Creating Safety for Traumatised Animals

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What will we cover?

- The definition and elements of safety
- How trauma influences a sense of safety
- The role of safety in cognition
- The role of safety in memory and learning
- Safety and socialisation
- Safety, attachment and relationships
- Creating safety

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What is safety?

“ The state of being protected from injury or harm “
Cambridge Dictionary

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What is safety?

Experiencing trauma dramatically changes an individual's ability to feel safe in their world be they human or animal (Bonne et al,2004, Bradshaw et al, 2008 , Cahil &Foa,2007, Hembree & Foa,2010).

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Elements of Safety

Safety is both an external and internal experience

External the dog or horse's physical environment

- **Safe**

- A physically secure environment consider for rescue dogs height of garden fencing, any gaps or holes etc
- For horses secure and suitable fencing and an environment free of debris and harmful vegetation. No risk of injury or escape etc
- Appropriate stable social group
- Safe and predictable interactions with humans
- Secure attachments and opportunities for attachment repair.
- Absence or minimisation of triggers
- Species specific needs are met

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Elements of Safety

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- **Unsafe**
- Unsafe environment ie risk of injury or escape
- Species specific needs are **NOT** met
- Isolation or inappropriate social group
- Threatening and/or unpredictable interactions with humans including during training
- Insecure attachments or repeated attachment ruptures

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Elements of Safety

Internal (physical state)

- **Safe**
- The dog or horse is physically healthy
- Absence of pain or injury or managed pain and disease
- Appropriate nutrition
- Positive emotional states
- **Unsafe**
- Pain or disease
- Nausea(dogs)
- Gut Brain Axis - changes to the gut microbiota have been associated with aggression and fearfulness in dogs and horses (Bulmer et al,2019, Kirchhoff,Udell & Sharpton,2019, Destruz et al,2019). Changes to the gut microbiota influence feelings of safety (Kolacz,Kodachrome & Porges,2019, Hamilton,2020)
- Negative emotional states

Trauma alters the ability of a dog or horse to experience their world as safe (Bradshaw et al,2009,)

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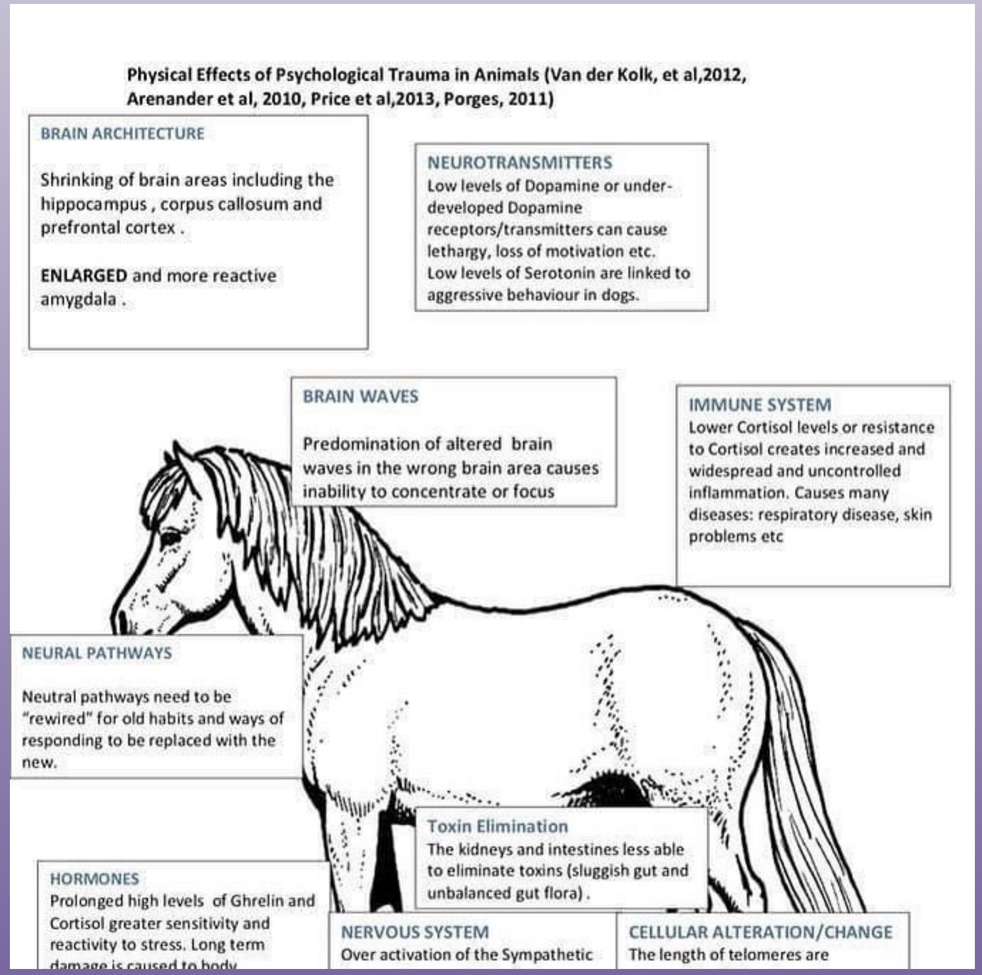
Physical effects of Psychological Trauma in Animals



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Elements of Safety -Initial Considerations

- **Physical** - Pertains to the immediate physical environment including a quiet environment with reduced foot traffic with access to an escape route. Ensuring their physical health and wellbeing including nutritional state and sleep.
- **Emotional** - Pertains to their emotional state and needs.
- **Social and relational** - Pertains to their species specific social and relationship needs .The chance to have safe interactions with people

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Appraisal of safety and danger

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The appraisal of safety, danger and life threat is processed in three ways **perception**, **interoception** and **neuroception** (Porges, 2015,Van der Kolk, 2014).It is important to recognise that **"being"** safe differs from **"feeling"** safe (Levine,2010,Van der Kolk, 2014).Trauma alters an animal's ability to distinguish safety from threat and vice versa (Dylan, Gee & Kribakaren, 2020,Kain & Terrell, 2018,Levine, 2010).

- **Perception**
  - How the horse or dog organises,interprets and experiences sensory information
  - It is conscious

- **Interoception**
  - The sense of the internal state of the body
  - Interoceptive signals include
  - homeostasis of body systems
  - allostatic control ie blood pressure changes with demand (Ramsey & Woods,2014)
  - Feedback from physiological changes
  - as a result of emotions

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Appraisal of Safety and Danger

- **Neuroception**
- How neural circuits detect whether people, animals situations, internal state are **safe,dangerous or** a **threat to life.**
- Occurs outside of awareness (unconscious)
- Trauma alters neuroception

(Porges,2015)

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How trauma effects a sense of safety

- Single event trauma or one trial learning is enough to alter an animals' behaviour long term (Armario et al, 2008, Wiedenmeyer,2004).
- Physiological , psychological and neuroendocrine responses are also affected (Armario et al,2008,McMilan,2019,Wiedenmeyer,2004).
- Trauma is the only single event conditioner of behaviour known (Perry, 2007,VanElzakkher et al,2014,).
- For wild animals or those living under natural conditions behaviour change that persists offers an adaptive advantage . As these changes allow them to alter their behaviour in response to threat into the future (Wiedenmeyer et al,2004, Zanette et al, 2019)
- Exposure to a single traumatic event is enough to cause long term modifications in synaptic plasticity and transmission to specific brain regions within the fear pathway (McMilan,2019,Wiedenmeyer,2004) . Affected brain structures include

- Periaqueductal Grey
- Amygdala
- Hippocampus
- Anterior Cingulate Cortex (ACC)
- Prefrontal Cortex (PFC)

