**SUPPLEMENTARY FILE 1**

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| Comparison of rhythm-and-music-based therapy and horse-riding therapy | |
| Rhythm-and-music-based therapy (R-MT)\*  *Location.* R-MT was performed at a community centre for the disabled and others in need of rehabilitation outside the hospital environment.  *Staff.* The sessions were led by a R-MT-certified therapist.  *Outline.* 2 x 90-minute sessions each week for 12 weeks. Each session consisted of the R-MT itself, a coffee break, and a summary at the end.  *Session content.*  While listening to music, participants carried out rhythmic- and cognitively-demanding hand and feet movements, by clapping their hands, tapping their hands on their knees or stamping their feet on the floor in time to the beat, in various sequences and combinations and sometimes simultaneously. These movements were originally derived from drumming, which requires simultaneous use of both arms and legs. There can be up to 18 specific movements (we used 9 in our protocol), each with an associated symbol, representing hand or foot, as well as an associated sound code (derived from a drum sound). Symbols were colour-coded, to distinguish between right-sided movements (blue) and left-sided movements (red). The therapist’s clothing was color-coded to help participants remember which colour represented each side of the body. The shirt had a black, neutral front and the left arm, collar and left side of the back was red. The right arm, collar and right side of the back is blue. Body symbols in red and blue were combined with the audio codes and movements into note systems. The sequences and combinations were continuously changed in order to cognitively challenge the participants. During the session the symbols were projected onto a screen, accompanied by their associated sound codes. Participants needed to remember which particular movement each symbol represented as well as its associated sound code. Depending on the individual capability, the therapy was provided to the participants while they were standing or sitting on a chair. The level of difficulty was adjusted to the level of mobility and capabilities of the participants. As a result, participants could, at their own pace, perform increasingly complex sequences of movements. If a participant could not perform a certain movement, they were guided to initiate/imagine the movement. Each session included breaks when the participants relaxed with their eyes shut, while listening to music.  Targeted outcomes. The R-MT offers a multisensory environment encompassing rhythm, music, colour, voice, text, shapes and movement. Together, these elements are intended to stimulate and improve motor functions on the right- and left-hand sides of the body (balance, gait, coordination, muscular control, body awareness), cognitive functions of the left- and right-brain hemispheres (sense of rhythm) mental endurance, cognition (attention, concentration and memory), reading, speech, body image and consciousness. The R-MT is considered engaging, motivating, and enjoyable and gives participants an opportunity to engage socially.  \* The principles of the R-MT method were originally conceptualised and developed by the professional jazz drummer Ronnie Gardiner. The ‘Ronnie Gardiner Therapy’ is designed to help people with injuries and diseases of the central nervous system, and has been practiced in health care and rehabilitation in Sweden since 1993. From 1999, the method has been further refined and developed to what currently is branded RGR-MTM. | **Horse-riding therapy (H-RT)**  *Location.* H-RT was performed at a riding centre purpose-built for the disabled where trained therapy horses were used. The sessions were held outside in the paddock or, in bad weather, inside in the ring.  *Staff.* The sessions were led by a physiotherapist and an occupational therapist specialised in H-RT as well as in stroke rehabilitation. Depending on the level of mobility and capabilities of the participants, there were 2-4 supporting staff who assisted the participants with mounting (on a ramp) and dismounting (on the ground), and also walked beside or led the horses while participants were riding.  *Outline.* 2 x 240-minute sessions each week for 12 weeks. Each session consisted of riding and time for interaction with the horse either before or after the riding. Lunch or refreshments were served after conclusion of each session and were shared with the therapists and assisting personnel.  *Session content.* The therapy program, selection of horses and choice of equipment were defined and selected in order to facilitate the goals of the therapy. The H-RT included preparation of the horse (grooming and equipping the horse with a shabrack, voltage girth and a bridle before the start of the riding session and/or removing it after the session). Groups of 2-6 participants rode in pairs for 30 minutes, while the others were watching awaiting their turn. For comfort, riders sat on a shabrack (thick soft cover), while for safety, one assistant walked alongside the horse and another one led the horse. Throughout the lesson, riders engaged in specific exercises individually tailored to their physical needs and horse-riding ability; all exercises were, if possible, performed while the horse was moving. (Our participants mostly rode at a walking pace, although some trotted for a few laps.) The lesson begun and ended with riders doing relaxation and body awareness exercises, while being instructed to sense the horse’s movements through their own body. Whenever the horse moved or there was a change in pace or direction, the rider had to adjust his or her posture. The main part of the lesson included the following exercises:  1. *Balance exercises*: maintaining balance while: holding one or both arms sideways; putting the hand/s on the head; riding in diagonals, circles, over low poles and weaving through cones.  2. *Trunk rotation exercises*: activities such as touching different parts of the horse e.g. the mane, neck, flank and back which involved crossing the midline of the horse while maintaining balance and posture. Participants were also holding a stick with both hands with their elbows at the waist and then rotating the trunk to the sides.  3. *Exercises to train participants’ affected body parts*: simulating bicycling with the legs; reaching for the horse’s ears; lying prone with the arms around the horse’s neck and then rising again; grasping a tennis ball from the instructor in different directions; controlling the horse by holding the reins.  4. *Cognitive component*: taking part in planning the individual riding route and exercises after thorough oral instructions; paying attention to the other horses/riders in the paddock while riding; following repetitive oral instructions.  Targeted outcomes. H-RT offered a multisensory environment designed to stimulate and improve motor functions (posture, balance, gait, coordination, muscular and trunk control, body awareness), muscular strength, mental and physical endurance, cognitive functions, attention and concentration, body image and self-esteem. It also offered enjoyment, social interaction and potentially also induced a sense of mastery, and the human–animal interaction may also have had a stress-reducing and calming effect. |