Movement and Dance Therapy in Head Injury: an evaluation

Jane Guthrie

This paper was developed from research into the effectiveness of a Movement and Dance Therapy (MDT) program in Head injury rehabilitation, where a mixed method enquiry was conducted into the relationship between MDT and movement quality and control. The results suggested that a cause and effect relationship was established, although the sample size prevents generalisation of the results to the head injury population. The paper highlights that, despite the physical focus of the study, support also emerged for application of MDT as an holistic approach to bring about change in all domains, not just physical.

He who must learn to fly one day must first learn to stand and walk and run and climb and dance: one cannot fly into flying (Nietzsche 1883-92).

Introduction

In the rehabilitation process, a person is guided towards return to their pre accident or injury level of functioning. In the case of acquired head injury, a range of common problems result in varying degrees. The rehabilitation team considers the problems together with the specific individual needs, with the overall aim of creating an easier passage back into normal community living. Movement and Dance Therapy (MDT) has been found by the researcher, to be a valuable extension of the conventional management of physical problems, in particular those problems that relate to movement quality and control. An attempt to justify the use of MDT for this purpose led to formal research and for purposes of confining the enquiry into manageable proportions, the focus was put on evaluation of observable physical change. This confined focus was despite the researcher's own personal beliefs that body and mind are inextricably linked and when extending movement options, extensions also occur in other domains (Schmais, 1994). The assumption was also made that extensions gained in all domains are related to the level of personal involvement of the client in the MDT process. This paper provides a brief overview of the research and results. It also reports on the support that emerged for these assumptions, suggesting that MDT is a holistic approach.

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The Subject

The single subject was a 30 year old male, who sustained a head injury in a motor car accident. He had recovered physically to the stage of ambulating short distances independently but with very obvious balance and coordination difficulties. As his functional abilities improved, so a plateau situation in movement quality became apparent with unwanted postural sets and blocked flow of movement starting to develop making him an ideal candidate for MDT. Movement control and quality involves being in charge of the timing, weight and spatial factors together with the energy flow, as described by Rudolph Laban (1974, 1988) and termed effort elements. As these four factors are the resources of MDT it seemed logical to practise movement within that framework.

The MDT applied combined an educational approach based on Laban Movement Analysis (LMA), with psychotherapeutically oriented dance therapy (Leventhal, 1993). LMA is a contemporary name derived from Laban's Effort and Space Harmony and provides a means of establishing and working with movement needs in MDT. The psychotherapeutically oriented approach is drawn from clients' individual issues and feeling states. In any combination, the structured and unstructured is used as appropriate, allowing expressive improvisational movement to be developed within effort element parameters. In this application, progression was made from a

structured educational approach towards a psychotherapeutic orientation.

The Research

To focus the study on observable physical change, the following questions were formed to orient the research:

- Was movement control and quality of performance improved by MDT?
- Did MDT expand movement range?
- Did MDT improve adaptability to environmental change?
- Did MDT have a positive influence on postural awareness and alignment?
- Did MDT increase confidence in movement?

To answer these questions a balance of qualitative procedures was employed. The major component was a *Single Experimental Case Design* with MDT applied under controlled conditions. The *Single Experimental Case Design* incorporated qualitative components of movement observation drawn from videotaped time sampling of movement behaviour over a nine week time period. The other procedures employed to validate the *Single Experimental Case Design* results were a comparison of the subject *Within the MDT Process* over time; *the Subject's Report;* and a *Time and Task Analysis* of selected outcomes. These procedures are described briefly below.

In the *Single Experimental Case Design* which was the main means used to validate physical change, the subject was videotaped weekly for a period of nine weeks, the time frame that clinical circumstances allowed, performing a movement protocol before, during and after an intensive four weeks of MDT. Video segments were then randomly copied to eliminate chronological bias and a movement observer (called the protocol observer) rated the test tape. This followed the initial development of a rating instrument and tests to establish its reliability.

The rating instrument was drawn from LMA theory (Dell, 1997; Bartenieff with Lewis, 1980) in conjuction with additional variables which ensured that the research questions were adequately answered. The overall objective was to measure the effectiveness of MDT. The specifics of the scale included: a description of body attitude; questions on postural symmetry; body part involvement; where movement was initiated; whether postural and gestural movements merged and estimates of trunk mobility. These questions were followed by further estimates of space efforts, time, weight and flow efforts; body shaping abilities and tendencies towards linear and planar movements. Extensions of movements into environmental space were rated, as well as movement confidence by the degree of postural openness, free flow and firmness of movement. The choice of these parameters to measure confidence was informed by Espanek (1989).