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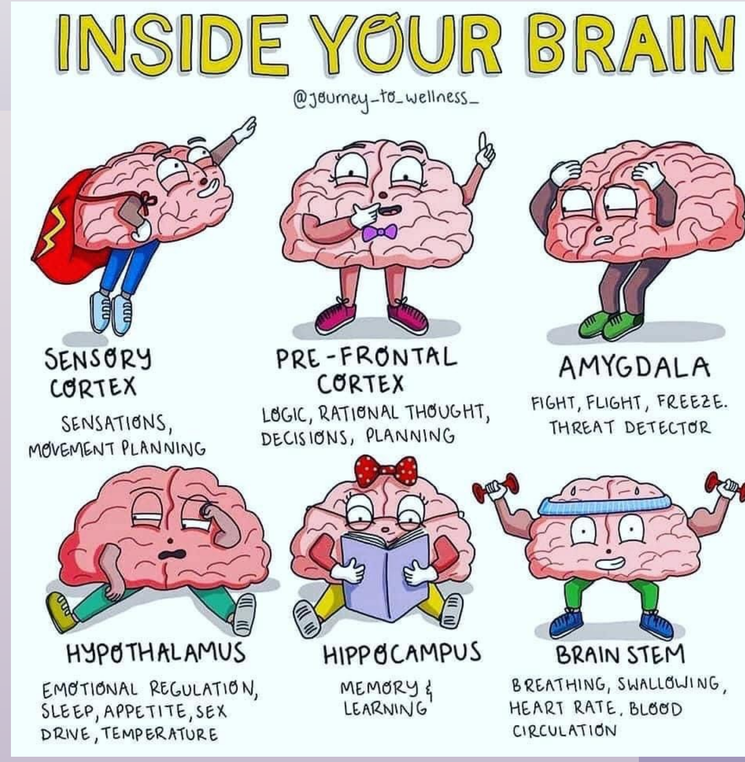
- **Dogs and horses exposed to psychological trauma have difficulties with emotional regulation** (Bradshaw,2009 McMilan,2017).
- **Fear responses are especially affected** (Smith et al, 2019,Wickens,2016)
- **Responses to trauma related or frightening stimuli are highly dysregulated** (McMilan,2017, Van Elzakkar,2014)
- **The amygdala becomes hyper-responsive to ALL stimuli** (Buss et al, 2012, Van Elzakkhar,2014)
- **The medial prefrontal cortex (m-pfc) is under- responsive resulting in failure to dampen or inhibit the amygdala** (McMilan,2019, Shalev et al,2017)
- **This leads to a reduction in connectivity between the amygdala and higher brain regions** (Ross & Cisler,2020)
- **Increased threat bias** (Klaenecky et al ,2020)
- **Sense of safety within the environment is reduced leading to increased hypervigilance , reactivity and fearfulness or defensiveness** (McMilan,2017,Lesimple,2020)



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Safety
Cognition
Memory
&
Learning

Safety and Cognition

Trauma changes cognitive processing in a multitude of ways. These cognitive network alterations are exacerbated by the effects of emotional dysregulation on an animal's cognitive functioning

- **Memory**
- **Problem Solving**
- **Attention**
- **Planning and executive function**
- **Social Cognition**

- Changes in social cognition include increased social fears (Dietz et al,2018,McMilan,2017,Purrunen et al,2020) and increased aggression towards other dogs (McMilan,2017

- Horses weaned too early may experience deficits in their social behaviour including increased aggression or inappropriate reading of signals . They are frequently isolated or denied opportunities to learn social skills in stable mixed sex groups. (Henry et al,2020,Sigurjonsdottir & Haraldson,2019,Pierad,McGreevy & Gerry,2017). This must be distinguished from lack of socialisation.

- For dogs and horses it's important to distinguish lack of socialisation from trauma as they are similar in presentation (Burratini et al,2021, McMilan,2919,Palestrini ,2009). Trauma and lack of socialisation may also co-exist.

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Safety and Cognition

- These alterations to the fear structure lower a horse or dog's capacity to process stimuli that is **NOT** threatening causing an increased **THREAT** bias (Harnett,Goodman &Knight,2020).
- These changes to cognitive processing decrease a dog or horses' sense of safety for some leading to a spiral of over-responsiveness to threat and high stress (Bradshaw,2009, Henry et al,2020,McMilan,2017)

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Multisensory integration

Multisensory integration is how sensory information across the five senses is processed and integrated by the nervous system. Proprioception, kinesethesis (sensation of motion in the body and limbs) and the vestibular senses (relating to rotation,gravitation and movement) also play a role (Stein,Stanford & Rowland,2009)

- Sensory processing informs goal directed and adaptive behaviour responses (Harrichan, McKinnon & Lanius,2021)
- Trauma alters sensory processing patterns leading to either **hypersensitivity** or **hyposensitivity** to internal and external input (Harrichan,McKinnon &Lanius,2021)
- Social cognition and social engagement is also impaired (Lanius et al,2010).

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Multisensory Integration

For traumatised animals this can mean

- Processing social signals and social engagement behaviours could be impaired (Lanius et al,2010) resulting in social fears or difficulties interpreting social signals problematic for communication and herd living (Rees,2018,Topal et al,2019)
- For dogs heightened noise and/or touch sensitivity (Braen et al,2017,Dube et al,2020)
- Horses who perform stereotypic behaviours experience touch sensitivity compared to non-stereotypy performing horses (Briefer-Freymond et al,2020)
- Both dogs and horses can experience increased or decreased emotionality .
- Heightened sensitivity to the environment and difficulties interpreting social cues make the world scary and decrease their sense of safety (Buttner,2016,

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Context processing

Context processing allows dogs and horses to recognise that a stimulus requires a different response depending on the context in which they come across it (Liberzon & Abelson,2016)

Trauma and early life stress causes deficits in differentiating safe from unsafe situations (Liberzon & Abelson, 2016)

Safety Signals & External Inhibitors

- **External Inhibitors** are features of the environment that **reduce** a sense of fear ie
- Playing the tv to reduce firework noise
- The presence of a trusted companion (could be considered social facilitation or social buffering. (Ricci-Benoit,2021, Odinozola & Gee,2020)

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Context Processing

Safety Signals are **trained**. They are safety cues that signal the **absence** of a **negative event** or **aversive stimulus**
(Christiensen et al, 2012,McGreevy et al, 2014)

- In traumatised dogs and horses deficits in context processing **reduce** the effectiveness of safety signals
  (Liberzon & Abelson, 2016, Kane & Terrell, 2018).

These dogs and horses may show either over-responsiveness or under-responsiveness to **THREAT** (Levine, 2010,Kane & Terrell, 2018).

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Cognitive Flexibility

Cognitive flexibility is the ability to adapt to changing situations and environments. It allows animals and humans to update and change cognitive and behavioural strategies (Gabrys, Dixon & Anisman, 2017, Ionescu, 2012).

Early life stress and stimulus deprivation is known to reduce cognitive flexibility in a wide range of species (Chaby et al, 2019)

Poor cognitive flexibility decreases sense of safety as changes to the environment may become frightening (Gabrys, Dixon & Anisman, 2017)

Reduced cognitive flexibility impairs problem solving further exacerbating anxiety and fear

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Effects of Trauma, Arousal and Stress on Learning and Memory

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Experiencing early life stress, acute (short-term) traumatic stress chronic stress or long term treatment with glucocorticoids impair an individual's capacity for learning and memory (Luine, 1994,McEwan, 2016)

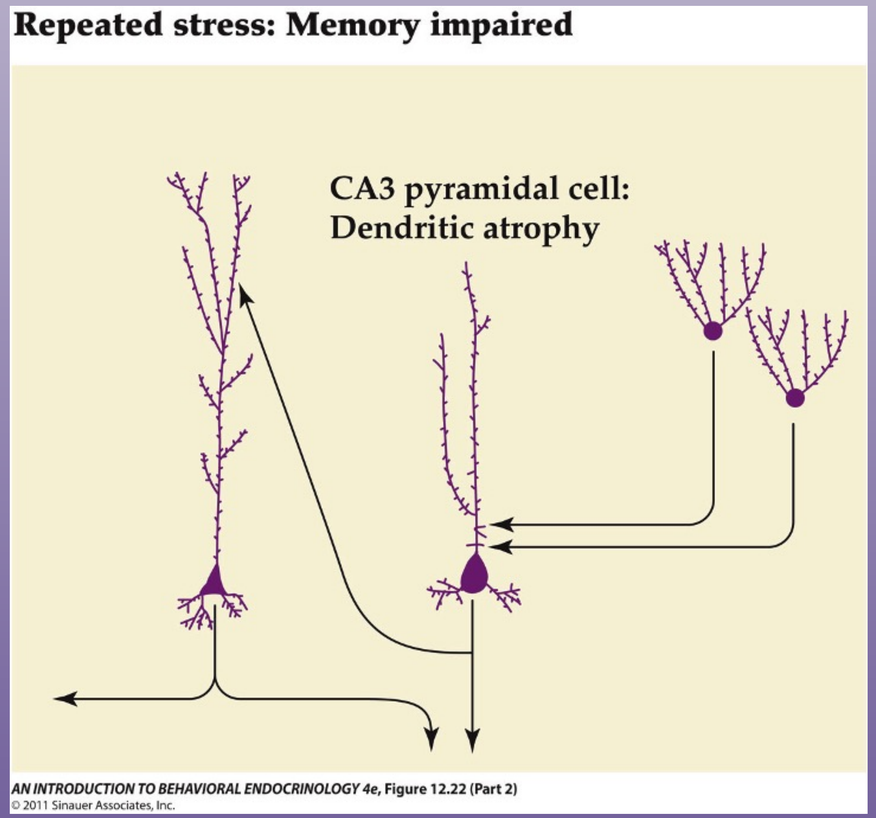

Fig 12.22

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Mia: Pumpkin Spice Edition
@YourGingaNinja

"but it made you stronger"

I was a child.

