

Description

Background of the Invention

The present invention relates to a method and apparatus for inducing controlled inherent stress reducing behavior in animals, such as enhanced eating, drinking, mating, maternal or the like behaviors.

It is well known that when an animal is subject to a stressful condition, the animal will attempt to behave in a way which will alleviate the stress. Studies have indicated that a number of specific behaviors such as eating, drinking, mating, and maternal behaviors tend to reduce stress in animals, and that a stressed animal will partake in one or more of these behaviors depending on which behaviors are made available. It is important to understand that these stress reducing behaviors are not learned behaviors but appear to be inherent to all animals. As a result, a number of specific behaviors can be predictably induced in a stressed animal. For example, an animal which would not normally be eating could be induced to eat by subjecting the animal to stress and making food available. Therefore, a need has been created for an effective and economical means for inducing stressed behavior in animals.

The present invention was developed to address this need by providing an effective and economical method and apparatus for inducing controlled stressed behavior in animals.

Brief Description of the Prior Art:

A variety of animal training devices are known in the patented prior art which are capable of inflicting a painful stimulation to punish the animal in order to teach the animal to behave in a desired manner. Such devices have proved to be effective in training an animal when used over an extended period of time, because the animal will learn how to avoid the painful stimulation by behaving accordingly. These training devices are capable of causing an animal to adopt a learned behaviour, but do not provide a means for inducing a stressed behaviour, such as enhanced eating, drinking, mating, maternal or the like behaviour, by applying a non-painful stimulation.

An example of such arrangements is to be found in WO87/02546 which relates to a device adapted to control a galloping horse by remote control.

Studies have been performed in which a non-painful stress inducing stimulation has been applied to animals in order to observe their behaviour; see for example Science, Aug. 1975 Vol 189, pp 731-733 Seymour et al, and Current Medical Re-

search and Opinion, Vol 6, Suppl. 1, 1979 pp 73-82 Antelman et al. In one of these studies, a surgical haemostat was chronically applied to the tail of a rat causing non-painful pressure to induce stress related enhanced eating, drinking, mating and maternal behaviour. These studies demonstrate that stressed behaviour can be predictably induced in animals by the chronic application of pressure to the animals tail, but they do not provide an effective and economical method or apparatus for inducing inherent stress reducing behaviour in animals, particularly for inducing inherent stress reducing behaviour in a large number of animals over an extended period of time.

Accordingly the prior art provides a pressure-applying apparatus adapted to induce inherent stress reducing behaviour in animals comprising mounting means for mounting said apparatus on a body part of the animal and pressure applying means operatively associated with the mounted means. The present invention is characterised in that the pressure applying means are adapted to apply variable pressure to the body part and in that control means are provided which are operatively associated with the pressure applying means for controlling the variation of said pressure.

According to a more particular object of the invention, the means for automatically controlling the variation of pressure includes an electronic timing circuit which is programmable to enable selective control over the variation of pressure.

A further object of the invention is to provide a timing circuit which is programmed to randomly vary the pressure over time.

Another aspect of the invention provides a method of inducing inherent stress reducing behaviour in animals, using a pressure-applying apparatus and mounting said pressure-applying apparatus on a body part of the animal, whereby said pressure-applying apparatus is operable to apply variable pressure to the body part. The method is particular characterised in that said pressure-applying apparatus is actuated to apply variable pressure to the body part over time and that the variable pressure is selected from a range that induces inherent stress reducing behaviour. More particularly, the method includes the step of selectively programming the pressure applying apparatus to selectively control the variation of pressure over time.

Yet another object of the invention is to provide a method of inducing controlled stressed behaviour in a plurality of animals using a plurality of pressure applying apparatuses. The method includes the steps of mounting a plurality of pressure-applying apparatuses on a body part of a plurality of animals, and activating the pressure-applying apparatuses to automatically apply variable pressure

to the body part of each of the plurality of animals. More particularly, the method includes using a remote transmitter, remote from the pressure applying apparatuses, for selectively controlling the variation of pressure over time by each of the pressure applying apparatuses.

