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## SECTION III

### RESULTS

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### 3. OVERVIEW

This results section contains a detailed description of the various forms of data obtained during the planning and execution of the Workshop. The primary purpose of this section is to provide sufficient information regarding the principal components of this Workshop to allow readers of these materials an opportunity to develop interpretations of these data that are grounded by fact. The authors have made every attempt to present these data in an unbiased yet analytical format.

#### 3.1 Participant Demographics

The following participant demographics were obtained from the lists of invited speakers, co-chairs and workshop participants (n=71). This list was updated during the Workshop to include individuals who had not pre-registered for the Workshop. A review of workshop registration materials indicates only one of the 59 pre-registered participants was not able to attend the meeting and that one individual participated after registering on site. Workshop attendance was limited to the first day for several pre-registrants. These combined lists indicate 53 individuals were trained at a Doctoral level. There were: 22 Ph.D.s; 18 M.D.s; 1 M.D., Ph.D.; and 12 Ph.D., P.T.s. represented within this group. Thirteen individuals were trained at a Masters level. Of these, six participants were also trained as physical therapists. Three of the four participants having received training at a Bachelor level were physical therapists. Three individuals did not stipulate post-secondary school training.

Approximately 54% of the participants were affiliated with academic institutions. Of this group, 82% were individuals who appeared to come from clinical departments. Forty-two percent of the total number of individuals appeared to have primary appointments within non-academic entities supporting clinical or research activities. The number of clinical (21%) and research (21%) affiliations under this category were equally divided. Three percent of the total number of participants appear to have professional corporate affiliations where involvement in clinical or research activities could not be readily determined.

#### 3.2 The Recommendations

Titles and identification codes of the 37 recommendations that were formulated by the participants of the Workshop are listed in Tables 1-3. The letter prefix in the code denotes the working group from which the recommendation originated (A, B, or C). Working groups A and B each generated 12 recommendations while working group C generated 13 recommendations. The complete text of each recommendation can be found in Appendix B.

**Table 1**

Recommendation identification codes and titles from working group A

<b>Code</b>	<b>Recommendation Title</b>
A1	Gait assessment and clinical decision making
A2	Gait assessment and functional outcome
A3	Is gait analysis efficacious in improving treatment outcomes?
A4	Accuracy, precision, and validity of movement analysis techniques
A5	Evaluation of clinical interventions using functional movement analysis and disability measures
A6	Development of standards for management of clinical movement analysis data
A7	Development of timely and objective methods of acquisition, reduction, and interpretation of movement analysis data
A8	Development of a system network for sharing movement analysis data
A9	Education and training of personnel involved in gait analysis
A10	Determinants of gait related pathology
A11	Development of models to study the relationship between the observed abnormal gait, lower extremity structure, and underlying etiology
A12	Scope of movement analysis

**Table 2**

Recommendation identification codes and titles from working group B

<b>Code</b>	<b>Recommendation Title</b>
B1	Expand the clinical application of gait analysis
B2	Gait analysis as a cost effective patient management tool
B3	Use of gait analysis technology as treatment
B4	Clinical motion analysis data bank with patient profiles
B5	Standards for reporting the results of clinical gait analysis
B6	Collaboration via telecommunication/telemedicine
B7	Improved sensors of neuromusculoskeletal activity in gait analysis
B8	Automated protocol for determining joint centers
B9	Identify relationships between impairment, functional gait limitations, and disability
B10	Toward routine utilization of gait analysis
B11	Educate clinicians in the use of gait analysis and treatment planning
B12	Effectiveness of gait analysis

**Table 3**  
Recommendation identification codes and titles from working group C

Code	Recommendation Title
C1	Advance research evidence for the clinical utility of movement analysis across a broad range of pathophysiologies
C2	Scope and availability of gait analysis facilities
C3	Establish comprehensive gait analysis as a standard of care in pre-surgical decision making for ambulatory children with cerebral palsy
C4	Role of three dimensional computerized gait analysis in treatment decision making and as an outcome measure and its cost effectiveness
C5	Time /distance analysis for use in group/multicenter outcome studies
C6	Define the components of gait analysis
C7	The development of interactive software to assist professionals in the interpretation, synthesis, and use of locomotion data
C8	Standardization of gait analysis
C9	Accreditation of diagnostic clinical gait laboratories
C10	Medical education models for health care professionals
C11	Consumer and patient education
C12	Universal access to gait analysis services
C13	Development of information resources to help new gait labs

### 3.3 Recommendation Priority Scores

As described in the methods section, every participant in the Workshop was asked to score each of the recommendations in Tables 1-3 according to the following priority system:

- 100 Highest Priority
- 250 Moderate Priority
- 350 Average priority
- 450 Low Priority
- 600 Lowest priority

#### 3.3.1 Descriptive Statistics

The scores from all 65 participants for every recommendation were tabulated. Basic descriptive statistics for all the recommendations are listed in Tables 4 and 5. The distribution of scores for each recommendation are shown in Appendix C. It is apparent that the distribution of responses varies widely between recommendations. There are largely overwhelmingly high scores (A3), approximately normally distributed scores (B6), widely divergent scores (A7), and overwhelmingly low scores (C3).

**Table 4**

Descriptive statistics for the priority scores of all recommendations.

<b>Code</b>	<b>N</b>	<b>Mean</b>	<b>Median</b>	<b>TrMean</b>	<b>StDev</b>	<b>SEMean</b>
A1	65	233.7	200.0	224.4	115.0	14.3
A2	65	233.3	200.0	227.8	112.9	14.0
A3	65	200.6	150.0	190.2	110.2	13.7
A4	65	258.3	250.0	251.5	124.0	15.4
A5	65	261.7	250.0	256.1	132.7	16.5
A6	65	285.4	300.0	278.8	127.6	15.8
A7	65	349.9	350.0	349.9	141.4	17.5
A8	65	382.3	400.0	382.2	111.7	13.9
A9	65	270.9	250.0	265.9	116.0	14.4
A10	65	270.5	250.0	263.2	130.8	16.2
A11	65	226.8	200.0	219.8	103.1	12.8
A12	65	282.9	250.0	276.1	166.2	20.6
B1	65	236.5	200.0	230.0	110.9	13.8
B2	65	265.9	250.0	259.2	122.0	15.1
B3	65	356.2	350.0	356.8	149.2	18.5
B4	65	294.7	295.0	289.1	145.7	18.1
B5	65	253.1	250.0	248.3	121.7	15.1
B6	65	371.3	350.0	371.3	121.2	15.0
B7	65	380.2	400.0	382.8	149.4	18.5
B8	65	466.7	500.0	476.4	130.8	16.2
B9	65	235.2	200.0	224.4	139.5	17.3
B10	65	313.2	300.0	311.2	131.6	16.3
B11	65	267.6	250.0	264.3	111.1	13.8
B12	65	207.8	175.0	198.9	112.0	13.9
C1	65	254.2	250.0	248.7	107.5	13.3
C2	65	306.4	300.0	303.3	126.7	15.7
C3	65	454.5	500.0	464.2	149.8	18.6
C4	65	222.2	180.0	214.3	117.9	14.6
C5	65	450.2	500.0	460.4	148.1	18.4
C6	65	261.6	200.0	252.6	148.6	18.4
C7	65	270.2	250.0	264.7	116.0	14.4
C8	65	292.4	280.0	288.2	141.6	17.6
C9	65	304.4	300.0	299.7	160.0	19.8
C10	65	285.3	260.0	278.7	136.3	16.9
C11	65	331.3	350.0	329.4	136.0	16.9
C12	65	331.4	325.0	329.5	148.6	18.4
C13	65	376.2	400.0	378.4	146.4	18.2

(N = number of respondents, Mean = Arithmetic Mean, Median, TrMean = trimmed mean [removing lowest and highest 5% of observations], StDev = standard deviation, SEMean = standard error of the mean.)