I didn't need to be stronger.

I needed to be safe.

10:12 PM · 9/30/19 · Twitter for Android

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LEARNING

- Reduced recall of knowledge
- Difficulties learning new behaviours
- Tendency towards habitual learning
- Memories associated with high levels of emotion are remembered more easily
- Impaired safety learning (Packard & Wingard, 2004,Parker et al, 2015, Schwabe,2017)
- SAFETY is a prerequisite for learning

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Safety and socialisation

A QUICK WORD on Horses and their social behaviour

- Horses use **MUTUAL** communication between all members of the herd.
- Horses communicate via body language and behaviours through giving and responding to develop a mutual language between them.
- Their behaviours gain meaning through being given consistently and predictably.
- Each individual has a **comfort zone** or **bubble** around them and they communicate who is or isn't allowed to share their space. “Friends” or preferred herd members are allowed nearest but others they would prefer further away.
- **This is often confused with resource sharing, guarding or dominance! (Kieson, Lundgren & Abramson, 2019,)**

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Safety and Socialisation

Recent and emerging research suggests horses display social bonds through :

- **MUTUAL** movement
- **MUTUAL** touch
- Proximity

(Kieson, Lundgren & Abramson, 2019

- Horses form complex social networks (Kieson,Lundgren &Abramson,2019, Wulf et al,2018)

Early and abrupt weaning, inappropriate social groups or isolation can lead to problems with social behaviour (Henry et al,2020,Hausberger et al, 2008) and increased agonistic interactions (Pierad et al,2019). Management and lack of space also play a role (Sigurjonsdottir & Haraldsson, 2019, Bourjade et al,2012)

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Safety and Socialisation

An animal's social and emotional development is **species specific** and **developmental stage specific** (Barron et al, 2020).

Socialisation allows animals to form species specific appropriate behaviour patterns in order to manage within their social environment (Hargreave, 2021,Mills, 2010)

The animal can learn to interact with the other animals and humans they live with. They also develop species identity and form social preferences (Hargreave, 2021,Mills, 2010)

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Social Development

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- Trauma disrupts normal social development and contexts (Bradshaw & Schore, 2007).
- Decreased social competency potentially results in rejection by conspecifics as their behaviour falls outside of social norms (Henry et al,2009, McMilan,2016). This reduces their physical and psychological safety (Bradshaw & Schore,2007)
- The **socialisation period** is a phase in a young animal's development when they are most receptive to forming social attachments (Mills,2010). In the horse this is less well defined possibly the first forty- two days are significant for developing relationships with humans (Mal & McCall, 1996)
- Foals are also influenced by their dam's behaviour around humans (Henry et al,2007)
- Acceptance of social and non- social stimuli can take place later in life but should be managed carefully to avoid flooding and overwhelm (McMilan,2017)

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Socialisation

- **Dogs**
- Altricial
- Socialisation period 3-12 weeks (peaking at 8 weeks) (Mills,2010)
- **Horses**
- Precocial
- Socialisation period less well defined but the first year may be significant peaking after birth and after weaning (Burratini et al, 2021)
- The first forty two days are significant for socialisation to humans (Mal &McCall 1996)
- Domestication has meant horses negotiate complex social environments with conspecifics , other animals and humans (Henry et al,2020)
- For **BOTH** species **prenatal**, **perinatal**, **early life** and **adolescence** are times of heightened vulnerability to trauma (Bradshaw,2009, McMilan,2017)

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Social Development

Safety and Trauma

- For dogs and horses it is important to distinguish inappropriate socialisation from exposure to trauma as they are similar in presentation (Burratini et al, 2021, McMilan,2019,Palestrini,2009). In some cases they co-exist.
- Both **socialisation** and **habituation** matter (McMilan,2016)

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Prenatal Stress & Socialisation

Definition : The stressors a mother is exposed to during pregnancy that go beyond the stressors of the actual pregnancy and lactation/nursing (Bonnetti et al, 2016)
ie

- Illness
- Poor nutrition
- Sudden environmental or routine changes
- Abuse and neglect

Pregnancy is a crucial time in a mother's life where environmental influences including **prenatal maternal stress** not only impact her health but have multiple lifelong health and psychological consequences for her developing offspring via fetal programming (Rakkers et al, 2017

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Prenatal Stress

Fetal. Programming. - the process by which the fetus. adapts to the womb environment. These adaptations. occur in response to nutritional state. and other environmental. stimuli (Satterfield et al, 2010)

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Prenatal stress & Socialisation

- Recent research has revealed that the process is mediated by multiple transmitters, not just cortisol (Rakkers et. al, 2017). These include
- Serotonin and Tryptophan
- Catecholamines
- Cytokines
- Reactive Oxygen Species (a co-product of oxygen metabolism)
- The maternal microbiota (Lindenberg et. al, 2018)
- The effects of prenatal stress on psychological and physiological outcome vary depending on (Rakkers et al,2017)
- The type of stressor
- Intensity of stressor
- Duration
- Timing of the stressor (trimester)
- Sex of offspring

Prenatal stress impairs attachment bonds and can decrease a sense of safety for mother and offspring. Both the attachment system and HPA axis are damaged influencing behaviour (Bradshaw & Schore,2007, Cortizo,2021,Thompson,2007)

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Safety and Attachment

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Types of Attachment Trauma

Pup or foal rejection
Pair bond rupture
Multiple rehoming
Caregiver attachment style
Caregiver dysregulation
Multiple handlers
Aversive veterinary procedures

ATTACHMENT AND RELATIONSHIP TRAUMA

Abuse and neglect
Poor maternal care
Early and abrupt weaning
Early life separation due to illness or injury
Orphaning
Aversive /inconsistent training

All of these are influenced by interactions between age, developmental stage , environment, epigenetics and genetics among other factors

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Attachment

Attachment between a mother and her offspring is crucial for the animal's healthy psychological and physical development (Bowlby,1969,Trevarthen,,2001). A mother provides not only nutrition but also emotional support and attunement to her young providing them with a secure base with which to explore the world from and a safe haven in times of stress

(Ainsworth,1978,Bowlby,1969,Bradshaw,2009)

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Attachment

- There are two innate attachment systems :
- **Care, protection , safety and co-regulation , nurturance**,- individuation process (species specific differences)
- **Companionship, play, cohesion , applicable across species** - socialisation process (species specific) (Bosch & Young,2018,Bradshaw &Schore,2007, Panksepp & Van Biven,2016, Sipple et al,2021,Trevarthen,2001)
- Trauma and early attachment ruptures or failures decrease an animals' sense of security and leave them vulnerable to developing behaviour problems without the opportunity for reparative social experiences (Bradshaw & Schore ,2007)

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What are the consequences of attachment rupture?

Disturbances of social contexts have been researched in elephants and given similar denial of or disruptions to equine social structures it is possible that this also exists for horses (Bradshaw & Schore,2007, Rees,2018) . For horses and dogs recovery from early attachment ruptures requires reparative experiences that cross species and involve human caregivers alongside conspecifics in order for them to regain a sense of security and physical and psychological well-being

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Social contexts and attachment rupture ....

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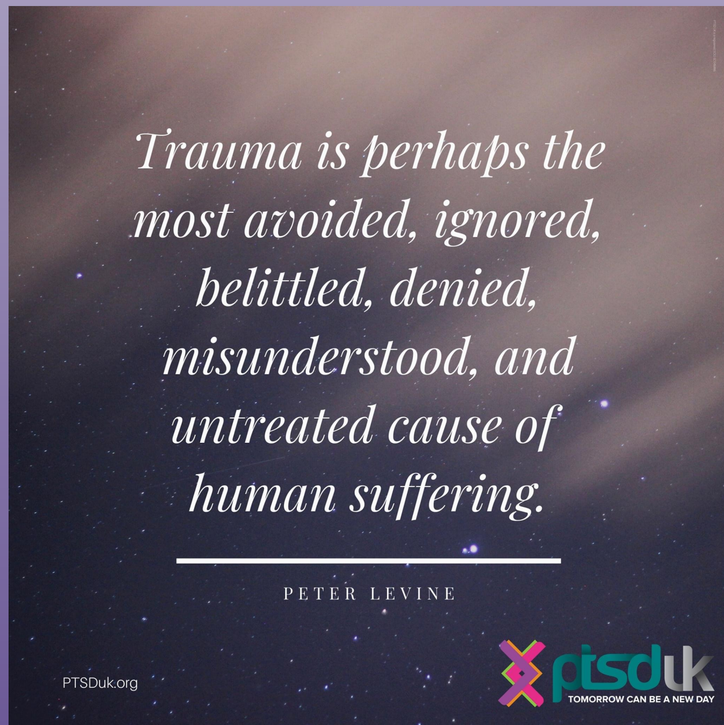
Attachment is influenced by:
Quality of maternal care nuances of the maternal bond these are not always overt ((Czerwinski et al,2016)
Frequency of maternal licking

High licking versus low licking Offspring of low licking mothers experience reduced coping and increased anxiety (Czerwinski et al,2016, Dietz et al,2018)

- **Mares demonstrate intense maternal behaviour towards their foal including**
- **Increased licking**

Increased flehmen response (NOT all mares show this response) (Houpt,2002

Interference at the first suckling results in insecure attachment and reduces social competency lasting until pre-puberty and potentially beyond (Grogan &McDonnell, 2005,Henry et al, 2009, McDonnell2005)



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What ‘s Missing ?

