia (Ign) and/or Gelsenium (Gels) have been used for every horse according to the effects of each remedy on behavioural problem. Apart from these two remedy, additionally

**Table 1.** The distribution of stereotypic behaviours observed in 17 horses  
**Tablo 1.** Onyedıatta gözlemlenen stereotipik davranışların dağılımı

Stereotypic Behaviour	Horses	
	n	%
Cribbing	7	41.17
Circling	3	17.64
Wall kicking	4	23.52
Self-mutilation	3	17.64
Total	17	100

**Table 2.** Example of scoring survey for observers  
**Tablo 2.** Gözlemci anket örneği

Observer Name-Surname			
Horse 1	A0	A1	A2
1 (never), 2, 3, 4, 5 (highest)			
A0: Stereotypic behaviour score before treatment; A1: Stereotypic behaviour score at the end of 1 <sup>st</sup> month; A2: Stereotypic behaviour score at the end of 2 <sup>nd</sup> month			

**Table 3.** The homeopathic remedies used according to the constitution and the stereotypic behaviour of each horse

**Tablo 3.** Her atın yapısal özelliklerine ve stereotipik davranışına göre kullanılmış olan homeopatik remediler

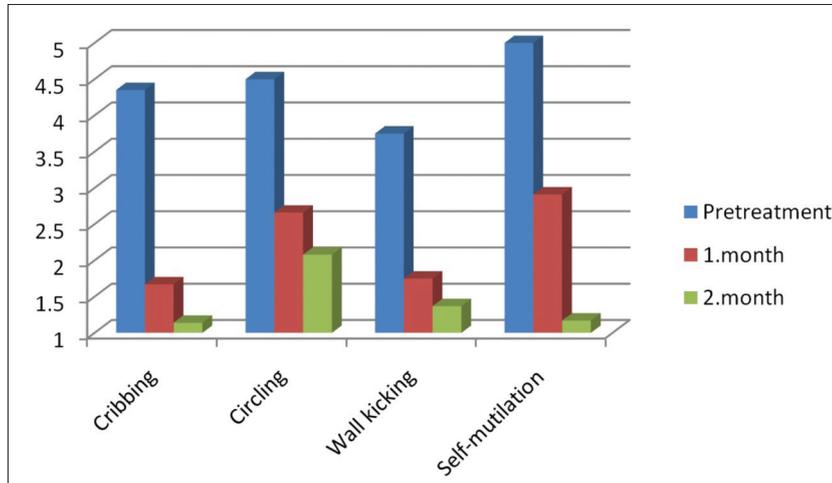
Horse Number, Sex, Age	Symptoms	Treatment
Horse 1 (female, 8)	Cribbing	Ign, Gels, Thuj
Horse 2 (gelding, 11)	Cribbing	Stram, Gels, Phos
Horse 3 (female, 9)	Cribbing	Nux-v, Ign, Gels
Horse 4 (gelding, 10)	Cribbing	Gels, Puls, Thuj
Horse 5 (gelding, 11)	Cribbing	Ign, Hyper
Horse 6 (gelding, 14)	Cribbing	Gels, Lyc, Phos
Horse 7 (female, 12)	Cribbing	Ign, Lyc, Phos
Horse 8 (gelding, 7)	Circling	Gels, Ign
Horse 9 (gelding, 10)	Circling	Puls, Gels
Horse 10 (female, 8)	Circling	Puls, Ign
Horse 11 (female, 12)	Wall kicking	Ign, Gels, Nux-v
Horse 12 (gelding, 9)	Wall kicking	Lach, Lyc, Gels
Horse 13 (gelding, 11)	Wall kicking	Gels, Arg-n
Horse 14 (gelding, 8)	Wall kicking	Ign, Nux-v
Horse 15 (gelding, 13)	Self-mutilation	Lach, Staph, Ign
Horse 16 (gelding, 8)	Self-mutilation	Lach, Staph, Gels
Horse 17 (stallion, 9)	Self-mutilation	Ars-a, Arg-n, Nux-v, Ign, Lach

The mix of remedies specific for each horse was shaken for 15-20 seconds before administration and 1 mL of mixed remedies was administered by adding on sugar [spraying 5 times] to the horse by groom. This treatment was applied every morning at 10:00 am for 2 months. Thuja occidentalis (Thuj) (horse 1, 4) and Lachesis (Lach) (horse 17) have been used only twice a week additionally to the prepared mixed remedies.

## RESULTS

By treatment survey analysis, after one month evaluation the symptoms of stereotypical behaviours were found to be decreased and after two months considerable regression were detected. Cribbing and self-mutilation were completely treated. Circling and wall kicking were decreased (Fig. 1).