**Table 5**  
Minimum, Maximum, first and third quartiles for the  
priority scores of all recommendations

<b>Code</b>	<b>Min</b>	<b>Max</b>	<b>Q1</b>	<b>Q3</b>
A1	100.0	600.0	150.0	300.0
A2	100.0	550.0	135.0	350.0
A3	100.0	570.0	100.0	250.0
A4	100.0	600.0	155.0	350.0
A5	100.0	600.0	150.0	350.0
A6	100.0	600.0	180.0	350.0
A7	100.0	600.0	205.0	450.0
A8	100.0	600.0	300.0	460.0
A9	100.0	600.0	177.5	350.0
A10	100.0	600.0	175.0	350.0
A11	100.0	550.0	150.0	295.0
A12	100.0	600.0	122.5	400.0
B1	100.0	550.0	150.0	300.0
B2	100.0	600.0	160.0	350.0
B3	100.0	600.0	200.0	500.0
B4	100.0	600.0	150.0	400.0
B5	100.0	500.0	150.0	350.0
B6	100.0	600.0	300.0	450.0
B7	100.0	600.0	250.0	500.0
B8	125.0	600.0	350.0	600.0
B9	100.0	600.0	117.5	300.0
B10	100.0	600.0	200.0	400.0
B11	100.0	500.0	200.0	350.0
B12	100.0	500.0	100.0	270.0
C1	100.0	600.0	170.0	350.0
C2	100.0	600.0	200.0	400.0
C3	100.0	600.0	350.0	600.0
C4	100.0	500.0	135.0	300.0
C5	100.0	600.0	350.0	600.0
C6	100.0	600.0	150.0	340.0
C7	100.0	600.0	200.0	350.0
C8	100.0	600.0	162.5	400.0
C9	100.0	600.0	172.5	400.0
C10	100.0	600.0	200.0	400.0
C11	100.0	600.0	250.0	400.0
C12	100.0	600.0	200.0	462.5

C13	100.0	600.0	275.0	500.0
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### 3.3.2 Recommendations ranked by score

All recommendations are shown in Table 6 ranked by the mean priority score from all respondents (a low numerical score is indicative of high priority). The Table provides an immediate view of the most urgent recommendations that emerged from the Workshop. However, it is apparent that there are many duplications and overlaps in the individual recommendations and this issue is addressed in an analysis by "class" of recommendation in Section 4.

**Table 6**  
Rank order of priority scores for all recommendations

<b>Priority Ranking</b>	<b>Mean Priority Score</b>	<b>Code</b>	<b>Recommendation Title</b>
1	200.6	A3	Is gait analysis efficacious in improving treatment outcomes?
2	207.8	B12	Effectiveness of gait analysis
3	222.2	C4	Role of three dimensional computerized gait analysis in treatment decision making and as an outcome measure and its cost effectiveness
4	226.8	A11	Development of models to study the relationship between the observed abnormal gait, lower extremity structure, and underlying etiology
5	233.3	A2	Gait assessment and functional outcome
6	233.7	A1	Gait assessment and clinical decision making
7	235.2	B9	Identify relationships between impairment, functional gait limitations, and disability
8	236.5	B1	Expand the clinical application of gait analysis
9	253.1	B5	Standards for reporting the results of clinical gait analysis
10	254.2	C1	Advance research evidence for the clinical utility of movement analysis across a broad range of pathophysiologicals
11	258.3	A4	Accuracy, precision, and validity of movement analysis techniques
12	261.6	C6	Define the components of gait analysis
13	261.7	A5	Evaluation of clinical interventions using functional movement analysis and disability measures
14	265.9	B2	Gait analysis as a cost effective patient management tool
15	267.6	B11	Educate clinicians in the use of gait analysis and treatment planning

16	270.2	C7	The development of interactive software to assist professionals in the interpretation, synthesis, and use of locomotion data
17	270.5	A10	Determinants of gait related pathology
18	270.9	A9	Education and training of personnel involved in gait analysis
19	282.9	A12	Scope of movement analysis
20	285.3	C10	Medical education models for health care professionals
21	285.4	A6	Development of standards for management of clinical movement analysis data
22	292.4	C8	Standardization of gait analysis
23	294.7	B4	Clinical motion analysis data bank with patient profiles
24	304.4	C9	Accreditation of diagnostic clinical gait laboratories
25	306.4	C2	Scope and availability of gait analysis facilities
26	313.2	B10	Toward routine utilization of gait analysis
27	331.3	C11	Consumer and patient education
28	331.4	C12	Universal access to gait analysis services
29	349.9	A7	Development of timely and objective methods of acquisition, reduction, and interpretation of movement analysis data
30	356.2	B3	Use of gait analysis technology as treatment
31	371.3	B6	Collaboration via telecommunication/telemedicine
32	376.2	C13	Development of information resources to help new gait labs
33	380.2	B7	Improved sensors of neuromusculoskeletal activity in gait analysis
34	382.3	A8	Development of a system network for sharing movement analysis data
35	450.2	C5	Time /distance analysis for use in group/multicenter outcome studies
36	454.5	C3	Establish comprehensive gait analysis as a standard of care in pre-surgical decision making for ambulatory children with cerebral palsy
37	466.7	B8	Automated protocol for determining joint centers

### 3.4 Classification of recommendations

#### 3.4.1 Basis for classification

Although the three working groups were given particular areas in which to concentrate their recommendations, there was inevitably considerable overlap in the topic areas of concern to the different groups. In order to generate a more global view of the outcome of the Workshop, the following 5 "classes" of recommendations have been identified by the Executive Committee (workshop coordinators and co-chairs).

Class 1	Basic Research and Technical Development
Class 2	Clinical Research
Class 3	Efficacy, Outcomes, and Cost Effectiveness Research
Class 4	Definitions, Standardization, and Policy
Class 5	Education

#### 3.4.2 Listing of Recommendations by Class

A list of recommendations by class is presented in Tables 7a-e. Some recommendations have been given more than one classification due their multifaceted nature.