A sense of safety and the development of attachment and social behaviours are a combination of :

- **Quality of maternal care which in turn is influenced by the dam’s health and nutritional status and the level of stress within her environment. Stressful and unsafe environments draw her attention from caring for her offspring (Bradshaw & Schore,2007,Hargreave,2021)**
- **Social environment ie inappropriate social groupings (Henry et al,2020)**
- **Physical environment ie enriched versus impoverished (Lansade et al,2014,Shilpa et al,2017,Small et al,2020)**

Early attachment relationships that are disrupted or detrimental set a template for future relationships (Doyle & Cicchetti,2018). If opportunities are “missed” entirely this makes creating attachment bonds and relationships more challenging (Perry & Hambrick,2019, Schore,2019b)

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Attachment and Safety (adapted from Dietz et al ,2018,Perry & Hambrick,2019)

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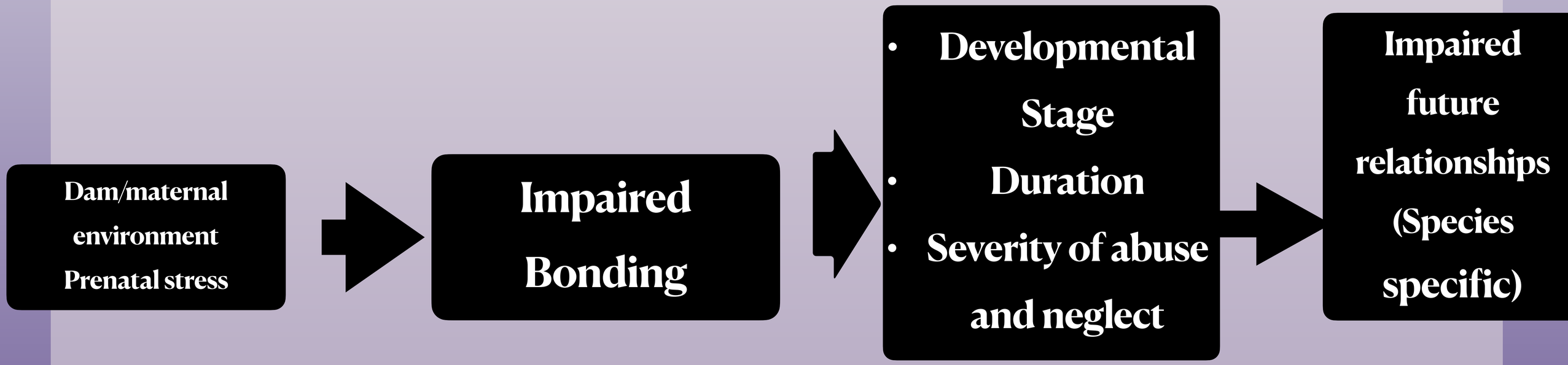

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Horse/Human Attachment

Horse / human attachment is less well researched than the dog/human attachment bond (Arrazola & Merkies, 2020,Hartmann et al,2021,). Whilst horse human relationships share some features of attachment relationships including **proximity seeking** and **safe haven** effects (Lundberg,Hartmann & Roth,2021) there are also differences. Horses are expected to form relationships with multiple humans , caregiver attachment style and training method play a role (Payne et al,2016,Lundberg et al,2021,Merkies et al,2021).

Horse human relationships are based on

- **Building a language and communication through observation**
- **Does the horse move towards or away from a human**
- **When and how they seek proximity or share space Kieson,Lundgren & Abramson,2019)**

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Relationships and Attachment

- Altered social behaviour including **avoidance** and **withdrawal** (Bradshaw & Schore,2007,Minnis et al,2018). Resulting from inadequate care for animals this may mean **human interference** or **dam offspring aggression , reduced milk production** and **illness** or **death (**Lezama-Garcia et al,2019)
- In dogs incidents of **maternal aggression** are typically **low** other stressors also influence maternal behaviour (Kustritz,2005)
- Maternal aggression in horses can occur in some mares and **persists** with **future offspring** (Grogan & McDonnell, 2005, Henry et al,2020,McDonnell, 2012)
- Ruptures of the **maternal bond**, **early weaning** , **early socialisation** , **adolescent** and **adult socialisation** influence future adult behaviour including **sense of safety**, **fear and stress responses** and **social behaviour** including **increased aggression** or **social withdrawal** or **decreased support seeking**(Dietz et al,2018, Henry et al,2020,Minnis et al,2018,Perry, 2017,Thieke & Udell, 2019)
- What about **hyper-sociability** or **Disinhibited Social Behaviour? (**Bradshaw & Schore,2007,Minnis et al, 2018,Thieke & Udell,2018)
- Frustrated Greeters or indiscriminate jumping up or over enthusiastic greeters ?
- Research in children who have experienced severe maltreatment and/or neglect demonstrated some children displayed **indiscriminate social behaviour** including **diffuse attachment** or **not checking in with their caregiver** (Lehmann et al,2020)
- Is it possible that in some animals over- enthusiastic or over-friendly greetings in the dog or inappropriate play behaviour in the horse is an indicator of **anxiety** and **high stress** resulting from inadequate attachment bonds (Bradshaw & Schore, 2007, Nunez & Rubenstein, 2020)
- Reactive Attachment Disorder has been discussed in young children (Minnis et al,2018) and in elephants and chimpanzees (Bradshaw & Schore,2007, Bradshaw et al,2008,Bradshaw, 2009) . Results in **withdrawal** and **reduced comfort seeking** (Lehmann et al,2020, Minnis et al,2018).

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Attachment SEEKING & Finding

(Lundgren,2020,Panksepp, 2012, Porges,2015)

SEEKING

- CARE
- PROTECTION
- NOURISHMENT

ATTACHMENT

FINDING

- SAFETY OR AGGRESSION
- NEGLECT
- REJECTION
- PANIC/GRIEF
- FEAR

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SEEKING AND FINDING

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Attachment involves

- **SEEKING**
- **FINDING**

Young animals **SEEK , CARE , protection** and **nourishment** from their dam (Bradshaw, 2009, Panksepp et al, 2003, Trevarthen,2001). If caregiving is disrupted or the puppy or foal **FINDS rejection, aggression**, or **absence**. This can impair future relationships and social interactions (Bradshaw & Schore,2007,Lundgren,2020,Porges, 2015) ie

A mare with a history of rejection of filly foals in the form of extreme aggression directed at her foal and other mares . Requiring separation .Her foal then went on to develop aggression towards other fillies and mares . The mare was also rejected by her dam.

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What about Mum?

1. Mares experience distress as a result of weaning methods. Falomo et al, examined the behaviour of Trotter mares who were separated from their foals .
2. At **stud one** mares and foals were separated at five months and **stud two** seven months of age.
3. Mares at **stud one** were turned out in a paddock after the separation
4. Mares at **stud two** were isolated in a stable for two days

After the separation both groups demonstrated

- **Decreased appetite**
- **Increased locomotion**
- **Increased pawing**
- **Increased vocalisation**
- **Separation was weakly correlated with increased saliva cortisol**

(Falomo et al, 2018)

©Daniee Willis Puppies

©Psyche Dell foal

The effects of weaning method on the mother is under researched and over-looked in both species (Bradshaw & Schore, 2007, Falomo et al, 2018,Henley, 2018 Serpell, Duffy & Jagoe, 2017)

Awareness of meeting the dam's needs during artificial weaning also warrants attention in order to increase her sense of safety and welfare. The dam's environment and sense of security is crucial to her attachment relationships . There is less canine research (Bradshaw & Schore, 2007) Images

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Attachment Starting over....

If an animal has not had the opportunity to develop secure attachment bonds with their dam, conspecifics or even human caregivers they are less able to identify a trusted source or attachment figure (Bradshaw, 2009, Minnis et al, 2018

It is NOT possible to recognise a safe relationship if an animal or person has NEVER had one !

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Starting Over...

Social species have a strong innate drive to form attachments in order to survive. In the case of conspecifics being unavailable they create relationships with other species (MacMillan, 2016).