Additionally, in 3 horses (horse 1, 3, 6) cribbing was very severe however, reduced considerably after 2 weeks and completely disappeared after one month. Self mutilation in all horses was reduced but still continued in the first month, thereafter disappeared completely at the beginning of second month (Fig. 2a-b). One of the horses (horse 9) with circling was cured completely at the fifth week of the treatment while this behavioural pattern was reduced in other two horses (horse 8, 10) but not completely dis-



**Fig 1.** The alteration of stereotypic behaviours according to survey analysis at pretreatment, at the end of the first and the second month

**Şekil 1.** Gözlem anketlerine göre tedavi öncesi, tedavinin 1. ve 2. ayının sonundaki stereotipik davranışlarda gözlenen değişimler

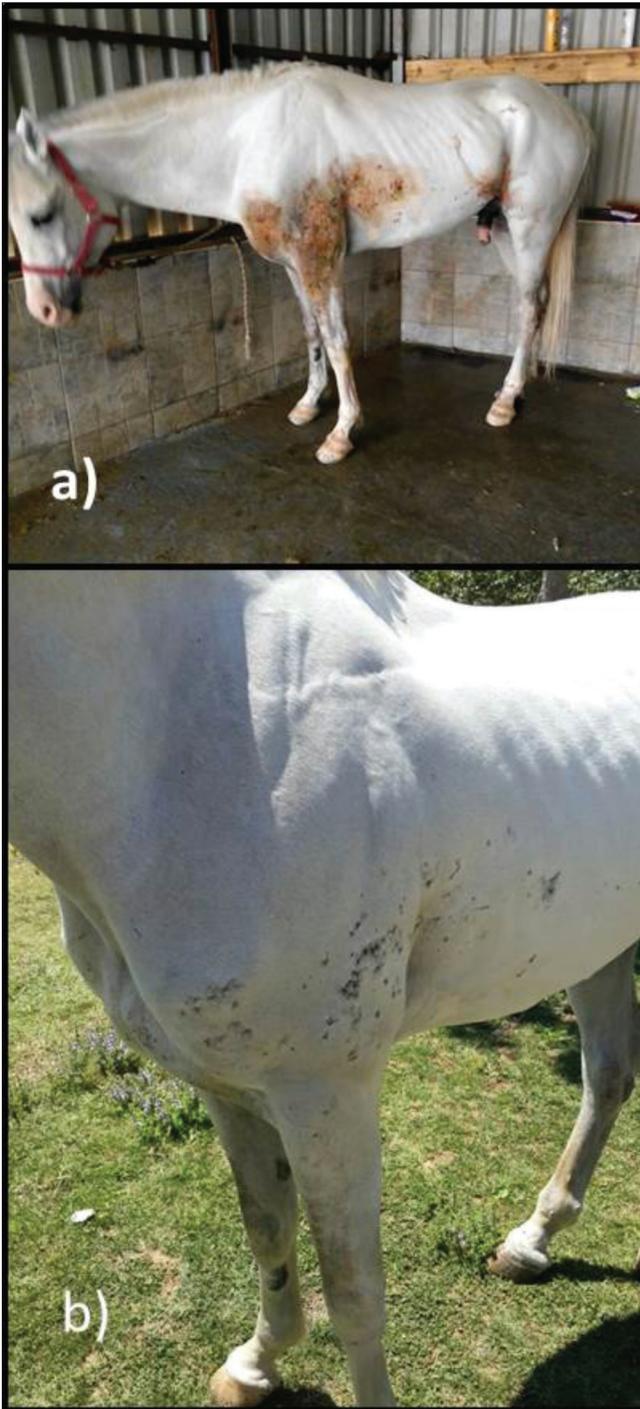
Stramonium (Stram), Phosphorus (Phos), Nux vomica (Nux-v), Pulsatilla (Puls), Hypericum (Hyper), Lycopodium (Lyc), Argentum nitricum (Arg-n), Staphysagria (Staph), Arsenicum Album (Ars-a), Lachesis (Lach) and Thuja occidentalis (Thuj) were used as treatment remedies specific for each horse.

Five granules from each remedy in the recipe of each horse were put in 50 mL of brown bottle adding 7.5 mL pure alcohol and 42.5 mL water. The bottle was shaken until the granules dissolved and the name of horse, the beginning date of the treatment were written on the label of bottle. 15-20 seconds shaking before usage was also noted on the label of bottle.

appeared. In horses with wall kicking (horse 11, 12, 13, 14) recovery rate was very high at first month but then reduced towards the end of treatment but not complete recovery occurred in these horses.