**Table 7a**  
Recommendations within Class 1  
(Basic Research, Technical Development)

<b>Class 1</b>	<b>Code</b>	<b>Recommendation Title</b>
Class 1	A4	Accuracy, Precision, and Validity of Movement Analysis Techniques
Class 1	A7	Development of timely and objective methods of Acquisition, Reduction, and Interpretation of Movement Analysis data.
Class 1	A8	Development of a system network for sharing movement analysis data
Class 1	A11	Development of models to study the relationship between the observed abnormal gait, lower extremity structure, and underlying etiology.
Class 1	B10	Toward routine utilization of gait analysis
Class 1	B3	Use of gait analysis technology as treatment
Class 1	B4	Clinical motion analysis data bank with patient profiles
Class 1	B6	Collaboration via telecommunication/telemedicine
Class 1	B7	Improved sensors of neuromusculoskeletal activity in gait analysis
Class 1	B8	Automated protocol for determining joint centers
Class 1	C7	The development of interactive software to assist professionals in the interpretation, synthesis, and use of locomotion data.

**Table 7b**  
 Recommendations within Class 2  
 (Clinical Research)

<b>Class 2</b>	<b>Code</b>	<b>Recommendation Title</b>
Class 2	A5	Evaluation of clinical interventions using functional movement analysis and disability measures
Class 2	A10	Determinants of gait related pathology
Class 2	B3	Use of gait analysis technology as treatment
Class 2	B9	Identify relationships between impairment, functional gait limitations, and disability
Class 2	C1	Advance research evidence for the clinical utility of movement analysis across a broad range of pathophysiologies
Class 2	C5	Time /distance analysis for use in group/multicenter outcome studies

**Table 7c**  
 Recommendations within Class 3  
 (Efficacy and Outcomes, and Cost Effectiveness Research)

<b>Class 3</b>	<b>Code</b>	<b>Recommendation Title</b>
Class 3	A1	Gait assessment and clinical decision making
Class 3	A2	Gait assessment and functional outcome
Class 3	A3	Is gait analysis efficacious in improving treatment outcomes?
Class 3	B1	Expand the clinical application of gait analysis
Class 3	B12	Effectiveness of gait analysis
Class 3	B2	Gait analysis as a cost effective patient management tool
Class 3	C4	Role of three dimensional computerized gait analysis in treatment decision making and as an outcome measure and its cost effectiveness
Class 3	C12	Universal access to gait analysis services

**Table 7d**  
 Recommendations within Class 4  
 (Definitions, Standardization, and Policy)

<b>Class 4</b>	<b>Code</b>	<b>Recommendation Title</b>
Class 4	A6	Development of standards for management of Clinical Movement Analysis data
Class 4	A12	Scope of movement analysis
Class 4	B4	Clinical motion analysis data bank with patient profiles
Class 4	B5	Standards for reporting the results of clinical gait analysis
Class 4	B6	Collaboration via telecommunication/telemedicine
Class 4	C8	Standardization of gait analysis
Class 4	C9	Accreditation of diagnostic clinical gait laboratories
Class 4	C2	Scope and availability of gait analysis facilities
Class 4	C3	Establish comprehensive gait analysis as a standard of care in pre-surgical decision making for ambulatory children with Cerebral Palsy
Class 4	C12	Universal access to gait analysis services
Class 4	C13	Development of information resources to help new gait labs
Class 4	C6	Define the components of gait analysis

**Table 7e**  
 Recommendations within Class 5  
 (Education)

<b>Class 5</b>	<b>Code</b>	<b>Recommendation Title</b>
Class 5	A9	Education and Training of personnel involved in Gait Analysis
Class 5	B10	Toward routine utilization of gait analysis
Class 5	B11	Educate clinicians in the use of gait analysis and treatment planning
Class 5	C11	Consumer and patient education
Class 5	C10	Medical Education models for health care professionals

### 3.4.3 Ranking of Classifications

The priority scores for all recommendations in each separate class have been averaged to indicate the relative priority of the five different classes. The results are shown in Table 8:

**Table 8**  
Rank order of each class of recommendations

<b>Rank</b>	<b>Class</b>	<b>Topic</b>	<b>N</b>	<b>Mean</b>	<b>sd</b>
1	Class 3	Efficacy, Outcomes, and Cost Effectiveness research	8	241.4	41.4
2	Class 5	Education	4	288.8	29.4
3	Class 2	Clinical research	6	304.7	82.7
4	Class 4	Definitions, Standardization, and Policy	9	313.0	63.7
5	Class 1	Basic Research and Technical Development	10	331.4	72.2

These results indicate that two categories of "Efficacy, outcomes, and cost effectiveness research" and "Education" were regarded by the workshop participants to be the highest priority for future attention. The mean priorities were markedly higher than the other three classes and the standard deviation of the scores were relatively small (CVs of 17.1% and 10.2% respectively). The remaining classes showed lower scores all grouped within a range of approximately 27 points and characterized by large coefficients of variation 27%, 20%, and 21.8% for classes 2, 4, and 1 respectively.

The message from the workshop participants appears to be that demonstrating the efficacy of present techniques, and disseminating the results is a higher priority than creating new techniques, changing policy, or conducting clinical research. It must be pointed out however, that the majority of recommendations concerning *Efficacy, Outcomes, and Cost Effectiveness* research could themselves be described as *Clinical Research* projects.

#### **3.4.4 Recommendation Ranking Within Each Class**

The following tables show the ranking of recommendations within each class. These tables allow the reader to assess the sub-priorities of workshop participants within the overall class priority.

**Table 9**

Sub-priorities within the 1st Priority Class - Class 3:  
(Efficacy, Outcomes , and Cost Effectiveness Research)

<b>Sub Priority</b>	<b>Code</b>	<b>Priority Score</b>	<b>Recommendation Title</b>
1	A3	200.6	Is gait analysis efficacious in improving treatment outcomes?
2	B12	207.8	Effectiveness of gait analysis
3	C4	222.2	Role of three dimensional computerized gait analysis in treatment decision making and as an outcome measure and its cost effectiveness
4	A2	233.3	Gait assessment and functional outcome
5	A1	233.7	Gait assessment and clinical decision making
6	B1	236.5	Expand the clinical application of gait analysis
7	B2	265.9	Gait analysis as a cost effective patient management tool
8	C12	331.4	Universal access to gait analysis services

**Table 10**

Sub-priorities within the 2nd Priority Class - Class 5:  
(Education)

<b>Sub Priority</b>	<b>Code</b>	<b>Priority Score</b>	<b>Recommendation Title</b>
1	B11	267.6	Educate clinicians in the use of gait analysis and treatment planning
2	A9	270.9	Education and training of personnel involved in gait analysis
3	C10	285.3	Medical education models for health care professionals
4	C11	331.3	Consumer and patient education

**Table 11**

Sub-priorities within the 3rd Priority Class - Class 2:  
(Clinical Research)