The movement protocol, devised directly from the questions on the rating scale, encouraged the client to demonstrate all that was required to allow adequate assessment of movement parameters evaluated. The MDT intervention involved a one hour session each day of variations in effort qualities, changes in tension and extensions into environmental space.

In the *Within MDT Process* procedure, a second observer rated videotapes of the client within MDT sessions at the beginning and at the end of the four week MDT intervention using the same rating scale. This scale was also used as a basis for interviews with the client when gauging the *Subject's Report* or his perceptions of change. The *Time and Task Analysis* temporal results (time taken to complete certain tasks) were measured on a video digital time display.

The Results in Relation to the Research Questions

When relating the results to the research, question overlap was acknowledged and, although some variables fitted discretely within a particular research question, the majority of data contributed to all questions. The rating scale varied between the procedures, as an extra weighting was needed to increase its sensitivity for the nine protocol observations. This added to the different discriminations and contexts of the various procedures, so comparisons of the results were not options and only trends summarised. However, overall the outcome of the *Single Experimental Case Study* and the three other procedures undertaken to validate these results, supported increased client access to the variables measured. The results in relation to the research questions are as follows.

Movement Control and Quality of Performance

Control over movement in space, the degree of weight and timing selected and kind of tension flow adopted, all contribute to control and quality of performance and overall, increased access to most of the energy factors was seen by both observers and 'felt' by the subject. Some increases were slight and there were exceptions but greater control in manipulation of the majority of factors was achieved. Figure 1, illustrates the protocol observer's estimate of access to general movement quality (a combined estimate of the four effort factors that were evaluated). In all the figures the rating of movement quality is on the

vertical axis and the week of the protocol on the horizontal. An increased number on the scale indicates an improved access to the movement in all scales.

Functional improvements were also apparent from all comments documented in all procedures; balance abilities improved and the subject's feeling that his personal fluidity of movement increased was supported by both observers, who commented on the smoother flow and less rigid postures. Speed increases in functional tasks in the *Time and Task Analysis,* were assumed due to smoother movement transitions.

Movement Range

Movement range was extended by the increased expressive qualities and functional improvement, as described. Together with this extended range, an improved ability to involve the anatomical structure of the body in movement was seen in more body parts involved in gestures. Central movement initiation became apparent, and posture and gesture mergers occurred when appropriate. Increased range was also supported by improved access to environmental space variables reported in all procedures. Figure 2, illustrates the protocol observer's ratings of the general movement range in environmental space (an overall estimate of all the space variables that were evaluated). The rating is on the vertical axis and the week of the protocol on the horizontal.

Adaptability to the Environment

Flexibility and adaptability to environmental change are essential in a return to a normal community living situation. Both movement control and range are components of body adaptions and were extended, as described. In LMA theory, body shaping is also an adaptive function, used to conform or link with objects or social situations. Protocol increases in these parameters on the graphs of the results only demonstrated slight increase, but the trend to increase was supported by the results in all the other procedures and by reports of improved access to three dimensional movement from both observers.

Postural Awareness and Alignment

Improvement in postural symmetry was supported by all trends with the results supportive of the work of Priddle (1978) who found MDT effective in teaching spatial concepts, and Berrol (1990) who improved the posture of a head injured subject. Figure 3, displays the single case results for symmetry of posture.

Movement Confidence

The degree of openness, firmness of movement and free flow was assessed to evaluate movement confidence. All trends demonstrated improvements and speed increases as identified in