Brief Description of the Figures:

Other objects and advantages of the subject invention will become apparent from a study of the following specification when viewed in the light of the accompanying drawings which are included by way of illustration only. In the drawings:-

- Fig. 1 is a side perspective view of one embodiment of the pressure-applying apparatus.
- Fig. 2 is a cross-sectional view of the apparatus of Fig. 1.
- Fig. 3 is a cross-sectional view of an alternative embodiment of the pressure-applying apparatus.
- Fig. 4 is a cross-sectional view of the strap-type member of Fig. 2.
- Fig. 5 is a front view of the offsetting member of Fig. 3 with parts broken away.

Detailed Description

Referring to Figs. 1, 2 and 4, there is shown a preferred embodiment of the pressure-applying apparatus of the present invention. The pressure applying apparatus includes a means 2 for mounting the apparatus on a body part of an animal (not shown), means 4 operatively associated with the mounting means 2 for applying variable pressure to the body part, and means 6 operatively connected with the pressure-applying means 4 for automatically controlling the variation of the pressure. The pressure-applying apparatus should be operable to apply a non-painful, non-localized sensation to the body part of the animal, thereby inducing stressed behavior in the animal.

The mounting means 2 is provided as a pair of strap-type members 2a and 2b, each being constructed to form a loop around the body part. The pressure applying means 4 preferably includes an electric motor 8, means 10 driven by the motor 8 for increasing and decreasing the amount of pressure applied to the body section, and a power supply 12, such as a battery, for powering the motor 8. The driven means 10 preferably includes a driven shaft 14, and pair of strap take-up members 15a and 15b constructed to co-operate with the strap-type members 2a and 2b for increasing and decreasing the size of the loops formed thereby. Each of the strap take-up members 15a and 15b preferably includes a pair of plates 18a and

18b, and a pair of cross bars 20a and 20b.

A housing 16 is provided for housing the motor 8, the driven means 10, and the pressure control means 6. The strap-type members, 2a and 2b each form a loop adjacent to the housing 16, and have one end which extends through one side of the housing 16, between the cross bars 20a and 20b, and out the opposite side of the housing 16. By positioning the end of the strap-type member between the cross bars 20a and 20b, the end will be wound around the take-up member when driven by the motor 8. A stop member 22 is mounted on the end of the strap-type member which extends out of the housing for preventing pulling the end back through the housing, and for allowing the strap-type member to be manually pulled up to a base pressure around the body part when the apparatus is mounted thereon. Preferably, the take-up members 15a and 15b are aligned such that the pressure created by strap-type member 2a is increased while the pressure created by strap-type member 2b is decreased. Preferably, a sliding loop forming member 23 is secured to one end of the strap-type members 2a and 2b, and is in sliding engagement with the mid-portion thereof, thereby enabling the loops formed by the strap-type members 2a and 2b to be increased and decreased in size while applying equal pressure to the body part at all points around the loop.

The pressure control means 6 preferably includes an electronic timing circuit, such as a micro-processor, which is capable of automatically controlling the variation of pressure. Preferably, the circuit is programmable to enable selective control over the variation of the pressure. The timing circuit may be programmed to randomly vary the pressure over time so that the animal does not become familiar with and therefore anticipate the application of pressure, which would decrease the effectiveness of the apparatus. In particular, the device may be programmed to continually increase the pressure to a first pressure, of sufficient magnitude to cause a mild non-localized sensation in the body part resulting in the animal exhibiting stressed behavior, maintain the pressure for a first period of time, decrease the pressure back to a second base pressure, again resulting in a stressed response, and maintain the second pressure for a second period of time. The circuit should be capable of selectively varying the lengths of the first and second periods of time and/or the first and second pressures.

Preferably, the apparatus further includes photoelectric panel means 24, such as an array of photoelectric cells, for converting light to electricity for recharging the power supply 12.

In addition, the mounting means 2 is constructed for securely mounting the apparatus on

the tail section of an animal. Preferably, the mounting means 2 is shielded as shown in Fig. 4 to prevent rubbing and irritation to the animal.