<b>Sub Priority</b>	<b>Code</b>	<b>Priority Score</b>	<b>Recommendation Title</b>
1	B9	235.2	Identify relationships between impairment, functional gait limitations, and disability
2	C1	254.2	Advance research evidence for the clinical utility of movement analysis across a broad range of pathophysiologies
3	A5	261.7	Evaluation of clinical interventions using functional movement analysis and disability measures
4	A10	270.5	Determinants of gait related pathology
5	B3	356.2	Use of gait analysis technology as treatment
6	C5	450.2	Time /distance analysis for use in group/multicenter outcome studies

**Table 12**

Sub-priorities within the 4th Priority Class - Class 4:  
(Definitions, Standardization, and Policy)

<b>Sub Priority</b>	<b>Code</b>	<b>Priority Score</b>	<b>Recommendation Title</b>
1	B5	253.1	Standards for reporting the results of clinical gait analysis
2	C6	261.6	Define the components of gait analysis.
3	A12	282.9	Scope of movement analysis
4	A6	285.4	Development of standards for management of clinical movement analysis data
5	C8	292.4	Standardization of gait analysis
6	C9	304.4	Accreditation of diagnostic clinical gait laboratories
7	C2	306.4	Scope and availability of gait analysis facilities
8	C12	376.2	Development of information resources to help new gait labs
9	C3	454.5	Establish comprehensive gait analysis as a standard of care in pre-surgical decision making for ambulatory children with cerebral palsy

**Table 13**

Sub-priorities within the 5th Priority Class - Class 1:  
(Basic Research and Technical Development)

<b>Sub Priority</b>	<b>Code</b>	<b>Priority Score</b>	<b>Recommendation Title</b>
1	A11	226.8	Development of models to study the relationship between the observed abnormal gait, lower extremity structure, and underlying etiology
2	A4	258.3	Accuracy, precision, and validity of movement analysis techniques
3	C7	270.2	The development of interactive software to assist professionals in the interpretation, synthesis, and use of locomotion data
4	B4	294.7	Clinical motion analysis data bank with patient profiles
5	B10	313.2	Toward routine utilization of gait analysis
6	A7	349.9	Development of timely and objective methods of acquisition, reduction, and interpretation of movement analysis data
7	B6	371.3	Collaboration via telecommunication/telemedicine
8	B7	380.2	Improved sensors of neuromusculoskeletal activity in gait analysis
9	A8	382.3	Development of a system network for sharing movement analysis data
10	B8	466.7	Automated protocol for determining joint centers

It is interesting that "Education" achieved it's ranking as the second most important class because there were no scores that were extremely high or none that were extremely low. In contrast, it can be noted from Tables 8 through 12 that some very high priority recommendations fall into classes which are, overall, considered to be of lower priority. Among these recommendations that deserve further attention are:

In the third ranking class:

B9	Score 235.2	Identify relationships between impairment, functional gait limitations, and disability
C1	Score 254.2	Advance research evidence for the clinical utility of movement analysis across a broad range of pathophysiologies

In the fourth ranking class:

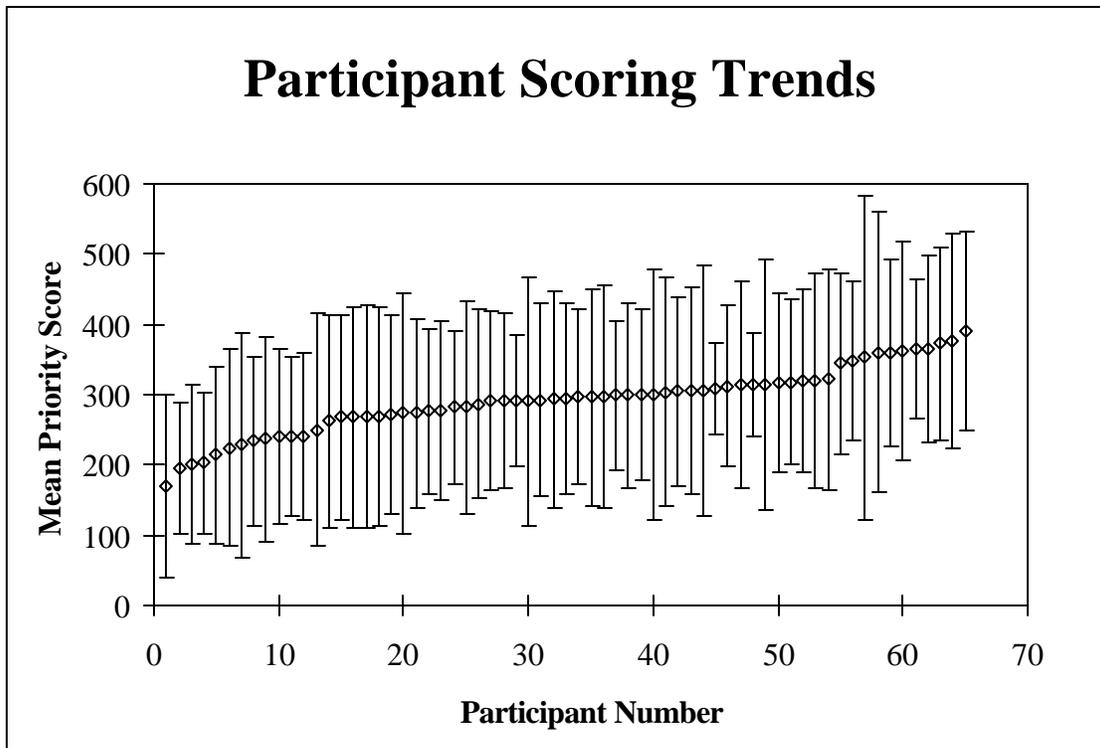
B5	Score 253.1	Standards for reporting the results of clinical gait analysis
C6	Score 261.6	Define the components of gait analysis

In the fifth ranking class:

