

# Human animal interaction, animal assisted therapy and pet ownership in neurorehabilitation



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\*names and identifying details changed

## Abstract

Human animal interactions (HAI), animal assisted therapy (AAT) and pet ownership can confer huge benefits for patients undergoing neurorehabilitation, in inpatient and outpatient settings. However, these must be weighed against potential risks and disadvantages both for the patient and for the animal. The field of HAI in neurorehabilitation has great potential for research.

## Key points

- Interactions with therapy animals and patients' own pets can improve social interactions, mood and engagement with rehabilitation
- Pet ownership has many positive associations with health and wellbeing
- Asking patients about their pets can improve communication and compliance
- Good links should be established with hospital volunteer services, charities and infection control services to enable smooth running of therapy animal visits to inpatient units.

## Introduction

It's 2014. I am a Registrar working on a busy inpatient neurorehabilitation unit. Jon\* is pacing around the unit. He has suffered a severe traumatic brain injury. He used to be a keen musician and long-distance walker. He is a retired manager and a much-loved husband, father and grandfather. His brain injury has left him with significant neurological deficits, including cognitive and speech impairment and, unsurprisingly, associated agitation, low mood and anxiety. He's been with us for several weeks now and despite the best efforts of the multidisciplinary team, he spends his days (and parts of his nights) almost constantly on the move, unable to settle, seemingly looking for something or someone. He can't tell us what – the only thing he reliably says is "Nooooo". Our paths cross by the reception desk, as the front door opens and Molly, a therapy dog on her first visit to the ward, comes in with her owner. Mid "Noooo", Jon stops, turns, and hurries towards Molly. He drops to his knees, throws his arms around her, and spends the next 15 minutes stroking and cuddling her. I've always been a bit sceptical about describing someone's face as "lighting up" – but Jon is transformed. It's not a long-lasting effect, but that interaction with Molly has given Jon 15 minutes of distraction and joy in what was clearly otherwise a distressing, confusing and overwhelming world.

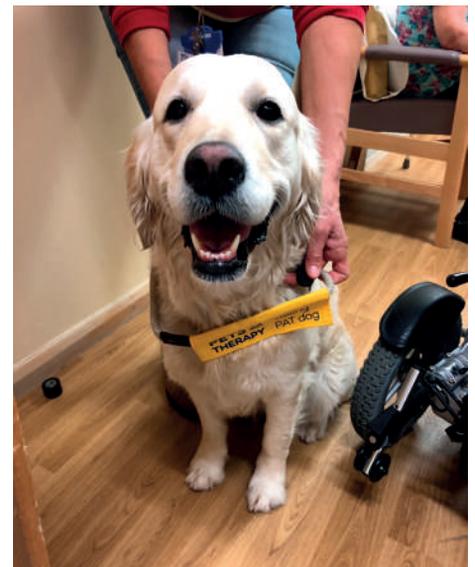


Figure 1: Lizzie, PAT dog (picture by Kim Tooze, Therapy Practitioner Assistant, King's Lodge).

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## HAI and AAT

Observing the interaction between Jon and Molly first stimulated my interest in human-animal interaction (HAI) and animal-assisted therapy (AAT) in neurorehabilitation. At King's Lodge Neurorehabilitation Unit in Derby, where I currently work, we have regular visits from a therapy dog and a range of therapy birds. Lizzie is a beautiful golden retriever who attends the ward on alternate weeks with her human, Jill, representing the charity Pets as Therapy (PAT). A recent service evaluation showed that patients enjoyed spending time with her, wanted to spend more time with her, and felt that Lizzie's presence in therapy sessions motivated them to do their therapy and helped their rehabilitation. Staff members unanimously agreed that Lizzie helped patient moods and commented on other benefits from Lizzie's presence, including opportunities for "hidden" therapy (spontaneous speech, social interaction, motor function such as throwing a ball or grooming Lizzie; sensory function through stroking her). The primary negative comments were around insufficient time to spend with Lizzie! Workers from a local bird charity (Woodie's

**Table: Examples of how therapists have successfully integrated therapy dog / birds into sessions to address specific issues. Italics indicate quotes from staff members taken from recent service evaluation activity**

Health condition	Body structure / function impairment	HAI / AAT Activity
Guillain Barré syndrome	Motor weakness upper limb	Holding progressively larger birds for progressively longer periods
Intracerebral haemorrhage	Visual inattention / neglect	Patient encouraged to walk with Lizzie's lead held in the hand of the neglected side, motivating him to scan more to that side when mobilising to improve safety
Stroke	Dysphasia	Encouraged to say names / give simple commands to dog or bird – a therapist reported: <i>"having a patient with severe aphasia / dyspraxia be able to say Lizzie's name with family there to watch was extremely rewarding as a professional and family were very grateful"</i>
Traumatic brain injury	Low mood	<i>"Helps to provide variety to the patients' experience when on the ward, increasing opportunity to access enjoyable activity, which we know can benefit mood"</i>
Posterior circulation stroke	Ataxia	Grooming dog / stroking bird
Multiple sclerosis	Poor confidence – social interaction	Taking animal / bird (accompanied by therapist and handler) around or off the ward, encouraging conversations with patients, staff and visitors
Hypoxic brain injury	Poor confidence – gait	Patient had been assessed by therapists as being able to walk safely without stick or other aid but was extremely nervous about doing so. She walked the length of the ward with Lizzie on a lead and discarded her stick thereafter.