Free-ranging or street dogs often have mixed experiences with humans which can cause conflict, stress and fear (Demirbas et al, 2016)

Some traumatised dogs and horses have **ONLY** experienced frightening or traumatic interactions with humans. Past interactions influence future interactions (Greenfield et al,2020,Proops et al,2018)

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Building Safe Relationships

- **Recognise that responses to humans are NOT limited to fear and avoidance responses or aggression and defence but also includes appeasement/ fawn (Porges, 2015) and excessive friendliness (Thieke & Udell , 2018)**
- **CALM is NOT ALWAYS CALM (Levine, 2010)**
- **Calm can be SHUT DOWN, OVERWHELM or LEARNED HELPLESSNESS**

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Relationship

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Awareness of our own **trauma responses** and **triggers** is vital. This influences our relationships with our animal's in **positive** and **negative** ways (Scopa et al, 2019, Bradshaw, 2009)

Our own trauma responses can cause us to behave in potentially **unpredictable, inconsistent** and **conflicting** ways. This can provoke **fear** and **stress** in the dog or horse (Perry, 2017,Proops et al, 2018,Siniscalchi, d'Ingeo & Quaranta, 2019)

To effectively create safety trauma-informed care must apply to the **animal** and the **human**. If either party feels **unsafe, safety** and **relational repair** can't happen (Bradshaw, 2009,Pinnilos, 2018)

What about us?....

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Safety

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- Free -ranging or feral dogs and horses have true agency and control over their own lives. This affords them more control over their triggers than domestic dogs and horses. Loss of agency decreases a sense of safety in both street dogs and feral horses and ponies (Gorecka-Bruzda et al 2020, McDonell & Torcivia, 2021)
- This level of agency allows them to fully set the pace and choose **when** and **how.** to engage with the trigger
- Free -living or feral dogs are also able to exercise full control over their environment as do feral horses. Their emotional and social needs are met. They can choose both **how** and **who** to engage with. Feral horses and dogs instead face different stressors (Bhattarghee et al, 2016,Gorecka-Bruzda et al, 2020,)
- **SAFETY IS RELATIVE AND NOT STATIC- illness,tiredness,sudden changes to routine or in the environment** and **other factors ALL decrease an individual's sense of safety (Bradshaw , 2009,McGreevy et al,2012, Perry,2017)**
- Domestic dogs and horses have a great deal of external influences from us in terms attempts to desensitise and reduce fearfulness . This can have the opposite effect and be detrimental (Bradshaw & Schore,2007, Bradshaw,2009)

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Safety in Relationship Running Interference

- If we interfere with this process by trying to actively desensitise and counter condition too much we can end up inadvertently **INCREASING fear** and **stress** (Bradshaw,2009, Van Fleet,2010)
- This is **NOT** limited to aversive training but can occur with positive reinforcement . Consider the use of **HIGH** value and novel food rewards to a dog or horse with a history of food deprivation ?
- In this image Lulu is investigating a novel object without food in it . She is used to my presence and would request touch.

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Relationships with Conspecifics

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Trauma is **RELATIONAL** . This is influenced by **early weaning practices**, the **pressure placed on the dam during pregnancy**, **her experiences during pregnancy and/ or nursing , her experiences with humans , socialisation to other dogs or horses ,humans** (Spinazola,Van der Kolk & Ford,2018,Bradshaw & Schore,2006)

The opportunity to be in a stable social group.A gradual integration is often recommended once they are physically well in - line with bio security. The choice to move towards or away from others including other horses or for dogs to move away from others in the household (Bradshaw,2009, Rees,2018, Van Fleet,2010)

Creating good bonds and secure attachments. Other horses and dogs with solid positive socialisation histories. The chance to make choices (for some too much choice is overwhelming . Simple choices such as where to go, who to be with, for horses a range of forage can be offered , places to rest and the opportunity to eat near or away from others (Bradshaw,2009)

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Building Blocks and Information Gathering

Safe Relationships

- How do they manage their stress **with** you ?
- How do they manage their stress **without** you ? (Cameras can be helpful here)
- How do they interact with other dogs / horses? Or do they interact with other conspecifics?
- How do they interact with people ?Does their behaviour change depending on the person (man versus woman, child versus adult , clothing ?)
- How do they interact with their environment ?
- How do they **choose** to interact with their caregivers?

(Perry & Hambrick,2019,Perry,2017)

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BENEATH EVERY BEHAVIOR THERE IS A FEELING. AND BENEATH EACH FEELING IS A NEED. AND WHEN WE MEET THAT NEED RATHER THAN FOCUS ON THE BEHAVIOR, WE BEGIN TO DEAL WITH THE CAUSE, NOT THE SYMPTOM.

ASHLEIGH WARNER

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Building Blocks of Safe Relationships

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- **Predictability -** Create routines to help the dog or horse predict what happens
- next . Make interactions positive. Allow the horse or dog titrate and manage the experience (Perry & Hambrick,2019)
- **Autonomy and Control -** Allow the dog or horse to have control over their environment including how they interact and when. Research supports even **perceived control** over a stressor can reduce an animal's level of distress (Hancock & Bryant ,2018,Reimers,Schwarzenberger & Pruenschoft,2006,Wang,2019).This includes the opportunity to **modulate** the **duration** and **intensity** of the experience including when to **re-engage** with the stressor (Perry,2017,Perry & Hambrick2019) . For example offering multiple resting sites, water and food access in different places including opportunities to be near or away from conspecifics or us.
- **Choices-** The opportunity to make **safe** and **appropriate choices** for example car chasing is not safe or appropriate (Estep & Hetts,2019) . Offering safe alternatives such as opportunity to explore a safe area or choosing the direction of a walk.
- **Patterns, Synchrony and Rhythm-** Patterns offer a sense of **predictability** and **familiarity** add **safety** similar to **routine** (McDevitt,2017,Perry,2017). Counting also creates **rhythm** and can help us as humans to relax and offer the dog or horse **structure** and **safety** (McDevitt,2017, Perry, 2017, Perry & Hambrick,2019) **Prosody** and **rhythm** of our voice is **calming** (Lansade et al,2021, Jeanin et al,2017, Porges,2015). **Rhythm, movement** and **synchrony** can play a role in **social bonding , building trust** and **facilitate communication** (Rees,2018)
- **Positive Experiences-** The chance to have **positive experiences** such as **sniffing,playing ,exploring with a human present** (this is applicable to dogs and horses) (Draissma,2020,)
- **Reciprocity -** Reciprocity has been found to mediate the effects of trauma (Feldman et al,2021,Perry & Hambrick,2019,Van der Kolk, 2012). Fostering reciprocal and responsive interactions with people.

Consider the animal's age and developmental stage in terms of needs for example a puppy or foal has different needs to that of a geriatric horse or dog.

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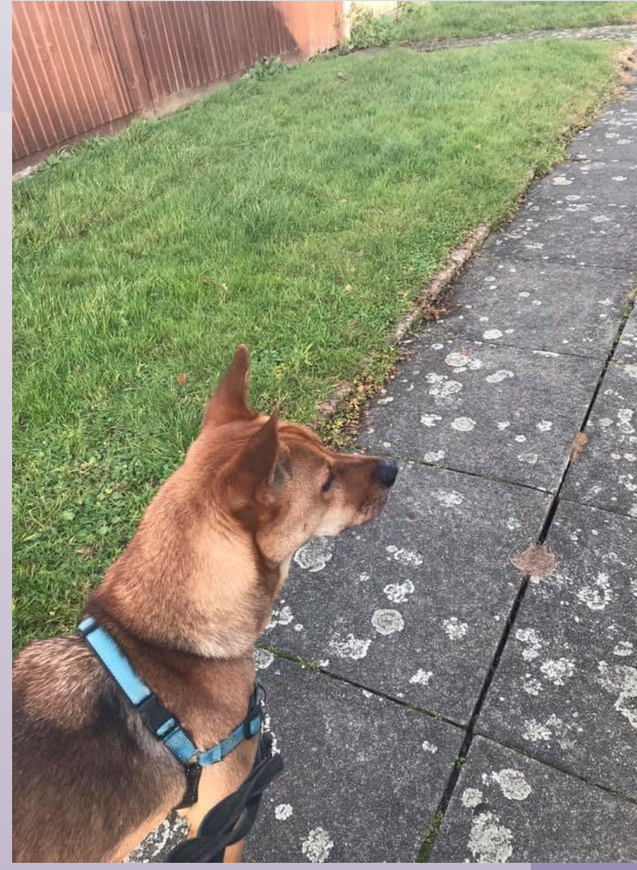
Identification of Trauma and Stress Triggers

WHAT IS A TRAUMA TRIGGER

Trauma triggers are occurrences or events that remind an individual be they human or animal of a traumatic event that causes them to experience **upset** and **distress** that resembles that experienced at the time of the original trauma or traumas (Adapted from Childhood Trauma Recovery, Veraldi & Veraldi,2015,Le Doux & Yenuda,2015)

The identification of Trauma triggers or reminders can be extremely challenging not just because our animals can not verbalise their experiences (children and non verbal humans also can't) but also we seldom have access to their full history. Incomplete histories are not unique to animals but also common in human trauma . It is possible to work around this by focusing on meeting the needs of the individual in front of us (McMilan,2019,Van der Kolk,2015) It is the animal who determines what is traumatic to them and their perception of a stimulus that matters



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Identification of Trauma and Stress Triggers

WHAT Is a Trauma Trigger ?