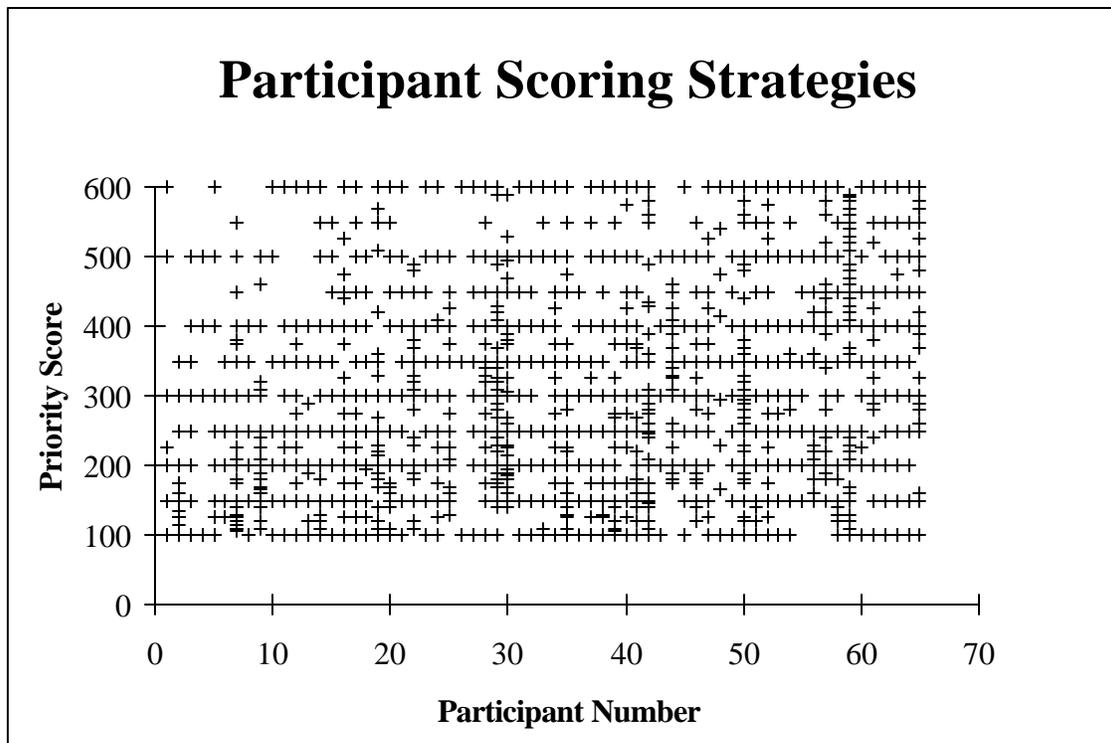
A11	Score 226.8	Development of models to study the relationship between the observed abnormal gait, lower extremity structure, and underlying etiology
A4	Score 258.3	Accuracy, precision, and validity of movement analysis techniques

### **3.5 Participant Scoring Patterns**

The relatively high degree of variability associated with individual and classified groups of recommendations is a significant influential factor when interpreting results of the prioritization process. One of the sources of this variability is due to differences in individual participant and working group scoring trends and strategies. In general, participants tended to prioritize the recommendations within the numerically lower half of the scoring range (see Figure 1). The grand mean of all 37 recommendation priority scores (298.5, sd=130.3) indicates that the participants generally felt the collective set of recommendations merited a favorable (less than 350) priority rating. Participant mean priority scores for all recommendations ranged from 170 to 390. The large differences in standard deviation values (compare participants 45 and 57 in Figure 1) may be indicative of individualized differences in scoring strategies. An indication of such differences can be seen in Figure 2 where it is apparent that participants used dramatically different levels of resolution to denote differences in priority. For example, participant 26 utilized only three scores (100, 350 and 600) to prioritize all the recommendations. On the other hand, participant number 59 appears to have provided a unique prioritization score for each recommendation.



**Figure 1:** Mean ( $\pm$  sd) of recommendation priority scores for each participant. Participant data are arranged in ascending order of mean priority score values.



**Figure 2:** Scatter plot of the recommendation priority scores for each participant. Participant data are arranged in ascending order of mean score values.

### 3.6 Working Group Scoring Patterns

The mean priority scores for all questions formulated by each group (based on an average from the scores of all workshop participants) are shown in Table 14.

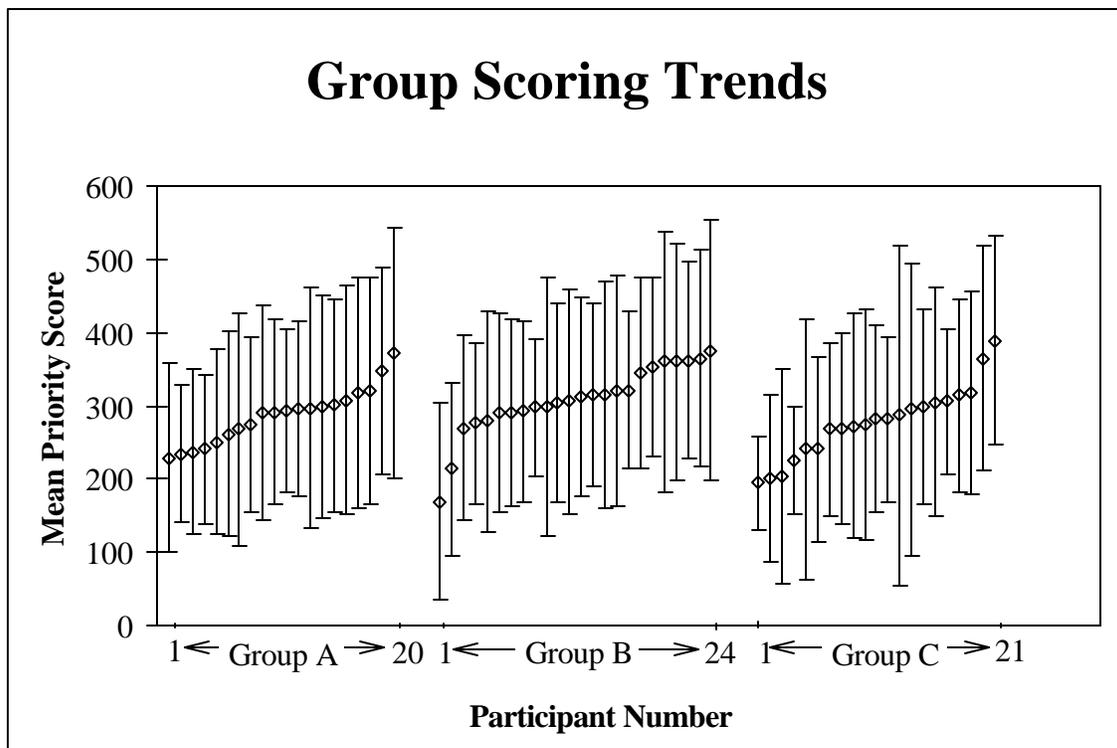
**Table 14**  
Mean of scores assigned by all participants to the questions  
originating from each of the three working groups.