Wings) bring a range of tame birds to the ward and patients spend time holding them, stroking them, talking to them and helping them do "tricks". Watching a laughing patient drive her wheelchair down the corridor with a cockatoo on her shoulder is a truly uplifting experience in the middle of a ward round!

Members of our multidisciplinary team were therefore heartened – but unsurprised – to see the recent publication in Scientific Reports, where Hediger and colleagues reported a randomised controlled trial of AAT in 19 patients with acquired brain injury. Social interaction was significantly higher during AAT sessions compared to conventional therapy sessions, with concomitant increases in verbal and non-verbal communication, self-reported mood and self-reported motivation.<sup>1</sup> There were no longer-term effects, or effects outside the therapy sessions, reported however.<sup>2</sup> It is relatively unusual to see such a report, as to date there has been an arguable deficit in the field of research into AAT and HAI in neurorehabilitation.<sup>3</sup> Some research studies have been conducted in related fields, however, and their findings suggest that AAT could be of great benefit in neurorehabilitation – for instance, studies showing improvements in social interaction and reductions in agitated behaviour in dementia;<sup>4</sup> improvements in depression<sup>5</sup> (which is commonly seen in rehabilitation and recognised to reduce participation<sup>6</sup>) and even alterations in stress- and mood-related hormones<sup>7</sup> and EEG signals.<sup>8</sup> All of these could potentially be extrapolated to, and could be fertile research areas in, the setting of neurorehabilitation.

### Pet Ownership

While patients' own pets are unable to attend our unit, we encourage families to bring pets to the hospital grounds, where many emotional reunions take place. Promises of pet visits can be a strong motivational tool, and a relative commented recently that Sam\* showed much



Figure 2: Birds from Woodie's Wings with therapists and patients on King's Lodge Neurorehabilitation Unit (picture copyright University Hospitals of Derby and Burton Communications Team with consent given to reproduce).

more spontaneous movement and speech when interacting with his dog in the hospital garden than he typically does on the ward.

Indeed, the benefits of HAI are not restricted to the inpatient setting. It is becoming increasingly recognised that pet ownership has many benefits. Pet owners with chronic diseases report that their pets improve their mood and quality of life and provide strong relationships, non-judgemental intimacy, physical contact and a sense of routine and self-efficacy.<sup>9-11</sup> Rehabilitationists will recognise all of these as vital components for living well with chronic illness and disability.

Interestingly, a recent study also suggested that asking patients about their pets in an outpatient setting improved rapport, communication and therapeutic alliance, and improved clinicians'

understanding about their patients' activities and lifestyles.<sup>12</sup> In a context like neurorehabilitation, such information can be invaluable on several levels. Someone who is regularly walking a bouncy young golden retriever is likely to be independent and active, whereas someone who has responsibility for a cat or elderly lapdog needs to be able to structure routines around feeding, toileting and grooming.<sup>13</sup> Several patients have reported to me that their pets are a significant protective factor for their mental health – even, in some cases, a key reason not to consider self-harm or suicide. One must also therefore consider the importance of asking about pet loss or separation, which could precipitate mental health problems<sup>14</sup> in patients who by nature of having chronic illness or conditions are already vulnerable and at risk of depression.<sup>15</sup>

### Potential risks

Of course, no intervention can be guaranteed to be without risks or potential adverse effects and all of these must be weighed up against any theoretical benefits. All animals associated with Pets as Therapy are health and temperament checked, and for inpatient visits, our unit follows strict precautions (including no exposure to patients with open wounds; animals not to go into patient areas; rooms where the animals are seen are thoroughly cleaned afterwards). Naturally, those patients with animal fears or allergies should not be exposed, and there is a risk of trauma, including

bites, or even infection transmission.<sup>16</sup>

Pet ownership is also not without complications and problems – whether that be financial implications, worries about pet separation, illness or death,<sup>13,17</sup> or the stress related to having the puppy of your dreams chew their way through your furniture, shoes and bank statements!

One cannot suggest that pet ownership or HAI is a universal panacea, and each individual (with or without their healthcare practitioner) should consider the relative risks and benefits before proceeding with HAI, AAT or pet owner-

ship. In particular, the health and welfare of any animals must be paramount – Jill reports that Lizzie happily jumps into the car when she is told that she is coming on therapy visits, and her joyfully thumping tail when she is on the ward supports this. However, any signs of distress or discomfort in animals should result in their immediate removal from the situation. Similarly, anyone taking on pet ownership should ensure that they are well informed of the physical, mental and emotional needs of the pet and that they can meet those needs.

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