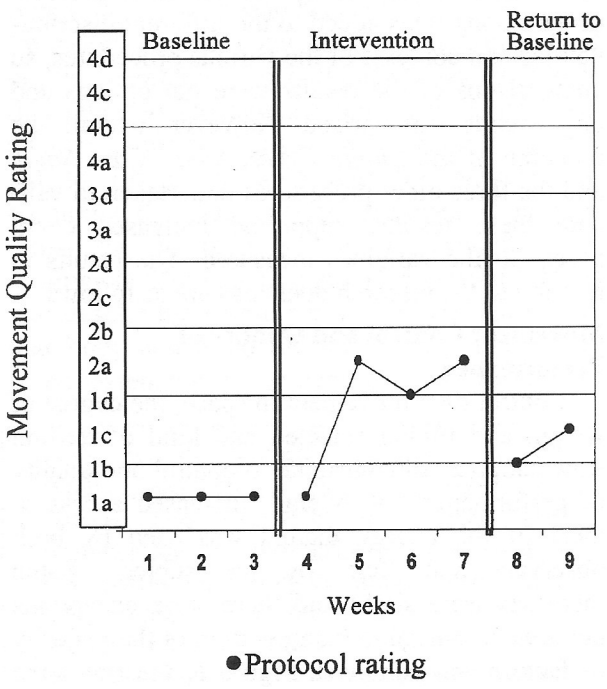

Figure 1. Movement Qualities -General Rating

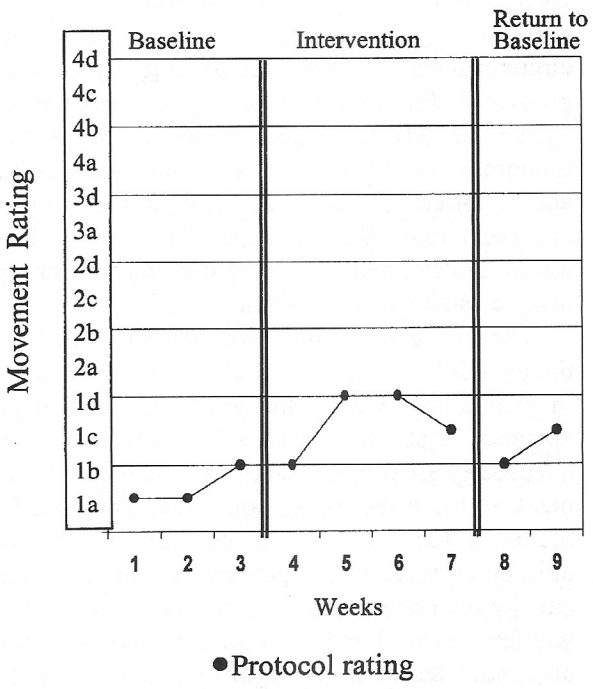

Figure 2. General Range in Space

the *Time and Task Analysis* indicated less hesitancy in movement. The *Subject Report* described a feeling of greater confidence near objects and people and the results were indicative of increased 'intention' described by Loughlin (1993) and also support the work of Sherborne (1986). Figure 4, displays the S*ingle Case Design* results for movement confidence.

Discussion

Although, even with only a single subject, clinical research imposed many limitations and confined the design, the results still supported application of MDT for all the research questions. In this S*ingle Experimental Case Study* therefore, a cause and effect relationship was believed to have been established, but the results cannot be generalised across the population due to the sample size.

The success of the case design, relies on a plateau situation prior to treatment, followed by an obvious response to the treatment (Sunderland 1990), which occurred in the majority of situations despite some very slight responses. The design also relies on a drop on withdrawal of treatment Sunderland 1990), but in this human developmental situation cognitive involvement allowed learning to occur so a complete drop was not desirable

Practise and feedback are essential components of learning and both were provided within the weekly protocols and daily MDT so it is not surprising more significant drops did not take place when MDT was withdrawn. As the design impinges on these plateaus (Sunderland, 1990) it is probably more suited to situations where voluntary control is not involved, such as in administration of medications. The design however, with modifications was found to be a systematic, yet flexible means of examination of human behaviour in rehabilitation.

The *Within MDT Process* and the research *Subject's Report* of his perceptions provided triangulation for the protocol results. Whereas these procedures lacked the controlled situation of the case design, they encouraged freer comment which proved essential where quantitative results were inadequate to describe change. *The Time and Task Analysis* also offered quantitative confirmation of selective relevant results.

Support for the Holistic Assumptions

As the study developed it became increasingly difficult to ignore emergent data that supported the assumptions referred to in the Introduction, that body and mind are inextricably linked and the outcome was related to the client's level of involvement in the process of MDT. These are now addressed.