<b>Recommendations from Working Group A</b>			<b>Recommendations from Working Group B</b>			<b>Recommendations from Working Group C</b>		
A1	65	233.7	B1	65	236.5	C1	65	254.2
A2	65	233.3	B2	65	265.9	C2	65	306.4
A3	65	200.6	B3	65	356.2	C3	65	454.5
A4	65	258.3	B4	65	294.7	C4	65	222.2
A5	65	261.7	B5	65	253.1	C5	65	450.2
A6	65	285.4	B6	65	371.3	C6	65	261.6
A7	65	349.9	B7	65	380.2	C7	65	270.2
A8	65	382.3	B8	65	466.7	C8	65	292.4
A9	65	270.9	B9	65	235.2	C9	65	304.4
A10	65	270.5	B10	65	313.2	C10	65	285.3
A11	65	226.8	B11	65	267.6	C11	65	331.3
A12	65	282.9	B12	65	207.8	C12	65	331.4
						C13	65	376.2
<b>Mean Score = 271.3</b> <b>sd = 51.3</b>			<b>Mean Score = 304.0</b> <b>sd = 76.0</b>			<b>Mean Score = 318.4</b> <b>sd = 71.1</b>		

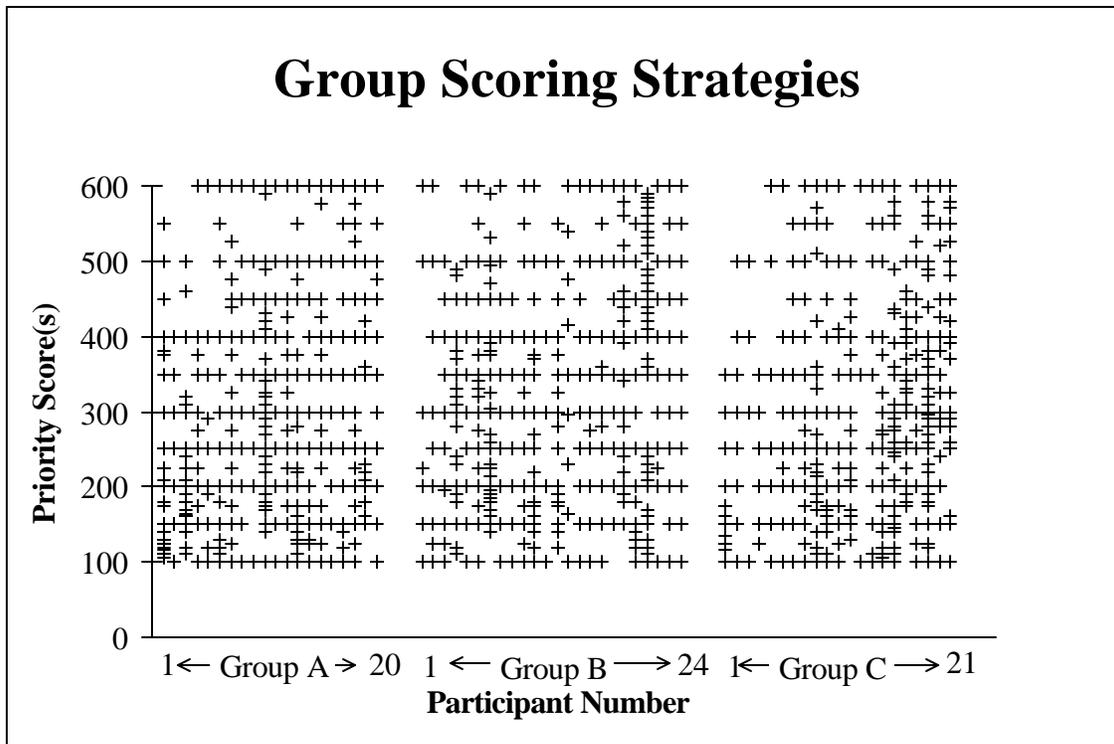
### 3.6.1 Scoring Trends and Strategies

The influence of working group is an important factor to consider when evaluating the source of variability in participant scoring patterns. Working group activities were highly interactive amongst participants but not between working groups - interaction with other working groups was minimal and participants were not allowed to change groups. The role that facilitators played in stimulating group dynamics also varied. Therefore, it is likely that such interaction may have resulted in the development of group bias towards scoring techniques. Figure 3 indicates that the participant scoring trends within working groups A, B, and C were very similar. Indeed, the means for each group (A=288.2, B=307.9, C=297.6) were all very close to the grand mean of 298.5 for all participants.

The influence of working group on recommendation scoring strategies can be seen in Figure 4. It is evident that each working group produced a wide range of resolution in recommendation scoring patterns and thus appears as though differences in recommendation scoring strategies were strongly influenced by personal factors.



**Figure 3:** Mean ( $\pm$  sd) of recommendation priority scores for each participant sorted by group. Group data are arranged in ascending order of mean score values.

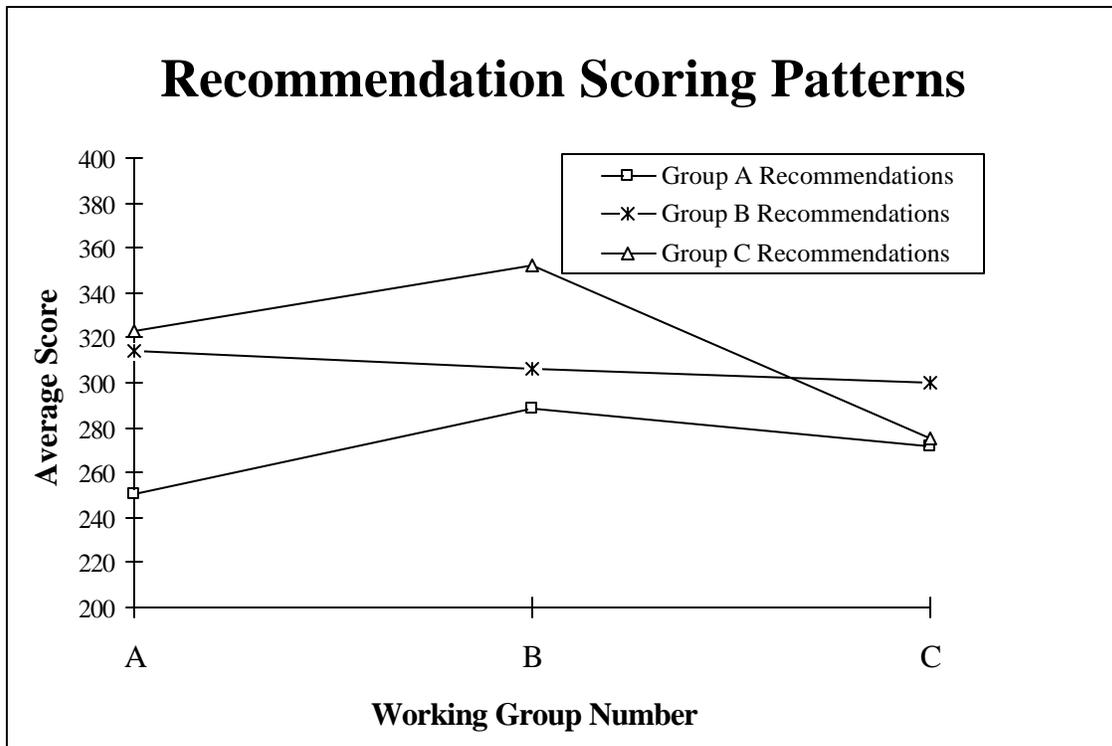


**Figure 4:** Scatter plot of the recommendation priority scores for each participant sorted by group. Group data are arranged in ascending order of participant mean score values.

