

PEDIATRIC GAIT ANALYSIS: A CALL FOR STANDARDIZATION

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INTRODUCTION

The objectives of the study were to identify the gait assessment practices currently used in pediatric motion analysis laboratories and to evaluate the need for a standardized approach [1].

Gait analysis is recognized today as an essential tool in clinical rehabilitation [2,3]. Generally, gait analysis is successfully used to assess and to identify motor disability, to develop treatment plans, to evaluate the effectiveness of a treatment and to study clinical and pathological gait. However, because of differences in the equipment, personnel training and the methods used for gathering data, comparing and sharing gait analysis results between gait analysis laboratories is very difficult, if not impossible [4].

A questionnaire was developed in the Pediatric Rehabilitation Department, at the George and Marie Backus Children's Hospital at Memorial Health University Medical Center. Several important issues emerged from the current study. The results of the study highlight the current inconsistency between gait assessment practices of various motion analysis laboratories and the importance of standardization.

METHODS

A multiple-choice questionnaire assessed the current practices in pediatric motion analysis laboratories, and the perceptions of the staff regarding the standardization of their laboratory's data. The questionnaire had 15 questions regarding motor evaluation tests used for children with motor impairment, methods to determine treatment effectiveness, normative database used, etc.

A consecutive sample of 13 pediatric motion analysis laboratories were recruited out of 15 centers to complete the questionnaire based on availability of pediatric evaluation, testing capabilities and peer recognition. All the participants completed the same questionnaire. Four recruited participants did not answer the questionnaire.

RESULTS AND DISCUSSION

Currently, to evaluate the results of a gait analysis, diverse resources are used. No two laboratories listed the same protocols as part of their evaluation. Most of the participants are using normative data that is collected on-site. The remaining participants are using data developed by other laboratories.

Four of the participants consider "functionality" as the most essential characteristic of gait for children with motor

impairment. Symmetry, normality, comfort and patient's goals were also considered. Four of the participants are using Gross Motor Function Measure (GMFM) to evaluate motor impairment in children. The remaining participants are using various other evaluation tests: Gross Motor Function Classification System (GMFCS), Pediatric Outcomes Data Collection Instrument (PODCI), etc.

Determining the necessity of a treatment and the treatment's effectiveness varies among participants. These determinations are usually performed using instrumented and observational examinations, as well as other evaluations such as team review, interview with the family, etc.

Determining the optimal duration of a physical therapy treatment is particular for each participant. Multiple criteria are used: specific goals, post surgery assessment, functional potential, severity of motor impairment, patient's ability to cooperate, insurance reimbursement, etc.

Despite the availability of expensive and sophisticated equipment, there is no standardized protocol or series of tests that laboratories agree to as a basis for evaluation. Most of the participants are interested in using a new normative database as reference.

CONCLUSIONS

Gait assessment practices vary significantly between different laboratories. While developments in technology are rapidly progressing, the tools to standardize the information are lagging. This gap is particularly noticeable in children under the age of eight, where there is little to no normative tools.

Lack of consistency between centers, rapid development of technology, and perceived interest of current laboratories for a common assessment and normalization tools calls for the standardization of data.

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ACKNOWLEDGEMENTS

The authors would like to thank the participants in the study.