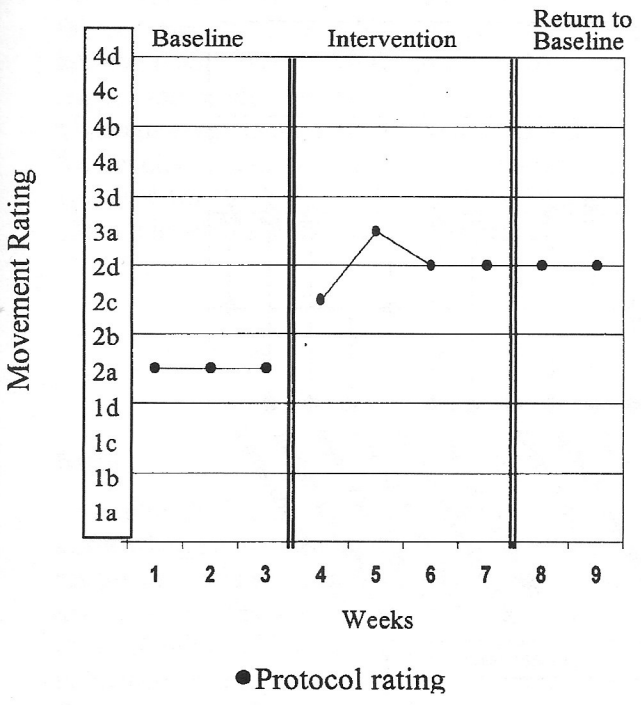

Figure 3. Symmetry of Posture

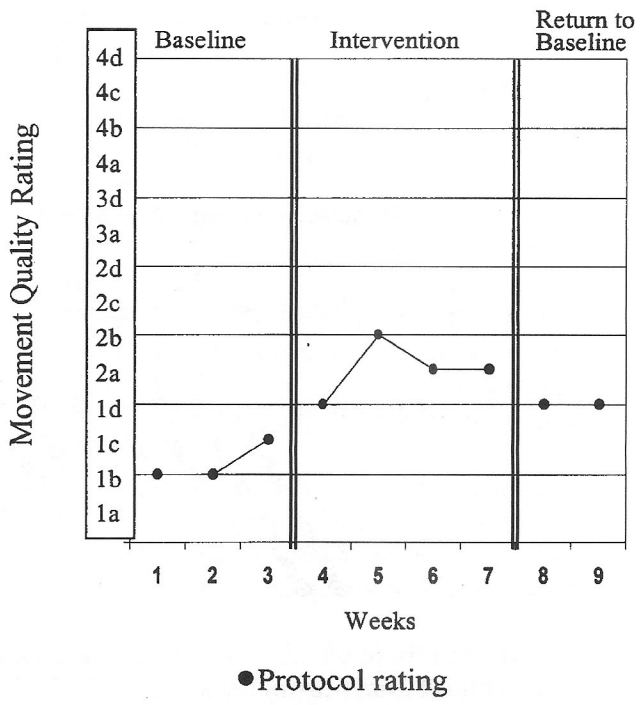

Figure 4. Movement Confidence

Holistic Effects

Due to the physical focus of this study, the holistic effects only received brief mention, but the subject described benefits well beyond the physical. The benefits included greater confidence with other people, and an expanded range of feelings, indicative of holistic change. Also, improvements in client body image and self esteem were supported, in the *Subject Report,* by his pre MDT ratings of 0 in the majority of variables improving to either slight or moderate in his own perception of change, post MDT. Figure 5, displays these results with the subject's report pre and post MDT on the vertical axis and the variable on the horizontal. Further, the subjective increases supported improved self esteem. In hindsight, questions to gauge a broader range of perceived holistic change could have encouraged further support for these assumptions.

Level of Involvement

The researcher believes involvement deep enough to reach personal transformation is a central aim of MDT and the assumption was made that when inner attitude is matched with outer response, sensitive movement qualities can be reached, that is participants who can become easily involved in MDT benefit the most. The observers response to rate 'level of involvement' supported the researcher's beliefs. The *Within MDT Process* results well exceeded the protocol estimates in the *Single Experimental Case Study.* There was some evidence to suggest practise in words that encourage expressive movement, as in the protocols, expanded movement options, but overall involvement in MDT was more powerful for the subject as evidenced by the access to variables during the intervention.