### 3.6.2 Working Group Bias

Additional insight into the voting patterns of the three groups can be obtained from Figure 5. The recommendations have been organized into three categories depending upon which group formulated the recommendations (Group A recommendations, Group B recommendations, and Group C recommendations). The mean score given by the members of each group for all questions in a category are shown on the graph.

It can be seen that group 1 mildly favored their own recommendations (mean score of 21.7 points lower [better] than the next nearest other group); Group two showed no trace of bias (they scored their own questions 6.1 points higher [worse] than the next nearest group); Group 3 showed most bias (they scored their own questions 47.6 points lower [better] than the next nearest group).



**Figure 5:** Voting patterns by group depending on the origin of the Recommendation

### 3.7 Workshop Evaluations

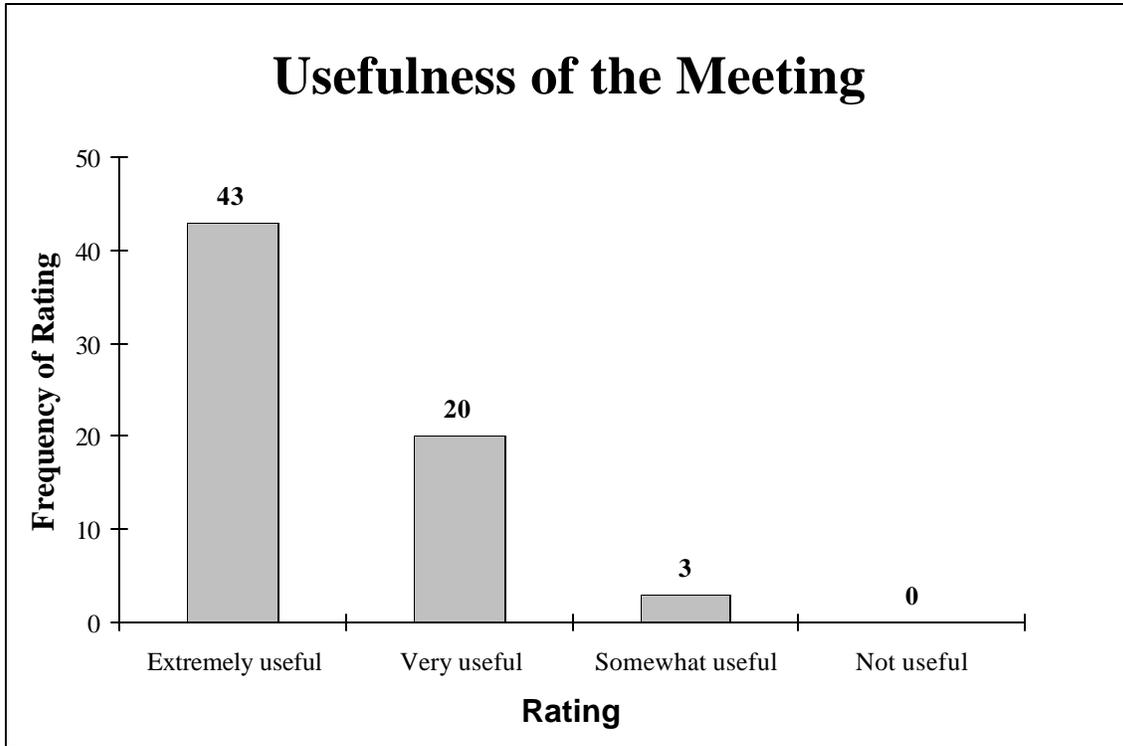
The results of a thorough evaluation of the Workshop's content and execution are an extremely important vehicle for providing information and feedback to workshop sponsors, designers, support staff, participants and readers of this report. Such information is helpful in evaluating participant enthusiasm for the workshop topic. This is very important to consider when reviewing the prioritized recommendations. Surely, the importance of the recommendations having the highest priority would be greatly diminished if the majority of participants felt the meeting and discussed topics were not useful. In addition, the results of this workshop evaluation may be beneficial during the development of improved workshop models and for the development of future workshop topics.

A total of 66 completed workshop evaluation forms were received. This is one greater than the number of participants and working group chairpersons that scored the recommendations. The following data are the results of an objective and subjective analysis of the completed workshop evaluations.

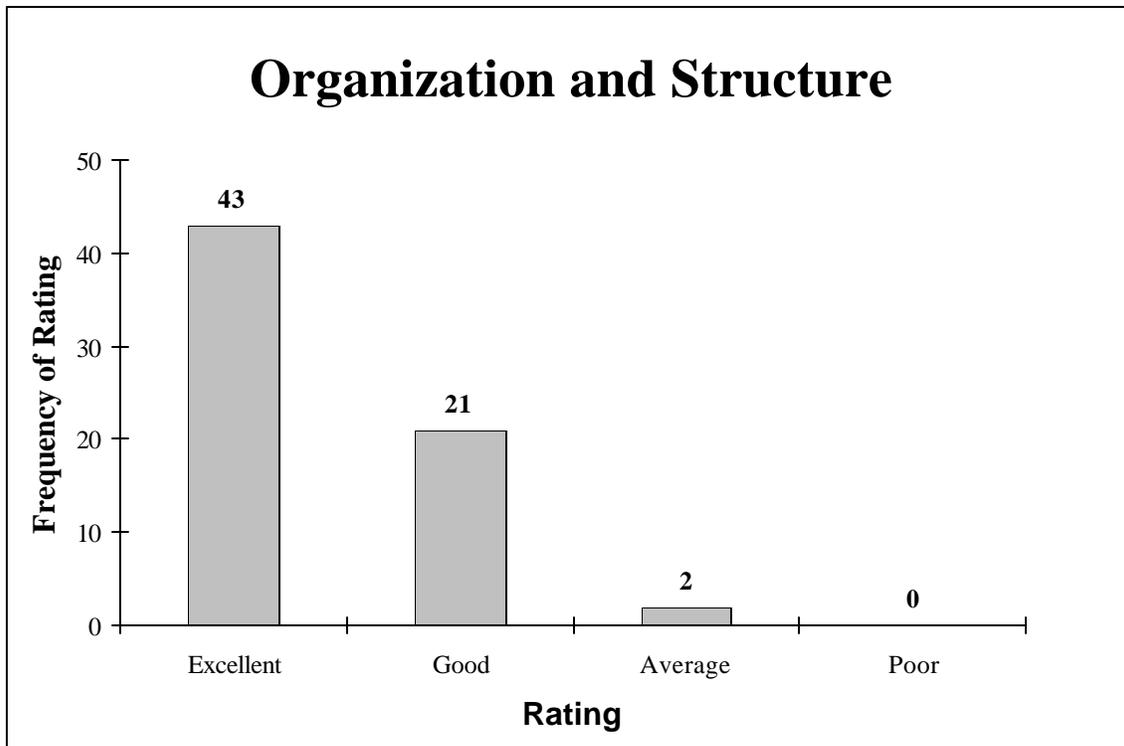
#### 3.7.1 Evaluation items 1-3

Items 1-3 of the evaluation form related to the workshop usefulness, organization and the presentation of workshop materials. A clear majority (96%) of participants felt that the Workshop was extremely or very useful (Figure 6). Likewise, 97% of the respondents felt the

