

Evidence of Content Validity of the Duchenne Video Assessment Scorecards from a Delphi Panel Study

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Background

- People with Duchenne muscular dystrophy (DMD) adopt compensatory movement patterns to maintain independence as their muscles get weaker. These compensatory movements are hallmarks of weakening muscles and may represent earlier, more sensitive opportunities to detect disease progression.
- The Duchenne Video Assessment tool provides a standardized way for caregivers to video record DMD patients completing specific movement tasks at home using a secure mobile application and for physical therapists to assess the movement quality in a consistent manner.
- Each movement task has a unique, comprehensive list of compensatory criteria (e.g. step-to pattern on 4 or more consecutive stairs for Climb 5 Stairs) that indicate clinically meaningful compensations.
- Physical therapists use scorecards to evaluate quality of movement in each video by selecting the compensatory movements they observe. Higher scores indicate more difficulty completing the task.

Objective

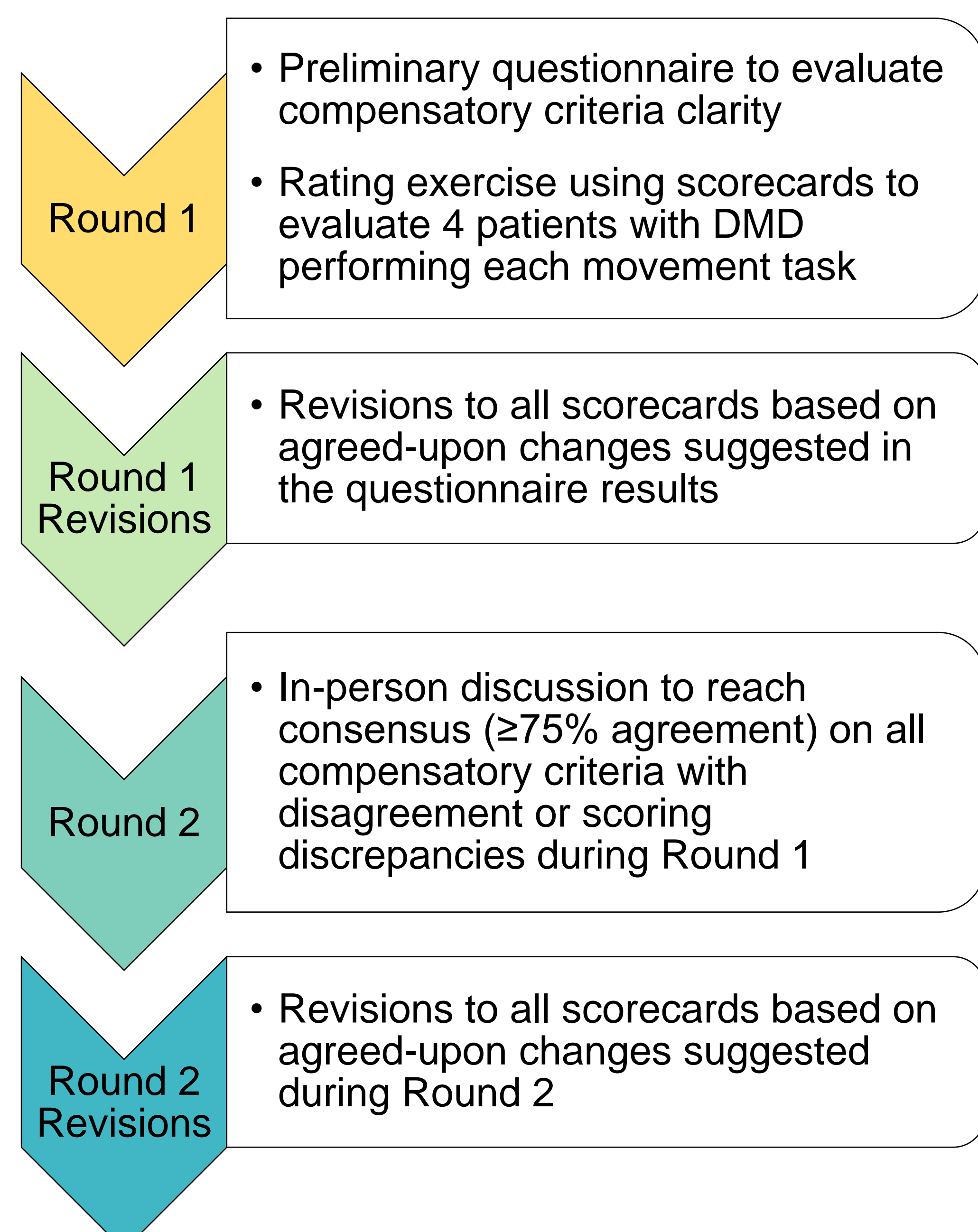
To gather expert input on the compensatory movement criteria indicative of clinically meaningful change in disease to include in scorecards for 15 movement tasks.