- Triggers are extremely diverse, **HIGHLY** individual and can include stimuli not easily perceived by humans
- Sounds
- Movements and postures that people make
- Olfactory triggers /smells ie coffee, alcohol , cigarette smoke etc
- Verbal triggers , words , phrases and cues
- Tastes and textures
- Tactile triggers , various physical sensations , touch on areas of the body including wearing harnesses, collars or rugs etc
- Internal sensations potentially those triggered by sudden movement , particularly gaits associated with flight and higher levels of arousal and emotion . These may not be easy to recognise and identify
- Objects or other equipment in the environment
- Specific events such as veterinary treatment or restraint.These can be extremely diverse . sudden environmental contrast or change can also be a trigger.

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Serve & Return Interactions

- **“Serve and Return” interactions** are described as a pattern of behavioural responses to signals initiated by the infant. These interactions shape brain circuitry laying the foundations for social skills and communication.This attunement , reciprocity and parental sensitivity is crucial. These interactions must also occur in sync (Shonkoff,Siegel,Dobbins,Earls & Garner,2012, Lind et al,2019, Opendak et al,2019)
- These rhythms of relating soothe the offspring and increase their sense of safety (Trevarthen,2002, Siegel, 2001)

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Serve and Return Interactions

- Responses to cues of contentment or play and those not associated with distress help young animals develop emotional regulation and builds tolerance to stress (Kopp,2002,Siegel,2001).These patterns of relating soothe offspring and increase their sense of safety.
- These are species specific (Bradshaw,2009)
- As caregivers we can attune and respond to the dog or horse's needs. What is required can change depending on the situation and their experience responses might include **proximity with** or **without touch** or even **play**

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TRIGGERS AND GLIMMERS

Creating Safety

- **TRIGGERS these are stimuli such as a sight, sounds, smells or sensations that acts as reminders for previous trauma or distress often leading to fearful and distressed behaviours . These could be fight or flight responses or shutdown and hypoarousal** (Levine, 2010,Porges,2015, Dana,2018)
- GLIMMERS are safety cues which are the opposite of TRIGGERS. The term glimmers was coined by the trauma therapist and clinical social worker Dr Deb Dana. An awareness of what enables our animals feel safe is just as important as an awareness of their triggers. Watching them when they feel relaxed and safe can help us bring some of these “glimmers” into their environment and our interactions (Dana,2018, McGreevy et al,2012, Porges,2015)

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Play Time !!

Play is vital for all young mammal's including children (Panksepp & Van Biven,2016.Perry,2017). The **PLAY** system is highly activated in young mammals provided they are in a safe and secure environment (Perry,2017,Panksepp & Van Biven, 2016).

Play behaviour allows young animals to learn and strengthen innate adult behaviour responses required in adulthood (Hausberger et al,2012,Panksepp & Van Biven,2016) Decreased play behaviour is linked to socially deprived and otherwise barren environments (Panksepp & Van Biven,2016). In humans such deprivation and lack of opportunity to develop social skills has been linked to increased aggression and irritability in adulthood , It is possible this is also true for other animals (Brown,1998).

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Play Time !!

- Play enhances social bonding and cooperation.Other functions of play include **facilitating the development of complex cognitive skills , increased behavioural flexibility** and **problem solving** (Spinka,2001)
- Playing is incompatible with anxiety and fear states . For dogs it can build confidence both with their own species and with their caregiver (O'Heare,2007).
- Playing with a dog with appropriate social skills and who is emotionally robust is hugely beneficial (Overall,2013, Van Fleet,2010)

- Object play builds confidence and safety in the environment for both dogs and horses (Brooks & Yamamoto,2021, Hughes et al,2002,)
- Cross species play occurs between horses and dogs. Both species will **adapt** and **fine tune** their play. They will display a relaxed and open mouthed expression during play and a playful mood is exhibited by both parties (Maglieni et al, 2020)
- Play can increase safety and build resilience after trauma
- Be with the dog while they play even if they don't yet feel ready to play with people.

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- **Physical** - Ensure all urgent veterinary attention is given . For very fearful dogs or horses consider the use of sedation in consultation with your vet. Use low stress handling. Type of sedation is important as some sedatives such as Acepromazine (ACP) are dissociative in nature (Overall,2013). For horses in extreme cases darting may be necessary (Zabek et al,2014). Responses to sedation are hugely variable. Reduction of threat cues within the environment. Always have an escape route. In malnourished dogs and horses refeeding syndrome is a risk.
- The environment must be safe and secure . Consider the reduction of noise and foot traffic. Provide options for them to move away. Meet species specific needs including appropriate diet (refeeding may be necessary),sleep etc
- **Emotional** - Allow the dog or horse to have choices of how and when to interact with humans . Allow them to manage and titrate their engagement with others and the environment. Predictable positive interactions with humans. Opportunities to meet their own emotional needs.Recognition of the horse or dog's emotional state.
- **Social and relational** -Psychological trauma occurs on a relational and interpersonal level. (Van der Kolk , 2012). Attachment influences an animal's sense of safety (Gobbo & Zupan,2020,Hartmann et al,2021,Hausberger et al,2007). For horses a gradual introduction to a stable social group is beneficial . For dogs the presence of a well adjusted dog may be helpful but initially require careful management .

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Components of Creating Safe

- Predictability (relationships ,routine and structure)
- Control (even if it's only perceived)
- Agency
- Safe and secure environment
- Choices (appropriate safe choices)
- Management of risk
- Safe interactions and reciprocity (with other animals and people)
- Repeated safe experiences
- New positive experiences
- Protection from stress
- Species appropriate rest and sleep

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Putting Safety into Practice

CREATING PREDICTABILITY and OFFERING CONTINUITY

- Be predictable and consistent (predictability can be good or bad. It is good predictability that is the focus here).For example resisting the temptation to touch them too soon.
- Providing a routine in terms of feeding times, walks, exercise, play , enrichment and rest allows the horse or dog to begin to feel more relaxed as they acclimatise to their new environment.
- Continuity of care from ideally just one or if that's not possible then two people can also help them start to form new relationships. Interactions need to be kept positive. For dogs one person is ideal but for horses this may not be practical so limiting to as few people as possible is best.
- Having a procedure or protocol in place for handling and other activities such as placing a rope over their neck before fitting and fastening the headcollar or fitting the harness in the same way each time. This offers predictability and allows them to understand what comes next.(Bradshaw,2009, Perry & Hambrick,2019,Perry,2017)

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Control

- Offering control is hugely important in where there has been trauma regardless of species. The dog or horse **MUST** dictate the pace and have control in the presence of trauma related cues and triggers. Exceptions to the rule are medical emergencies and risk to self or others.

- It is the individual who determines what is control over a stressor . If the dog or horse experiences the stressor as unpredictable or uncontrollable this is what matters. Lack or perceived lack of control can influence recovery outcome (Foa,1992, McMilan,2019)

- Protected contact can be helpful and lend an additional layer of safety and allow them more control over an interaction

- The ability to make an aversive experience stop or modulate the experience (Heim & Nemeroff, 2001, Perry & Hambrick,2019,

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Agency

- Agency is defined as
"The ability to control a situation based on one 's own actions" (Gallagher,2000,Steward,2009)
- Research on possessing a **" sense of agency "** is primarily based on human research but a **"mammalian sense of agency"** also exists for other species (Bradshaw,2004, Bradshaw,2009, Panksepp,2012)

- Dogs and horses are subjects of their own lives (Bekoff & Pierce,2017)
- They need opportunities to **respond to** and to be able to **act and react** to their environment (Blattner,Donaldson & Wilcox,2018, Bradshaw,2009, Broom,2015)

- This sense of control extends to control over their own body.
- Feral dogs and horses have undergone a **HUGE** loss of agency compounded by the **stress of relocation** and **loss of social group**
- Acknowledgement of each **individual's** spatial requirements. The chance to freely explore their environment and choices of **where** to be and **who** to be with (Bradshaw,2009,Blattner,Donaldson & Wilcox,2009)
- For dogs providing a range of raised beds,enclosed spaces, places to hide or the ability to choose to be with others is helpful. Creating a **safe haven** or other quiet areas as their needs change allowing them agency
- The choice to choose who to spend time with. Taping off corners to prevent anyone from getting trapped. Ability to choose shelter or shade, hay in multiple locations and heights , browse

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Social Buffering

Offering social support

There is robust literature demonstrating that in social animals including humans, dogs and horses that social support or buffering improves **physical** and **psychological wellness** (McMilan,2016,Mills & Ricci-Bonoit,2021,Rault,2012,Wu,2021). Social interactions with conspecifics and caregivers reduces stress **during** and **after** a bad experience (McMilan,2916,McMilan,2020,Mills & Ricci-Bonoit,2021)

- Active social support involves cooperative or affiliative behaviours such as allogrooming (Burkett et al,2016,Mills & Ricci -Bonoit,2021, Van Direndock & Sprujit,2012)
- Passive social support involves the presence of a conspecific or trusted person without them actively engaging in a specific behaviour to support the individual who is stressed (Wu,2021). Species specific differences may apply for horses and other ungulates merely seeing another horse can buffer against stress
- The benefits of social buffering are not just limited to during or after trauma but also to exposure to novelty or reducing reactivity during stressful situations (McMilan,2020, Mills & Ricci-Bonoit,2021)
- Once relationship is established we can become a social buffer against stress this can include them touching us without us touching them. Traumatised animals especially need this . Touching too soon can make us become unpredictable for some animals.