## DISCUSSION

Horses are naturally free-ranging, social, grazing herbivores. In stables, horses are provided with food, water and shelter, but their choice of feed, social interactions and movement are limited. Under these conditions a number of stereotypic behaviours can develop such as cribbing, windsucking, wall kicking, headshaking, self-mutilation



**Fig 2.** The appearance of the horse (horse 17) with self mutilation disorder before and after the treatment (flank chest, shoulder and hind leg biting) a- Before treatment b- After treatment (in 2<sup>nd</sup> month)

**Şekil 2.** Onyedinci numaralı atın tedavi öncesi ve sonrası görüntüsü. Göğüs cidarı, göğüs, omuz ve arka bacakta kendine zarar verme a- Tedavi öncesi görüntüsü b- Tedavi sonrası 2. aydaki görüntüsü

etc. Alternatively, these horses should be treated because their behaviour appears to reduce quality of life, welfare concern or reduce the value of the horse [24]. In many studies treatments for stereotypic behaviour have been applied due to the concern of economic values [24,25]. However, in

our study horse owners main concerns were the welfare and the health issues of the horses.

Cribbing, circling, self-mutilation, wall kicking and other stereotypic behaviours are recognized as both a management and a welfare concern, and many owners attempt to physically prevent horses from engaging in these behaviours [26,27]. Number of responses to the stable environment are believed to be harmful. For example, wind-sucking and cribbing are irregularly associated with teeth wear and potentially life threatening colic. Weaving and circling in stabled horses are also said to have harmful consequences such as muscle damage and fatigue [24]. In our study, 3 horses (horse 2, 5, 6) with cribbing showed colic symptoms together with this stereotypic behaviour pattern. However, colic symptoms have also been disappeared in these horses after treatment for cribbing. Additionally, all horses with circling had some musculo-skeletal lesions due to this stereotypic behaviour pattern before treatment. However, these lesions had not been occurred in any horse after treatment for circling. We suggest that treatments for stereotypic behaviours may reduce the occurrence of secondary diseases developed after behavioural disorders.

It has been reported that horses with stereotypic behaviours are more sensitive to stress factors and repetitive movements of these stereotypic behaviours have been increased in these horses due to the stress factors [28]. Homeopathic treatment is a noninvasive and an easily applied treatment without causing any stressful effects on horses. Furthermore, easily applicable by horse caretakers can make the homeopathic remedies sustain the treatment. However, the treatment of the behavioural disorders require more time and more patience of the practitioners. In our study, we applied the remedies everyday without any cessation. This might have helped to get a very fast response in our study.

Prevention of stereotypic behaviours in horses can be achieved with a variety of techniques including: physical barriers, such as weaving bars above stable doors or harnesses that restrict movement; punishment, such as nails hammered into cribbed wooden surfaces; and surgical intervention, such as cutting the muscles involved in cribbing or wind-sucking [9,24]. Temporary inhibition of the undesirable behavior can sometimes be achieved by physical restraint with special equipment (e.g., a cribbing collar, a muzzle or head cradle). The primary problem with physical prevention, for example, attempting to stop cribbing using a cribbing collar or by removing cribbing surfaces, is that this approach fails to address the underlying causes of the behaviour and may further reduce equine welfare and cosmetic outcome [10]. Cribbing collar as a physical restraint before homeopathic treatment was applied in one horse (horse 1) in our study. It was observed that the repetitive movements were reduced after this

application however, contact dermatitis occurred on the neck of the horse as a side effect. Interestingly, after cribbing collar was taken off the repetitive movements reoccurred. These kind of preventative treatments might solve the problem for a short period but can not provide permanent solutions without curing underlying causes of the stereotypic disorder.

Tranquilisers, anxiolytics and opiate receptor blockers can also treat the stereotypical horses for a temporary period but these drugs have some side effects [11]. It has been reported that opiate receptor blockers stop horses from cribbing for 20 min following a 20 min latency period. Intravenous naltrexone, another opiate blocker, suppressed cribbing for two to seven hours. Cribbing is suppressed only while the opiate antagonists are present; the short half-life and expense of these drugs have made long-term opiate receptor blockage impractical [9]. Side effects, the short half-life, the expense of these drugs and the fear of breaking the rules of International Federation of Equestrian Sports made the homeopathy increasingly popular in the treatment of equine stereotypic behaviours.

