

Psychomotor intervention to enhance self- and body-concept in boys with Duchenne Muscular Dystrophy. Single-case studies in a multiple baseline design



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Objectives

Aim of this study was to develop and evaluate a specific psychomotor intervention for boys with Duchenne Muscular Dystrophy (DMD) to enhance their self-concept which is said to be an important factor of resilience in health promotion for people with neuromuscular diseases (Shields et al. 2007; Strong & Sandoval 1999). Research questions were:

1. Are there any changes in self-concept of boys with DMD in their ambulatory phase after psychomotor intervention?
2. Is psychomotricity feasible as an approach for self-concept enhancement for boys with DMD?

Jansen et al. (2013) showed with the „No use is disuse study“ that physical training like cycling is a harmless way to give boys with DMD an opportunity for movement. Until now there are no studies based on the idea of psychomotricity as an holistic approach through movement for boys with DMD (Markert et al. 2012). The presented study is based on the concept of German psychomotricity and on the model of self-concept from Shavelson et al. (1976).

Methods

This single-case study in a multiple baseline design (Fig. 1) was conducted in 2013 to 2015 in Germany. The study included 5 boys with DMD between 6 to 11 years old. The following assessment methods were used: Self-perception Profile for Children (SPPC), Motor Function Measure (MFM), the Colour-A-Person Body Dissatisfaction Test, the ET 6-6 and semi-structured interviews with children and parents.

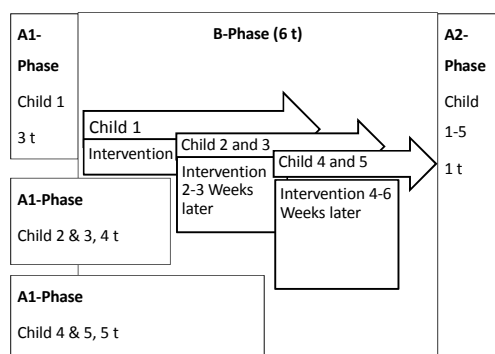


Fig. 1: study design

Results

During the study quantitative data for self-concept, body-concept and motor function of the 5 boys was collected. Moreover via the structured interviews qualitative data concerning the boys' self-concept and their satisfaction with the intervention was generated. Analysis with nonoverlap techniques (NAP, TAU-U, PND, PEM) and the Fisher-Pitman Test showed increasing results in self-concept scores for three of the assessed boys while motor function stays more or less stable or decreases due to the natural history of the disease (Tab. 1).

Tab. 1: results analysis with nonoverlap techniques and Fisher Pitman test for SPPC/PSCA scores

	NAP	TAU-U	p	Fisher Pitman Test
Child 1	44 %	0.39	0.30	78.57 %
Child 2	38 %	0.21	0.29	14.29 %
Child 3	100 %	1.04	0.01	99.52 %
Child 4	100 %	0.93	0.01	99.78 %
Child 5	100 %	0.92	0.01	99.60 %

The highest consistence of effects in self-concept dimensions through all boys was in the dimension of sports competence (Fig. 2, Tab. 2), the lowest in the dimension of peer-acceptance.

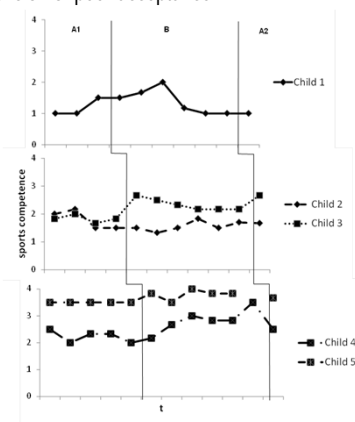


Fig. 2: results for sports competence over all phases and all children

Results from interviews reported high satisfaction and compliance with this specific intervention. Furthermore the boys showed no increasing progression in motor function.

Tab. 2: results analysis with nonoverlap techniques and Fisher Pitman test for SPPC/PSCA scores

	NAP	Tau-U	p	Fisher Pitman Test
Child 1	69 %	0.28	0.37	73.81 %
Child 2	29 %	0.29	0.29	16.67 %
Child 3	100 %	1.04	0.01	99.52 %
Child 4	90 %	0.93	0.03	99.13 %
Child 5	90 %	0.80	0.04	97.62 %

Evaluation

The single-case-mixed methods design turned out to be a very suitable design in the research of rare diseases such as DMD. Herewith effects from quantitative and qualitative data of one boy could e.g. increase the credibility in results or show an offset because of contradictions in the different methods.

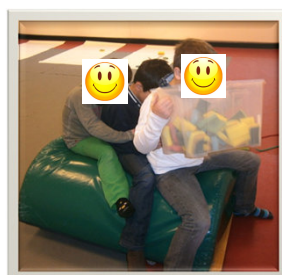
The developed conception for psychomotor intervention brings first research based information for psychomotricity in children with DMD. Due to the quantitative and qualitative results every time the intervention should be conducted in small groups, include short breaks in every session and because of the highest effects in the dimension of sports competence it could be suggested to develop a dimensional specific intervention.

Four more single-case studies in a multiple baseline design could be conducted to reach evidence-based practice standards for single-case studies from the What Works Clearinghouse (Kratzochwill et al. 2013).



Conclusion

Results of the study could mark a proof of effectiveness for the psychomotor oriented self-concept enhancement in three cases. As well the feasibility of the special motor intervention programme is documented. Analysis enhances the assumption that effects on self-concept concerning the intervention especially depend on age, state of disease and further indispositions of the children. In the qualitative interviews boys as well as parents reported the unique significance of peer contact but on the same way the disease based difficulties to make this peer contact happen. Likewise peer contact is one of the most important factors for a high self-concept in late childhood. This is why aspects of peer acceptance and positive factors to enhance peer contact should be part of further studies in self-concept of boys with DMD.



References

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