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Safe Haven

Creating a Safe Haven

- All dogs need a safe place to retreat to if they feel they need a break. This is even more vital for fearful and traumatised dogs.
- A safe haven is a space where a dog has **positive associations** and a space where they can feel **secure within their world**.
- A space where they can **relax** and **NOT** be **disturbed** by others.

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- A safe haven could be :
- A quiet area free of foot traffic
- Under a table or chair
- A quiet corner.
- A large crate covered with a blanket
- A play pen with a comfortable bed, toys etc away from the hustle and bustle where they choose to go
- A utility room or boot room where the dog can go if the house is busy or there are visitors
- **AVOID** existing hiding places as these already have fearful and negative associations
- Choosing a space where the dog feels their world is **safe** and **good**.
- Build positive associations with space by
- Hiding toys
- Hiding food for them to find
- Feed them there and leave them to eat in peace

- Non demanding time with you
- **Never** send them there . This is a space they **choose** to go .
- **Don't** allow other people or animals to disturb them.
- Share space with your dog and allow them to interact with you on their terms.
- Only remove them in an **EMERGENCY**
- Become a **safe haven** and a **secure base** by acting as a source of reassurance and support by doing things together and also being **WITH** your dog when they have a positive experience
- For horses creating a safe haven within their environment might mean observing an area they gravitate to and allowing them to be their without human interference unless they initiate the interaction .
- A safe haven may also be their social group.

(Bradshaw,2009, Perry & Hambrick,2019, Van der Kolk, 2012)

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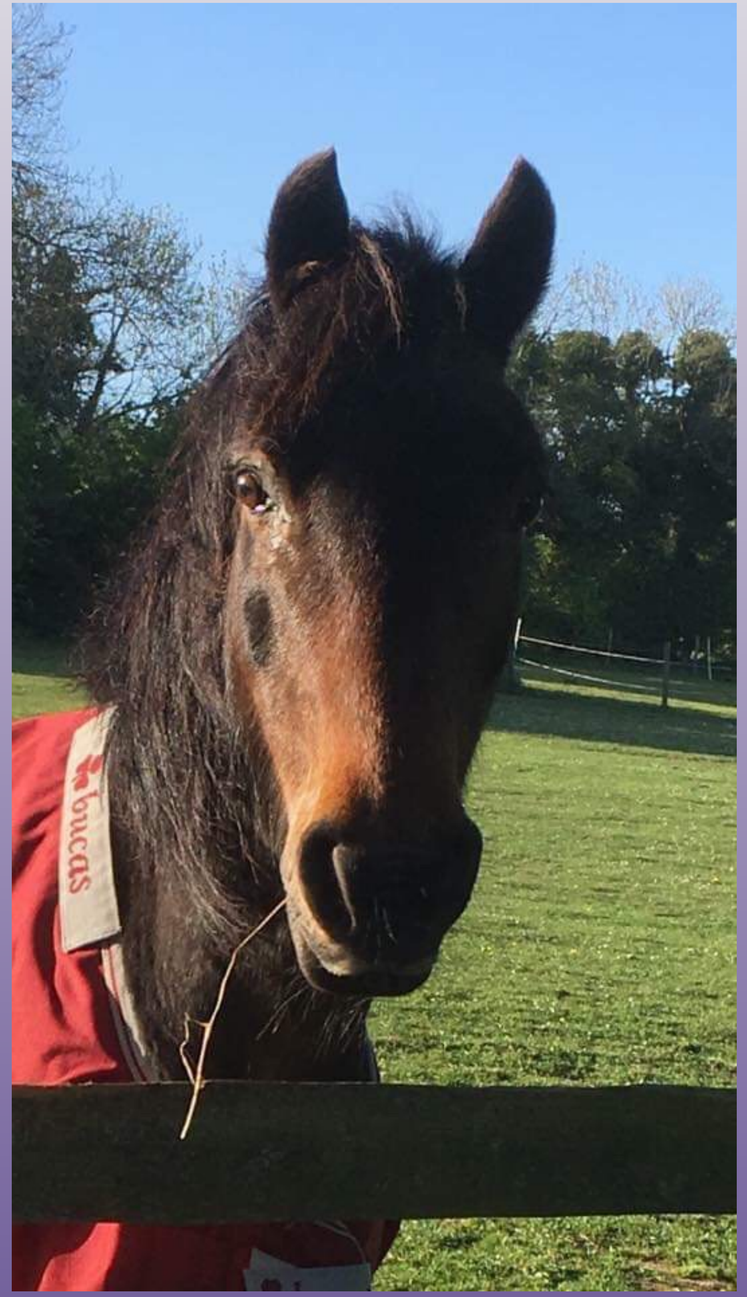
Resilience

- Resilience has multiple definitions which vary across the systems studied and scientific field (Scheffer,Bolhuis,Borsboom et al,2018,Tiira,2019)
- These definitions share one aspect in common and that is the **"the ability to bounce back or rebound after significant stress or adversity"** (Scopa,2018, Tiira,2019)
- Another definition is an individual's **ability** and **capacity** to **MINIMISE allostatic load** (Feder et al,2011,Malta,2012)
- Allostasis refers to an individual's ability to **maintain stability through CHANGE** (Sterling,1988,Korte,Olivier & Koolhaus,2007)
- Multiple influences play a role in mediating **psychological outcomes** to stress and these can be either **protective** or **risk factors .** For example **genetics** can be either protective or a risk factor in resilience
- Factors in promoting resilience including positive social experiences such as those during early life and quality maternal care and behaviour (Basile et al,2021, Ellen et al, 2014, McMilan,2020)



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Resilience

- Resilience is determined by a combination of characteristics of the **individual** dog or horse and features associated with the **stressor** (Basile et al,2021, McMilan,2020, Tiirra,2019)

- Characteristics of the Individual
- **Epigenetics**
- **Genetics**
- **Quality of maternal care/early attachments**
- **Early life adversity and negative experiences**
- **Positive relationships**
- **Breed** (Corsetti et al, 2018, Lansade et al, 2008, Tiira,2019)
- **Personality / temperament** (Burattini et al, 2020, Turcsan et al, 2008)
- **Diet and gut microbiota** (Rea et al,2016, Kemp et al, 2021,Tavener et al,2020)

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- Features of the Stressor
- **Intensity**
- **Duration**
- **Predictability**
- **Control (real or perceived)**
- **Frequency** (Perry ,2017, Van der Kolk,2012)

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Finding Safety Together

- Predictability in relationship and positive interactions
- Share proximity , read them a story , just sit or if your attention is too much go through your inbox
- Do NOTHING together
- Mutuality engage in shared activities be with them while they sniff or explore
- Attune to their needs and be responsive to their body language and signs of tension
- Build communication between you
- Plan for challenges by having a safety plan and pick your battles ie can the vet do a home visit
- Learn what they enjoy
- Acknowledge that their needs change what they need in one moment may differ in the next
- Connect learn all the ways they choose to connect and engage with you
- Just Watch
- Find safety for you as this in turn creates safety for the dog or horse

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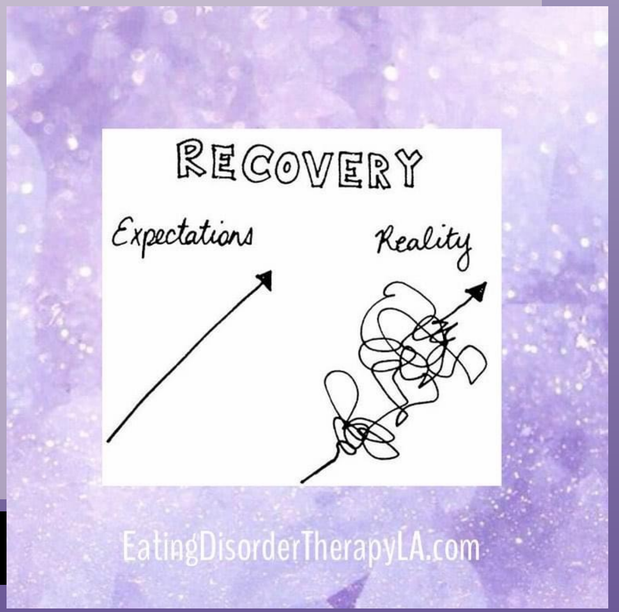
Managing Expectations