The various surgical treatments for some stereotypes like cribbing and self-mutilation include buccostomy, spinal accessory neurectomy, myectomy or a combination of partial myectomy and spinal accessory neurectomy and castration. The success rates of these treatments vary from 0% to 70%. Cribbing often reoccurs. Despite meticulous intra-operative dissection and hemostasis, seroma, hematoma, wound drainage, and surgery site infection are the post-surgical complications [29]. None of our horses have been treated by surgically. Only horse 17 (self-mutilation) was castrated before homeopathic treatment however, no improvement was detected after this surgery. Surgical treatments are not preferred due to the factors such as wide range of success rates (between 0% and 70%), high recurrence rate, risks of anesthesia and high costs of operations [26,29].

According to our knowledge, there are not any study related to the treatment of the equine stereotypic behaviours with the homeopathic remedies.

Loukaki et al. [19] have reported that homeopathic remedies such as Phosphorus, Lachesis, Arsenicum album, Pulsatilla, Argentum nitricum, Ignatia, Gelsemium were often indicated in the cases of separation anxiety in dogs. Bellavite [22] has reported that Gelsemium has reduced anxiety and fear in murine, in a manner quantitatively comparable to the effects of anxiolytic drugs without provoking any sedation side-effects. It has been also reported that Ignatia reduced anxiety and fear in mouse [23]. In our study, we also applied Ignatia and/or Gelsemium to the horses and our results imply that the same effects occur in the horses as in other animals.

Classical homeopathy, as well as most of the other

alternative approaches, emphasises a holistic view of disease in which individual judgement and treatment are important. This implies that a homeopathic remedy must be chosen by taking into consideration the organism as a whole, including personality and behaviour, and not merely the symptoms in the affected organ system. Solid statistical evidence demonstrates that the effects of the different potency levels investigated (5CH, 7CH, 30CH) do not follow a classical dose-response relationship regarding their mere dilution level, confirming a phenomenon frequently observed with high homeopathic dilutions in other laboratory models [30]. In our study the symptoms of two horses (horse 8, 10) with circling were reduced considerably but not completely disappeared. The reason might be the dilution and dynamization of homeopathic remedies used in this study (15 CH) was not enough to cure the stereotypic behaviour completely. We suggest that the potency level of 30 CH may improve the course of the treatment and get better results. We recommend that further studies should be carried on using different dilutions and dynamizations to see the effect of different potency levels of these homeopathic remedies on stereotypic behaviours.

As a result, homeopathic treatments prepared specifically for each horse's constitution and complaints provided an effective therapy in a short time to cure equine stereotypic behaviours.

## REFERENCES

- Marsden MD:** Stereotypic and Other Behavior Problems. In, Furr M, Reed S (Eds): Equine Neurology. 2<sup>nd</sup> ed., 373-374, Blackwell, USA, 2008.
- Waters AJ, Nicol CJ, French NP:** Factors influencing the development of stereotypic and redirected behaviours in young horses: Findings of a four year prospective epidemiological study. *Eq Vet J*, 34, 572-579, 2002. DOI: 10.2746/042516402776180241
- Cooper JJ, Albetosa, MJ:** Behavioral adaptation in the domestic horse: Potential role of apparently abnormal responses including stereotypic behavior. *Livest Prod Sci*, 92, 177-182, 2005. DOI: 10.1016/j.livprodsci.2004.11.017
- Mason GJ:** Stereotypies: A critical review. *Anim Behav*, 41, 1015-1037, 1991. DOI: 10.1016/S0003-3472(05)80640-2
- Luescher UA, McKeown DB, Dean H:** A cross-sectional study on compulsive behaviour (stable vices) in horses. *Equine Vet J*, 30, 14-18, 1998. DOI: 10.1111/j.2042-3306.1998.tb05138.x
- Mason GJ, Latham NR:** Can't stop, won't stop: Is stereotypy a reliable animal welfare indicator? *Anim Welf*, 13, 57-69, 2004.
- Luescher UA, McKeown DB, Halip J:** Reviewing the causes of obsessive-compulsive disorders in horses. *Vet Med*, 86, 527-530, 1991.
- McGreevy PD, Cripps PJ, French NP, Green LE, Nicol CJ:** Management factors associated with stereotypic and redirected behavior in the thoroughbred horse. *Equine Vet J*, 27, 86-91, 1995. DOI: 10.1111/j.2042-3306.1995.tb03041.x
- Haupt KA, McDonnell SM:** Equine stereotypies. *Comp Cont Educ Pract*, 15, 1265-1271, 1993.
- McDonnell S:** Understanding Horse Behavior. 58, The Blood-Horse, USA, 1999.
- Cloos JM, Ferreira V:** Current use of benzodiazepines in anxiety disorders. *Curr Opin Psychiatr*, 22, 90-95, 2009. DOI: 10.1097/YCO.0b013e32831a473d
- Lader M:** Effectiveness of benzodiazepines: Do they work or not?