Referring now to Figs. 3 and 5, there is shown an alternative embodiment of the pressure-applying apparatus including means 2 for mounting the apparatus on a body part of the animal (not shown), means 4 for applying variable pressure to the body part, and means 6 for controlling the variation of the pressure. The pressure applying means 4 includes an electric motor 8, driven means 10 for increasing and decreasing the pressure applied to the body part, and power supply 12 for powering the motor. A photoelectric panel means 24 is mounted on housing 16 for recharging the power supply 12. Body mounting means 2 is provided as a strap-type member 2a forming a loop adjacent to the housing for extending around the body part (not shown). The strap-type member is fed through an offset member 26, into the housing 16, and around strap take-up member 28. The offsetting member 26 is provided to offset the loop formed by the strap-type member 2a such that the loop forms a spiral loop around the body part, thereby reducing irritation or painful pinching of the body part.

The pressure control means 6 includes a programmable timing circuit 30 for enabling the timing circuit 30 to be selectively programmed to automatically control the variation of pressure applied to the body part. The pressure control means 6 further includes a remote transmitter 32 for remotely sending selected programming signals 34, and a receiver 36 for receiving the programming signals 34 and selectively programming the timing circuit 30, therewith. The control means 6 may also include a transmitter (not shown) positioned in the housing 16 and operatively associated with the timing circuit 30 and/or the pressure applying means 4 for transmitting status information 40, and a remote receiver 38 for receiving the status information therefrom. The status information may include the amount of pressure being applied, current timing information, power supply information, or any other relevant operating parameters.

By providing a pressure-applying apparatus which is operable to apply variable pressure to the body part of an animal, mounting the apparatus on the body part of the animal, and actuating the apparatus to automatically apply variable pressure to the body part over time, a desired stress reducing behavior can be reliably and economically induced in the animal. By programming the apparatus to selectively apply pressure in a desired manner, the apparatus can be effectively used to induce stress at desired times for inducing a desired stress response. In addition, the apparatus may be programmed such that the animal does not become familiar with the operation of the apparatus,

and therefore begin to anticipate the impending pressure, which would decrease the effectiveness of the apparatus. By programming the apparatus to randomly change the operating parameters, such as the amount of pressure or time of pressure, stress reducing behavior can be effectively induced in the animal over a long period of time.

A plurality of pressure-applying apparatuses may be used to effectively and economically induce stress in a plurality of animals by mounting a plurality of pressure-applying apparatuses on a plurality of animals, respectively, and actuating the apparatuses to automatically apply variable pressure to the body part of each of the plurality of animals. A remote transmitter may be used to remotely control a single or a plurality of apparatuses to apply pressure in a desired manner to one or more of the animals. A remote receiver may be used to remotely monitor the operation of a single or a plurality of apparatuses.

The method and apparatus of the present invention can be used to reliably and economically induce a number of desirable behaviors in a single or a group of animals. For example, stress reducing behavior can be induced in an entire herd of cattle to cause them to eat more than they normally would, thereby gaining weight faster. Animals can also be induced to eat foods they would not normally eat, such as cheaper synthetic foods, thereby reducing the cost of raising animals. In addition, animals can be induced to mate more often to increase reproduction. A female animal's maternal behavior can be enhanced to make her more receptive to nursing.

Claims

1. A pressure applying apparatus adapted to induce inherent stress reducing behaviour in animals comprising mounting means (2) for mounting said apparatus on a body part of the animal and pressure applying means (4) operatively associated with said mounting means (2) characterised in that the pressure applying means are adapted to apply variable pressure to the body part and in that control means (6) are provided which are operatively connected with said pressure-applying means for controlling the variation of said pressure.
2. An apparatus as defined in Claim 1, wherein said mounting means (2) is constructed to fit on to a tail section of an animal.
3. An apparatus as defined in either of Claims 1 or 2, wherein said pressure applying means (4) includes:
 - (a) a motor (8)



the tail section of an animal. Preferably, the mounting means 2 is shielded as shown in Fig. 4 to prevent rubbing and irritation to the animal.