- **Safety FIRST** (emotional,physical,social/relational)
- **AVOIDANCE is your FRIEND!** Avoiding triggers that cause distress especially in the beginning is key.
- **Be lead by the dog or horse** Respond to emotional state and be aware of shutdown and learned helplessness (McMilan,2019)
- **Go SLOWLY!** The process will be **VERY** slow ! Think months to years as opposed to days and weeks .
- **ALL interactions MUST be designed to build positive associations**
- **AVOID luring** to ensure they don't unintentionally go over threshold
- **Be AWARE** that as with humans symptoms may worsen during times of stress
- **Make use of other supportive safe social experiences**



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Managing Expectations

- **PLAY** at the right time and managed is well can build trust and safety
- **Build Capacity SLOWLY**
- **Respect the horse or dog for where they are NOT where you want them to be**
- **Have compassion for yourself**
- **Remember it’s a process and not an event**

Some Musings ...

- **“ And between the first breath and the final gasp, we endeavour towards a common quest to live our lives, to survive the confronting dangers, to do what it takes to the best of our abilities to live out the mystery and opportunity of finding ourselves somehow in existence”** (Safina,2015,p 411)
- Is it possible to recognise that the animal has their own unique experience without us stepping in to interfere and manufacture the outcome we want.
- “Meaning making” Can we allow the animal to create and have their own experience ? Is it possible to “hold space” and offer a safe environment in which this can take place ?
- Accompaniment is the act of journeying with the dog or horse and supporting them wherever the journey takes us together until it’s completion (Bradshaw,2019,Farmer,2011, Watkins,2015)

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In conclusion how can we create and maintain safety

- Create physical, emotional and social safety
- Recognise that safety needs are **NOT** static and that they change
- Secure attachments and good social bonds with conspecifics and humans
- Prioritise emotional state over behaviour
- If training is required ensure that it benefits the individual
- Keep their world small and grow it slowly
- Notice how they engage with and process their environment
- Communicate with the professionals such as the vet, friends and family to meet safety needs
- Learn to recognise their signs of stress and tension
- Creating safety is complex and multifaceted some trial and error is inevitable
- Your horse or dog needs support and not to be fixed
- Meet your own needs for safety and support

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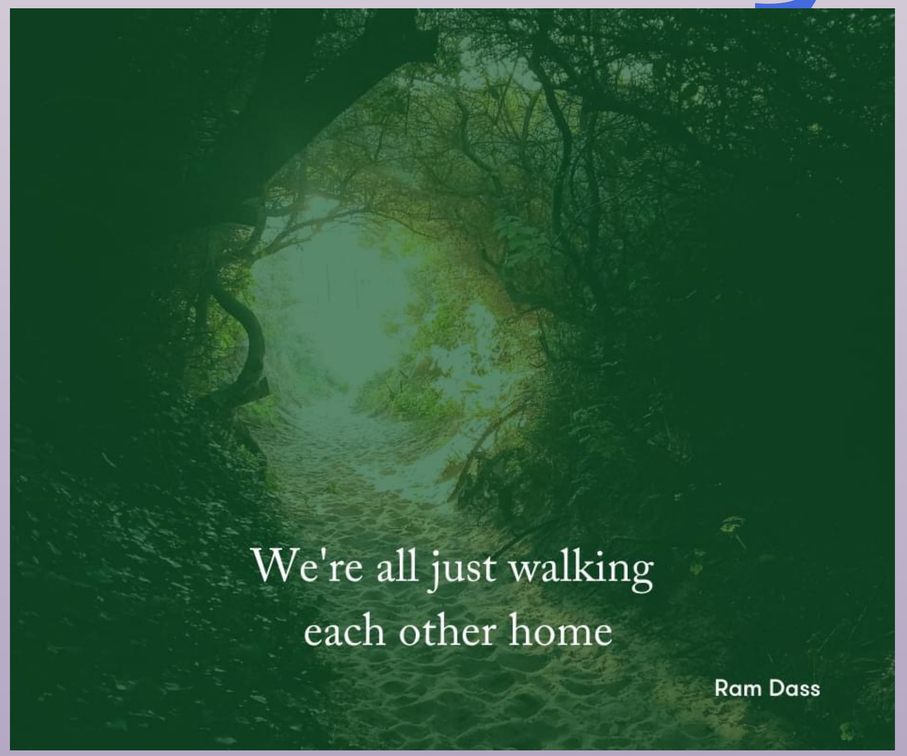
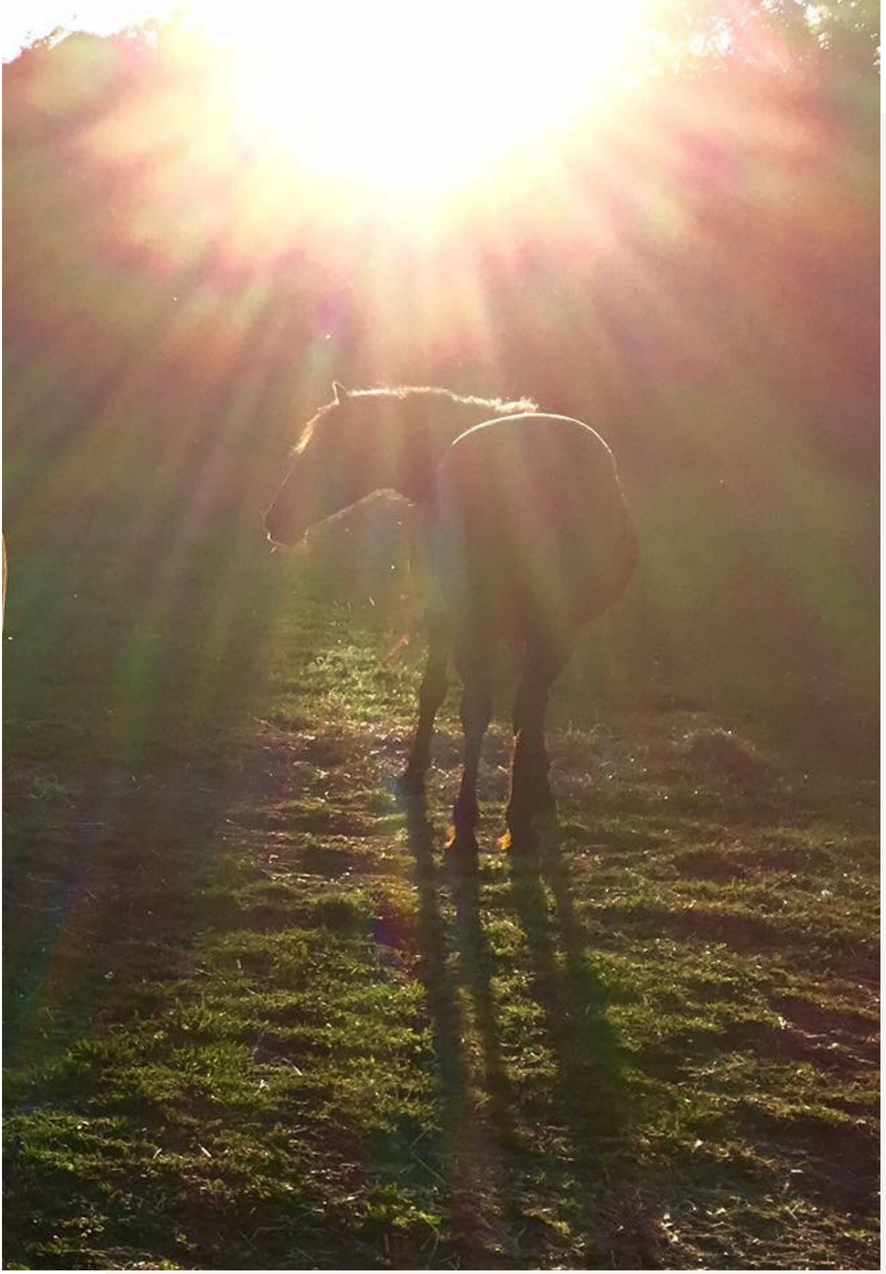
Thank you



Thank you for listening



In loving memory of Dillon and Pebbles

You made me brave and it was a privilege to walk beside you.

This one is for you