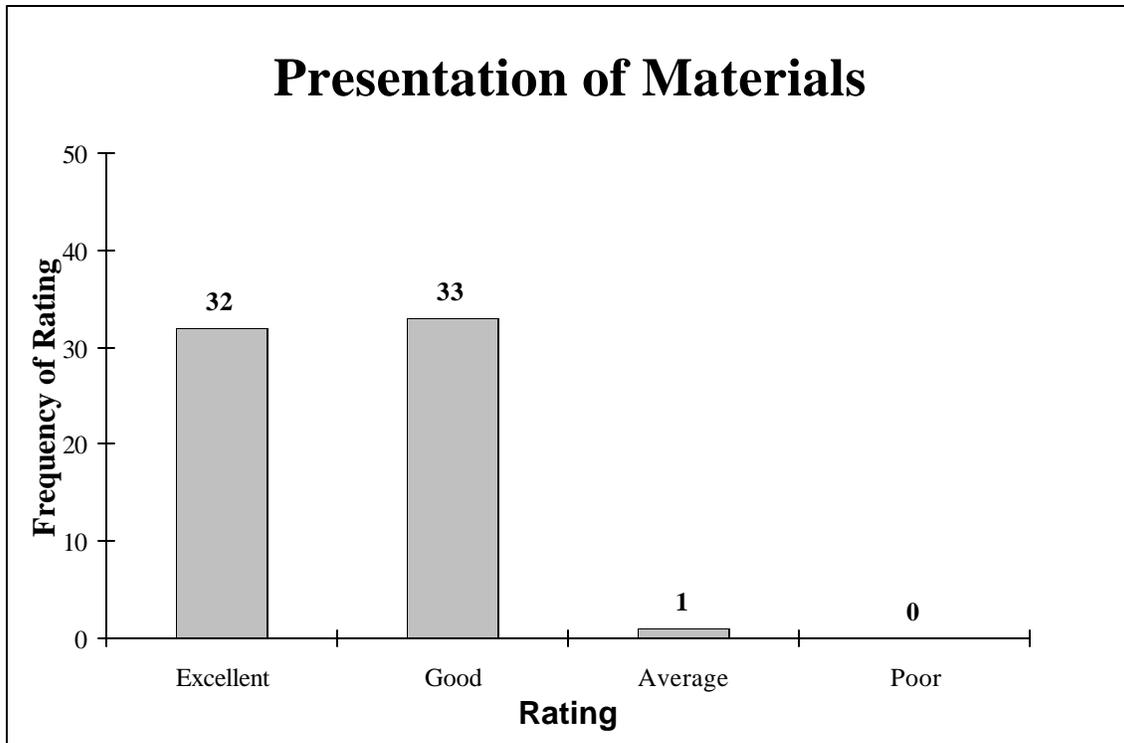
organization and structure of the meeting was either excellent or good (Figure 7). While the presentation of workshop materials was rated high by 99% of participants (Figure 8), markedly fewer respondents rated this item excellent as was the case with evaluation items one and two.



**Figure 6:** Histogram containing the frequency of participant responses rating evaluation item 1: Usefulness of the Meeting (and topics discussed).



**Figure 7:** Histogram containing the frequency of participant responses rating evaluation item 2: Organization and structure of the Meeting.



**Figure 8:** Histogram containing the frequency of participant responses rating evaluation item 3: Presentation of materials, (including handouts, slides, etc.).

### 3.7.2 Evaluation Items 4-8

The following is a summary of responses obtained from items 4-8 of the workshop evaluation form.

Question 4. What was the best part of the Meeting for you?

Enthusiasm of the participants, speakers and session chairs was considered the most positive aspect of the Workshop by the majority (42/66) of respondents. These individuals felt the participant interaction, small group meeting format, and personal atmosphere were the best parts of the meeting. While 17/66 felt that the best part of the Workshop was direct involvement and development in the future direction of gait analysis, the remaining 7/66 participants felt that the presentations and structure of the meeting were best. Examples of individual comments related to this evaluation item are:

“Meeting others active in the field”

“Interaction and the development of teamwork”

“The open sharing of ideas and common problems in an atmosphere free from institutional constraints”

“Getting a sense of what the priorities are to move the field of gait analysis forward”

Question 5. What was the weakest part of the meeting for you?

Limited time for the Workshop and group discussion was considered a weakness by 21/66 participants while 16/66 felt that there were no weaknesses. Lack of structure or organization and a slow printer for copies and distribution of meeting materials accounted for 9/66 and 4/66 replies respectively. The remaining group of 16/66 provided a range of comments such as:

“Inadequate time to discuss ideas and generate collective statements”

“The short amount of time to accomplish the task”

“No chance to have input into other sections”

“The lack of understanding by co-chairs in my department regarding direction and structure in the development process of problem areas”

“Vagueness about what participants were supposed to produce”

“Might have helped to have a bit of guidance about writing the recommendation for

those of us with less experience”

”I would have liked more rehab emphasis as opposed to ortho/engineering, but that is my personal area of interest”

Question 6. What improvements would you make if any?

Almost 33% (21/66) of responding participants felt that there were no improvements necessary. Increasing the duration of the Workshop was an improvement that 16/66 of the respondents suggested. Discussion of trends and controversies in gait analysis was viewed by 12/66 as an activity that should be included in future meetings. The remaining 17/66 noted varying suggestions for improvement such as:

“Try to increase opportunity for interaction between more individuals”

“Allow one more day for continued recommendation development”

“Presentations of conflicting ideas in and about gait analysis, biomechanics of movement, and clinical analysis could have been presented”

“Provide individuals with opportunity to make recommendations in areas beyond the scope of their assigned area”

Question 7. Do you have any Specific preferences for future meeting topics?

Specific preferences for future workshop topics was left blank by 41/66 responding while 25/66 covered a wide variety of topic requests such as:

“You could have a conference on any single or small area of the ideas recommended”

“A conference specific to the use of movement analysis for diagnosis, prescription, and evaluation of functional outcome and disability”

“Quality control of all aspects of gait”

“Controversies in gait analysis”

“Development of standards for management of clinical movement analysis data”

Question 8. Comments:

Greater than 50% (34/66) of those responding to the questionnaire had no further comments, 26/66 thanked and praised the organizers for a job well done, while the remaining 6/65 made helpful suggestions. The following is a list of representative statements:

“It has been an honor to be part of this distinguished group. Thank you very much for holding this conference”

“Despite poor advertising, the meeting attracted a large number of qualified colleagues. I am impressed by the overall organization and efficiency”

“Is there a mechanism to inform the participants of the status/action/in action regarding the recommendations”

“Excellent format, need to use a 2-step process to reduce number of recommendations”