Referring now to Figs. 3 and 5, there is shown an alternative embodiment of the pressure-applying apparatus including means 2 for mounting the apparatus on a body part of the animal (not shown), means 4 for applying variable pressure to the body part, and means 6 for controlling the variation of the pressure. The pressure applying means 4 includes an electric motor 8, driven means 10 for increasing and decreasing the pressure applied to the body part, and power supply 12 for powering the motor. A photoelectric panel means 24 is mounted on housing 16 for recharging the power supply 12. Body mounting means 2 is provided as a strap-type member 2a forming a loop adjacent to the housing for extending around the body part (not shown). The strap-type member is fed through an offset member 26, into the housing 16, and around strap take-up member 28. The offsetting member 26 is provided to offset the loop formed by the strap-type member 2a such that the loop forms a spiral loop around the body part, thereby reducing irritation or painful pinching of the body part.

The pressure control means 6 includes a programmable timing circuit 30 for enabling the timing circuit 30 to be selectively programmed to automatically control the variation of pressure applied to the body part. The pressure control means 6 further includes a remote transmitter 32 for remotely sending selected programming signals 34, and a receiver 36 for receiving the programming signals 34 and selectively programming the timing circuit 30, therewith. The control means 6 may also include a transmitter (not shown) positioned in the housing 16 and operatively associated with the timing circuit 30 and/or the pressure applying means 4 for transmitting status information 40, and a remote receiver 38 for receiving the status information therefrom. The status information may include the amount of pressure being applied, current timing information, power supply information, or any other relevant operating parameters.

By providing a pressure-applying apparatus which is operable to apply variable pressure to the body part of an animal, mounting the apparatus on the body part of the animal, and actuating the apparatus to automatically apply variable pressure to the body part over time, a desired stress reducing behavior can be reliably and economically induced in the animal. By programming the apparatus to selectively apply pressure in a desired manner, the apparatus can be effectively used to induce stress at desired times for inducing a desired stress response. In addition, the apparatus may be programmed such that the animal does not become familiar with the operation of the apparatus,

and therefore begin to anticipate the impending pressure, which would decrease the effectiveness of the apparatus. By programming the apparatus to randomly change the operating parameters, such as the amount of pressure or time of pressure, stress reducing behavior can be effectively induced in the animal over a long period of time.

A plurality of pressure-applying apparatuses may be used to effectively and economically induce stress in a plurality of animals by mounting a plurality of pressure-applying apparatuses on a plurality of animals, respectively, and actuating the apparatuses to automatically apply variable pressure to the body part of each of the plurality of animals. A remote transmitter may be used to remotely control a single or a plurality of apparatuses to apply pressure in a desired manner to one or more of the animals. A remote receiver may be used to remotely monitor the operation of a single or a plurality of apparatuses.

The method and apparatus of the present invention can be used to reliably and economically induce a number of desirable behaviors in a single or a group of animals. For example, stress reducing behavior can be induced in an entire herd of cattle to cause them to eat more than they normally would, thereby gaining weight faster. Animals can also be induced to eat foods they would not normally eat, such as cheaper synthetic foods, thereby reducing the cost of raising animals. In addition, animals can be induced to mate more often to increase reproduction. A female animal's maternal behavior can be enhanced to make her more receptive to nursing.

Claims

1. A pressure applying apparatus adapted to induce inherent stress reducing behaviour in animals comprising mounting means (2) for mounting said apparatus on a body part of the animal and pressure applying means (4) operatively associated with said mounting means (2) characterised in that the pressure applying means are adapted to apply variable pressure to the body part and in that control means (6) are provided which are operatively connected with said pressure-applying means for controlling the variation of said pressure.
2. An apparatus as defined in Claim 1, wherein said mounting means (2) is constructed to fit on to a tail section of an animal.
3. An apparatus as defined in either of Claims 1 or 2, wherein said pressure applying means (4) includes:
 - (a) a motor (8)