*Expert Rev Neurother*, 8, 1189-1191, 2008. DOI: 10.1586/14737175.8.8.1189

**13. Couzens T:** Homeopathy for Horses. 2<sup>nd</sup> ed., 11-16, 775, Kenilworth Press, UK, 2011.

**14. Kaçar C, Zonturlu Ak, Oral H, Yıldız S, Arı UÇ:** İneklerde erken puerperal dönemde Theranekron® uygulamalarının uterus involusyonu ve vaginal akıntı üzerine etkisi. *Kafkas Univ Vet Fak Derg*, 13, 11-15, 2007. DOI: 10.9775/kvfd.2006.36-A

**15. Mathie RT, Baitson ES, Hansen L, Elliott MF, Hoare J:** Homeopathic prescribing for chronic conditions in equine veterinary practice in the UK. *Vet Rec*, 166, 234-237, 2010. DOI: 10.1136/vr.b4764

**16. Edgell J:** The holistic horse: Alternative therapies for equine health. *J Agr Food Inf*, 7, 83-91, 2006. DOI: 10.1300/J108v07n01\_09

**17. Vockeroth WG:** Veterinary homeopathy: An overview. *Can Vet J*, 40, 592-594, 1999.

**18. Issautier MN:** Guide Pratique d'Homéopathie chez le chien, le chat et les NAC. 1<sup>th</sup> ed., 33-299, Les Editions du Point Vétérinaire, France, 2014.

**19. Loukaki K, Kirkelessi G, Diassitis P, Tzanakou M:** Homeopathic approach of separation anxiety in dogs. *Article in Homeopathic Links*, 20, 218-222, 2007. DOI: 10.1055/s-2007-965541

**20. Peker J, Issautier MN:** Homéopathie et Cheval. 5<sup>th</sup> ed., 270-279, Vigot, France, 2013.

**21. Issautier MN, Calvet H:** Thérapeutique Homéopathique Vétérinaire. 4<sup>th</sup> ed., 288-289, Boiron, France, 2002.

**22. Bellavite P:** A homeopathic remedy showed reproducible effects in murine behavioural models. *J Med Pers*, 8, 143-144, 2010. DOI: 10.1007/

s12682-010-0066-2

**23. Marzotto M, Conforti A, Magnani P, Zanolin ME, Bellavite P:** Effects of Ignatia amara in mouse behavioural models. *Homeopathy*, 101, 57-67, 2012. DOI: 10.1016/j.homp.2011.10.001

**24. Cooper JJ, Mason GJ:** The identification of abnormal behaviour and behavioural problems in stabled horses and their relationship to horse welfare: A comparative review. *Equine Vet J*, 30, 5-9, 1998. DOI: 10.1111/j.2042-3306.1998.tb05136.x

**25. McDonnell SM:** Practical review of self-mutilation in horses. *Anim Reprod Sci*, 107, 219-228, 2008. DOI: 10.1016/j.anireprosci.2008.04.012

**26. McGreevy PD, Nicol, CJ:** Prevention of cribbiting: A review. *Equine Vet J*, 30, 35-38, 1998. DOI: 10.1111/j.2042-3306.1998.tb05143.x

**27. McBride SD, Long L:** Management of horses showing stereotypic behavior, owner perception and the implications for welfare. *Vet Rec*, 148, 799-802, 2001. DOI: 10.1136/vr.148.26.799

**28. Bachmanna I, Bernasconib P, Herrmann R, Weishaupt MA, Stauffachera M:** Behavioural and physiological responses to an acute stressor in crib-biting and control horses. *Appl Anim Behav Sci*, 82, 297-311, 2003. DOI: 10.1016/S0168-1591(03)00086-8

**29. Baia P, Burba DJ, Riggs LM, Beaufreere H:** Long term outcome after laser assisted modified Forssell's in Cribbing Horses. *Vet Surg*, 44, 156-16, 2015. DOI: 10.1111/j.1532-950X.2014.12125.x

**30. Bellavite P, Magnani P, Marzotto M, Conforti A:** Assays of homeopathic remedies in rodent behavioural and psychopathological models and psychopathological models. *Homeopathy*, 98, 208-227, 2009. DOI: 10.1016/j.homp.2009.09.005