In addition, the within MDT observer, described the subject's movements as becoming sensitive enough to term dance. Bond described dance as "a mode of intentional and transformative human behaviour" (1991: 365), and subject involvement reached a level where this desirable transformation occurred and correlated with observer estimates of excellent level of involvement, thereby maximising the potential functional extensions in all domains.

Other Factors

Elements of therapist's effect are likely to have contributed to the results and the researcher and therapist were the same person with MDT and physiotherapy training. Therefore, despite efforts to apply only one modality, difficulties obviously existed in divorcing one from the other. Also, the subject identified a spacious and safe environment

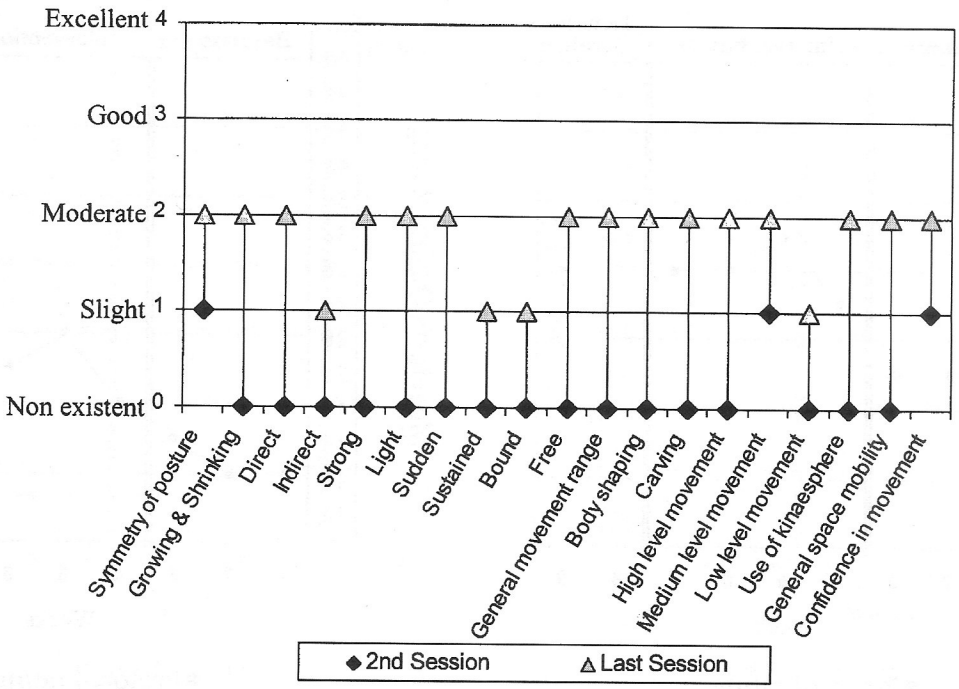

Figure 5. Research subject's self report pre and post MDT

as important factors. Referred to by Leventhal (1988-1994) as the therapeutic witness, Adler (1997) expands on the special qualities this process gives to the person in MDT. Whereas it is acknowledged these factors contributed to the results, they were not evaluated.

Recommendations and Conclusions

This study indicated that combinations of MDT and LMA can increase the options of assessment and treatment of high level movement control and quality problems. On a daily basis clients contend with situations that require movement adjustments in parameters of space, time, weight and flow, with extensions in environmental space, with certain body shapes. For these reasons it makes sense to practise movement in these parameters.

Recommendations therefore obviously support the use of MDT to improve subtle physical problems, as found in high level head injury and extensions in other domains, providing involvement in the approach can be reached. LMA as a descriptive language and assessment tool is also recommended. The results of this study lay a basis for further investigations using a series of reasonably similar single case subjects. The findings could then be generalised to the head injury target population.

In conclusion, MDT was part of a total rehabilitation program that was employed to help an individual, who had a head injury in a motor car accident, return to his pre accident lifestyle in the community. Observable physical change was achieved with use of MDT and it is believed a cause and effect relationship was established, although other factors also appeared to influence the results. These factors included supports that emerged for the holistic effects of MDT and the client's level of involvement in the process.

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Note

Although this is an original paper, it is freely acknowledged that description of the research and results involved some repetition of documentation and graphic displays from the undocumented thesis (Guthrie 1996a) and Guthrie 1996b, a paper published in the proceedings of the International Perspectives in Brain Injury Trauma Conference in Melbourne in 1996.

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