- (b) means (10) driven by said motor for increasing and decreasing the amount of pressure applied to the body part; and
(c) a power supply (12) operatively connected with said motor.
4. An apparatus as defined in Claim 3, and further comprising photoelectric panel means (24) operatively connected with said power supply (12) for recharging said power supply.
 5. An apparatus as defined in either of Claims 3 or 4, wherein said mounting means (2) includes a strap which forms a loop around the body part, and further wherein said driven means (10) includes a strap take-up member (23) operable to increase and decrease the size of said loop formed by said strap, thereby increasing and decreasing the amount of said pressure applied to the body part, respectively.
 6. An apparatus as defined in Claim 5, wherein said mounting means (2) includes a plurality of straps (2a,2b) each forming a loop around the body part, and further wherein said driven means includes a plurality of strap take-up members (23) operable to increase and decrease the size of said loops formed by said strap-type members, respectively.
 7. An apparatus as defined in either of Claims 5 or 6, wherein said mounting means includes offset means (26) for offsetting the loop formed by said strap to form a spiral loop around the body part.
 8. An apparatus as defined in any preceding claim, wherein said pressure control means (4) includes electronic timing circuit means (30) for automatically controlling the variation of said pressure.
 9. An apparatus as defined in Claim 8, wherein said timing circuit means is programmable to enable selective control over the variation of said pressure.
 10. An apparatus as defined in either of Claims 8 or 9, wherein said timing circuit means is programmed to randomly vary said pressure over time.
 11. An apparatus as defined in any of Claims 8 to 10, wherein said timing circuit means (30) is programmed to continually increase said pressure to a first pressure, maintain said first pressure for a first period of time, decrease said pressure to a second pressure, and maintain said second pressure for a second period of time.
 12. An apparatus as defined in Claim 11, wherein said timing circuit means (30) is programmable to selectively control the lengths of said first and said second periods of time, and/or to selectively control the amounts of said first and said second pressures.
 13. An apparatus as defined in Claim 12, wherein said timing circuit means is programmed to periodically randomly change said first and said second periods of time.
 14. An apparatus as defined in any of Claims 8 to 13, wherein said pressure control means (4) further includes remote transmitter means for remotely sending selected programming signals, and receiving means (38) operatively associated with said timing circuit means for receiving said signals and programming said timing circuit therewith.
 15. A method of inducing inherent stress reducing behaviour in animals, using a pressure-applying apparatus and mounting said pressure-applying apparatus (4) on a body part of the animal, whereby said pressure-applying apparatus (4) is operable to apply variable pressure to the body part, said method being characterised in that said pressure-applying apparatus is actuated to apply variable pressure to the body part over time and that the variable pressure is selected from a range that induces inherent stress reducing behaviour.
 16. A method as defined in Claim 15, and further comprising the step of selectively programming said pressure applying apparatus to selectively control the variation of said pressure over time.
 17. A method as defined in either of Claims 15 or 16, and further comprising the step of using a transmitter remote from said pressure-applying apparatus to selectively control the variation of said pressure over time.
 18. A method as defined in any of Claims 15 to 17, and further comprising the step of using a receiving station remote from said pressure-applying apparatus to receive and collect status information transmitted therefrom.
 19. A method as defined in any of Claims 16 to 18, wherein said programming step includes programming said pressure applying apparatus



to randomly vary said pressure over time.