Approach

Study Design: We conducted two rounds of a Delphi panel, a method for building consensus among experts.

Experts: Physical therapists who have evaluated ≥50 DMD patients in clinic and participated in ≥10 DMD clinical trials.

Delphi Panel Process:



Results

Table 1. Characteristics of Physical Therapists

Characteristic	Physical Therapists N=8 n (%)
Gender	
Female	7 (87.5)
Male	1 (12.5)
Geographic Region	
U.S. Northeast	1 (12.5)
U.S. South	1 (12.5)
U.S. Midwest	4 (50.0)
U.S. West	2 (25.0)
Years in Practice	
Fewer than 10	2 (25.0)
10-19	3 (37.5)
20 or more	3 (37.5)
DMD Patients Therapist has Worked with	
Fewer than 200	2 (25.0)
200-399	3 (37.5)
400 or more	3 (37.5)
Number of DMD Clinical Trials	
10-14	5 (62.5)
15-19	2 (25.0)
20 or more	1 (12.5)

Summary of Changes to Scorecards

Round 1 Revisions

- Changed wording on 44% of 153 compensatory criteria
- Deleted 3 compensatory criteria

Round 2 Revisions

- Changed wording on 31% of 150 compensatory criteria
- Added 20 and deleted 30 compensatory criteria
- Achieved 100% agreement on all changes made to scorecards during Round 2 except the Run scorecard due to time limitations
- Reached consensus on the compensatory criteria in the Run scorecard with a subset of the panel (n=3) that met after the in-person discussion

Table 2. Revisions to scorecard compensatory criteria after each Delphi panel round

Scorecards	Original	Round 1 Revisions to Compensatory Criteria			Round 2 Revisions to Compensatory Criteria				
	Total Version 1 Criteria	Word Changes	Added Criteria	Deleted Criteria	Total Version 2 Criteria	Word Changes	Added Criteria	Deleted Criteria	Total Version 3 Criteria
Climb 5 Stairs	9	7	0	0	9	1	2	2	9
Run	8	3	0	0	8	8	6	3	11
Walk	13	9	0	0	13	4	4	7	10
Jump	17	13	0	3	14	4	2	5	11
Sit Up	11	4	0	0	11	2	1	1	11
Stand Up from Sitting on Floor	8	5	0	0	8	2	0	0	8
Stand Up from Supine	9	5	0	0	9	2	0	0	9
Stand Up from Sitting on Couch	7	3	0	0	7	3	0	0	7
Raise Hands Above Head	9	3	0	0	9	6	2	1	10
Roll Over in Bed	10	0	0	0	10	3	2	2	10
Shift Weight in Bed	10	4	0	0	10	0	0	5	5
Take T-Shirt Off and Put T-Shirt On	15	1	0	0	15	7	1	1	15
Eat 10 Bites	10	4	0	0	10	4	0	0	10
Arms Off and On Armrests	7	4	0	0	7	1	0	3	4
Reach Across Table to Grab a Cell Phone	10	2	0	0	10	0	0	0	10
TOTAL	153	67	0	3	150	47	20	30	140

Conclusion

Expert DMD physical therapists confirmed that the compensatory criteria included in the Duchenne Video Assessment scorecards were appropriate and indicative of clinically meaningful change in the disease.