Patentansprüche

1. Vorrichtung zum Erzeugen von steuerbarem
inhärentem stoßreduzierendem Verhalten bei
Tieren durch Aufbringen eines Druckes mit Be-
festigungsmitteln (2) zur Befestigung der Vor-
richtung an einem Körperteil des Tieres und
Mitteln zur Aufbringung des Druckes (4), die
funktionell mit den Befestigungsmitteln (2) ver-
bunden sind,
dadurch **gekennzeichnet**,
daß die Mittel zur Aufbringung des Druckes so
gestaltet sind, daß ein veränderbarer Druck auf
den Körperteil aufgebracht werden kann, und
daß Steuerungsmittel (6) vorgesehen sind, die
zur Steuerung der Veränderung des Druckes
funktionell mit den Mitteln zur Aufbringung des
Druckes verbunden sind. 5
2. Vorrichtung nach Anspruch 1, wobei die Befestigungsmittel (2) so gestaltet sind, daß sie im Schwanzbereich eines Tieres angebracht werden können. 10
3. Vorrichtung nach Anspruch 1 oder 2, wobei die Mittel zur Aufbringung des Druckes (4) folgende Komponenten umfassen:
(a) einen Motor (8),
(b) durch den Motor angetriebene Mittel (10) zur Erhöhung und Verringerung des Druckes, der auf den Körperteil aufgebracht wird; und
(c) eine Stromversorgung (12), die funktionell mit dem Motor verbunden ist. 15
4. Vorrichtung nach Anspruch 3, wobei weiter fotoelektrische Elemente (24) funktionell mit der Stromversorgung (12) zum Aufladen der Stromversorgung verbunden sind. 20
5. Vorrichtung nach Anspruch 3 oder 4, wobei die Befestigungsmittel (2) einen Riemen aufweisen, der in einer Schlaufe um den Körperteil legbar ist, und wobei weiter die angetriebenen Mittel (10) ein Glied (23) zur Aufnahme des Riemens aufweisen, das betätigbar ist, um die Größe der durch den Riemen gebildeten Schlaufe zu vergrößern und zu verkleinern und dabei gleichzeitig den Druck, der auf den Körperteil aufgebracht wird, zu erhöhen und zu verringern. 25
6. Vorrichtung nach Anspruch 5, wobei die Befestigungsmittel (2) eine Vielzahl von Riemen (2a, 2b) aufweisen, die jeweils in einer Schleife um den Körperteil legbar sind, und wobei wei- 30
7. Vorrichtung nach Anspruch 5 oder 6, wobei die Befestigungsmittel Mittel (26) zum Versetzen der Schlaufe, die durch den Riemen gebildet wird, aufweisen, um eine gewundene Schlaufe um den Körperteil zu bilden. 35
8. Vorrichtung nach einem der vorstehenden Ansprüche, wobei die Mittel zur Steuerung des Druckes (4) einen elektronischen Zeitschaltkreis (30) zur automatischen Steuerung der Veränderung des Druckes aufweisen. 40
9. Vorrichtung nach Anspruch 8, wobei der Zeitschaltkreis programmierbar ist, um eine selektive Steuerung während der Veränderung des Druckes zu ermöglichen. 45
10. Vorrichtung nach Anspruch 8 oder 9, wobei der Zeitschaltkreis so programmiert ist, daß der Druck zufallsbasiert verändert wird. 50
11. Vorrichtung nach einem der Ansprüche 8 bis 10, wobei der Zeitschaltkreis (30) so programmiert ist, daß der Druck allmählich bis zu einem ersten Druck ansteigt, dieser erste Druck für eine erste Zeitperiode beibehalten wird, dann der Druck auf einen zweiten Druck abfällt und dieser zweite Druck für eine zweite Zeitperiode beibehalten wird. 55
12. Vorrichtung nach Anspruch 11, wobei der Zeitschaltkreis (30) so programmierbar ist, daß die Längen der ersten und der zweiten Zeitperiode und/oder die Druckwerte des ersten und des zweiten Druckes selektiv gesteuert werden können.
13. Vorrichtung nach Anspruch 12, wobei der Zeitschaltkreis so programmiert ist, daß die erste und die zweite Zeitperiode periodisch zufallsbasiert verändert werden.
14. Vorrichtung nach einem der Ansprüche 8 bis 13, wobei die Mittel zur Aufbringung des Druckes (4) einen entfernten Sender zum senden bestimmter Programmiersignale aufweisen und einen Empfänger (38), der funktionell mit dem Zeitschaltkreis verbunden ist und diese Signale empfängt und den Zeitschaltkreis entsprechend programmiert.



15. Verfahren zum Erzeugen von inhärentem streßreduzierendem Verhalten bei Tieren unter Verwendung einer Vorrichtung zum Aufbringen eines Druckes und Befestigung der Vorrichtung zum Aufbringen des Druckes (4) an einem Körperteil des Tieres, wobei mittels der Vorrichtung zum Aufbringen des Druckes (4) ein veränderlicher Druck auf den Körperteil aufgebracht werden kann, **dadurch gekennzeichnet**, daß die Vorrichtung zum Aufbringen des Druckes so betätigt wird, daß über eine gewisse Zeit ein veränderlicher Druck auf den Körperteil aufgebracht wird und daß der variable Druck aus einem Bereich ausgewählt wird, der inhärentes streßreduzierendes Verhalten bewirkt.

16. Verfahren nach Anspruch 15, wobei als weiterer Verfahrensschritt die Vorrichtung zum Aufbringen des Druckes selektiv programmiert wird, um so selektiv die Veränderung des Druckes über der Zeit zu bewirken.

17. Verfahren nach Anspruch 15 oder 16, wobei als weiterer Verfahrensschritt ein von der Vorrichtung zum Aufbringen des Druckes entfernter Sender verwendet wird, um die Veränderung des Druckes über der Zeit selektiv zu steuern.

18. Verfahren nach einem der Ansprüche 15 bis 17, wobei in einem weiteren Verfahrensschritt ein von der Vorrichtung zur Aufbringung des Druckes entfernter Empfänger verwendet wird, um die von der Vorrichtung gesendete Statusinformation zu empfangen und zu sammeln.

19. Verfahren nach einem der Ansprüche 16 bis 18, wobei im Verfahrensschritt des Programmierens die Vorrichtung zur Aufbringung des Druckes so programmiert wird, daß der Druck über der Zeit zufallsbasiert verändert wird.

Revendications

1. Un dispositif d'application de pression adapté à induire un comportement réduisant le stress inhérent chez l'animal, comprenant des moyens de montage (2) pour monter ledit dispositif sur une partie du corps de l'animal et des moyens d'application de pression (4) associés de manière opérationnelle auxdits moyens de montage (2), caractérisé en ce que les moyens d'application de pression sont adaptés à appliquer une pression variable sur la partie du corps, et en ce que sont prévus des moyens de commande (6) qui sont reliés

de manière opérationnelle auxdits moyens d'application de pression pour commander les variations de ladite pression.

2. Un dispositif tel que défini dans la revendication 1, dans lequel lesdits moyens de montage (2) sont construits de manière à s'adapter sur la section de queue d'un animal.

3. Un dispositif tel que défini dans l'une quelconque des revendications 1 ou 2, dans lequel lesdits moyens d'application de pression (4) comprennent:

(a) un moteur (8),

(b) des moyens (10) entraînés par ledit moteur pour augmenter et diminuer la quantité de pression appliquée à la partie du corps; et

(c) une source de puissance (12) reliée de manière opérationnelle audit moteur.

4. Un dispositif tel que défini dans la revendication 3, comprenant en outre des moyens à panneau photoélectrique (24) reliés de manière opérationnelle à ladite source de puissance (12) pour recharger ladite source de puissance.

5. Un dispositif tel que défini dans l'une ou l'autre des revendications 3 ou 4, dans lequel lesdits moyens de montage (2) comprennent une sangle qui forme une boucle autour de la partie du corps, et dans lequel lesdits moyens d'entraînement (10) comprennent en outre un élément tendeur de sangle (23) apte à augmenter ou diminuer la dimension de ladite boucle formée par ladite sangle, augmentant et diminuant ainsi respectivement la quantité de ladite pression appliquée à ladite partie du corps.

6. Un dispositif tel que défini dans la revendication 5, dans lequel lesdits moyens de montage (2) comprennent une pluralité de sangles (2a, 2b) formant chacune une boucle autour de la partie du corps, et dans lequel lesdits moyens d'entraînement comprennent en outre une pluralité d'éléments tendeurs de sangle (23) aptes à augmenter et à diminuer respectivement la dimension desdites boucles formées par lesdits éléments du type sangle.

7. Un dispositif tel que défini dans l'une ou l'autre des revendications 5 ou 6, dans lequel lesdits moyens de montage comprennent des moyens de décalage (26) pour décaler la boucle formée par ladite sangle et former une boucle en spirale autour de la partie du corps.



8. Un dispositif tel que défini dans l'une quelconque des revendications précédentes, dans lequel lesdits moyens de commande de pression (4) comprennent des moyens de circuit électronique de contrôle de temps (30) pour commander automatiquement les variations de ladite pression. 5
9. Un dispositif tel que défini dans la revendication 8, dans lequel lesdits moyens de circuit de contrôle de temps sont programmables pour assurer une commande sélective des variations de ladite pression. 10
10. Un dispositif tel que défini dans l'une ou l'autre des revendications 8 ou 9, dans lequel lesdits moyens de circuit de contrôle de temps sont programmés pour modifier de façon aléatoire ladite pression au cours du temps. 15
11. Un dispositif tel que défini dans l'une quelconque des revendications 8 à 10, dans lequel lesdits moyens de circuit de contrôle de temps (30) sont programmés pour augmenter de façon continue ladite pression jusqu'à une première pression, maintenir ladite première pression pendant une première période de temps, diminuer ladite pression jusqu'à une seconde pression, et maintenir ladite seconde pression pendant une seconde période de temps. 20 25 30
12. Un dispositif tel que défini dans la revendication 11, dans lequel lesdits moyens de circuit de contrôle de temps (30) sont programmables pour commander sélectivement les longueurs desdites première et seconde périodes de temps, et/ou pour commander sélectivement les quantités desdites première et seconde pressions. 35 40
13. Un dispositif tel que défini dans la revendication 12, dans lequel lesdits moyens de circuit de contrôle de temps sont programmés pour modifier périodiquement de façon aléatoire lesdites première et seconde périodes de temps. 45
14. Un dispositif tel que défini dans l'une quelconque des revendications 8 à 13, dans lequel lesdits moyens de commande de pression (4) comprennent en outre des moyens de transmission à distance pour envoyer à distance des signaux de programmation sélectionnés, et des moyens de réception (38) associés de manière opérationnelle auxdits moyens de circuit de contrôle de temps pour recevoir lesdits signaux et programmer ledit circuit de contrôle de temps par lesdits signaux. 50 55
15. Un procédé pour induire un comportement de réduction de stress inhérent chez l'animal, utilisant un dispositif d'application de pression et le montage dudit dispositif d'application de pression (4) sur une partie du corps de l'animal, dans lequel ledit dispositif d'application de pression (4) est apte à appliquer une pression variable à la partie du corps, ledit procédé étant caractérisé en ce que ledit dispositif d'application de pression est actionné de façon à appliquer une pression variable sur la partie du corps au cours du temps et en ce que la pression variable est sélectionnée dans une plage qui induit un comportement de réduction de stress inhérent.
16. Un procédé tel que défini dans la revendication 15, comprenant en outre l'étape consistant à programmer sélectivement ledit dispositif d'application de pression pour commander sélectivement les variations de ladite pression au cours du temps.
17. Un procédé tel que défini dans l'une ou l'autre des revendications 15 ou 16, comprenant en outre l'étape consistant à utiliser un émetteur à distance dudit dispositif d'application de pression pour commander sélectivement les variations de ladite pression au cours du temps.
18. Un procédé tel que défini dans l'une quelconque des revendications 15 à 17, comprenant en outre l'étape consistant à utiliser un poste récepteur à distance dudit dispositif d'application de pression pour recevoir et collecter l'information d'état transmise par ce dernier.
19. Un procédé tel que défini dans l'une quelconque des revendications 16 à 18, dans lequel ladite étape de programmation comprend la programmation du dispositif d'application de pression de façon à modifier de façon aléatoire ladite pression au cours du temps.