

ACTIVATE MOVEMENT CHALLENGE (AMC)

Morris D. Bell, Ph.D.

A. GROSS MOTOR—GAIT AND BALANCE

SCORING CRITERIA

	RAW	CONVERTED	
1. Timed-Up & Go	<input type="text"/>	<input type="text"/>	> 20 = 0, 20-16=1, <16 = 2
2. Dual Attention	<input type="text"/>	<input type="text"/>	> 20 = 0, 20-16=1, <16 = 2
3. Tandem Gait Forward	<input type="text"/>	<input type="text"/>	Steps correct: <4=0, 4-6 = 1, 7-8 = 2
4. Stand - Arms Outstretched	<input type="text"/>	<input type="text"/>	Seconds: <5 = 0, 5 - 8 = 1, 9 - 10 = 2
5. Stand on One Foot—Right	<input type="text"/>	<input type="text"/>	Seconds: <5 = 0, 5 - 8 = 1, 9 - 10 = 2
6. Stand on One Foot—Left	<input type="text"/>	<input type="text"/>	Seconds: <5 = 0, 5 - 8 = 1, 9 - 10 = 2

A.1 TOTAL GAIT/BALANCE SCORE (ITEM 1 + ITEM 2 + ITEM 3)

A.2 TOTAL BALANCE SCORE (ITEM 4 + ITEM 5 + ITEM 6)

SCORE 0 - 6

SCORE 0 - 6

B. RHYTHMIC MOVEMENT

*Raw Score = total number of steps in rhythm (step on the beat)

	RAW	CONVERTED	
1. March to the Beat—Slow	<input type="text"/>	<input type="text"/>	Beats correct: 0-8=0, 9-16 = 1, 17-20 = 2
2. March to the Beat—Fast	<input type="text"/>	<input type="text"/>	Beats correct: 0-16 = 0, 17-28= 1, 29-32 = 2

B.1 TOTAL RHYTHMIC MOVEMENT SCORE

SCORE 0– 4

C. Visuospatial Memory

ACCURACY

RHYTHM/COORDINATION

		RAW	CONVERTED			RAW	CONVERTED									
1.	MapSense3 Trial 1	<input type="text" value="0-1=0, 2=1, 3=2"/>	<input type="text"/>	<input type="text"/>	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td></td><td>1</td></tr><tr><td>3</td><td>2</td><td></td></tr><tr><td></td><td></td><td></td></tr></table>			1	3	2					<input type="text"/>	<input type="text"/>
		1														
3	2															
2.	MapSense3 Trial 2	<input type="text" value="0-1=0, 2=1, 3=2"/>	<input type="text"/>	<input type="text" value="0-1=0, 2=1, 3=2"/>	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>1</td><td></td><td></td></tr><tr><td></td><td>2</td><td></td></tr><tr><td></td><td>3</td><td>4</td></tr></table>	1				2			3	4	<input type="text"/>	<input type="text"/>
1																
	2															
	3	4														
3.	MapSense3 Trial 3	<input type="text" value="0-1=0, 2=1, 3=2"/>	<input type="text"/>	<input type="text" value="0-1=0, 2=1, 3=2"/>	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>1</td><td></td><td></td></tr><tr><td></td><td>2</td><td></td></tr><tr><td></td><td>3</td><td>4</td></tr></table>	1				2			3	4	<input type="text"/>	<input type="text"/>
1																
	2															
	3	4														
4.	MapSense4 Trial 1	<input type="text" value="0-1=0, 2-3=1, 4=2"/>	<input type="text"/>	<input type="text" value="0-1=0, 2-3=1, 4=2"/>	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>1</td><td></td><td></td></tr><tr><td></td><td>2</td><td></td></tr><tr><td></td><td>3</td><td>4</td></tr></table>	1				2			3	4	<input type="text"/>	<input type="text"/>
1																
	2															
	3	4														
5.	MapSense4 Trial 2	<input type="text" value="0-1=0, 2-3=1, 4=2"/>	<input type="text"/>	<input type="text" value="0-1=0, 2-3=1, 4=2"/>	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>1</td><td></td><td></td></tr><tr><td></td><td>2</td><td></td></tr><tr><td></td><td>3</td><td>4</td></tr></table>	1				2			3	4	<input type="text"/>	<input type="text"/>
1																
	2															
	3	4														
6.	MapSense4 Trial 3	<input type="text" value="0-1=0, 2-3=1, 4=2"/>	<input type="text"/>	<input type="text" value="0-1=0, 2-3=1, 4=2"/>	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>1</td><td></td><td></td></tr><tr><td></td><td>2</td><td></td></tr><tr><td></td><td>3</td><td>4</td></tr></table>	1				2			3	4	<input type="text"/>	<input type="text"/>
1																
	2															
	3	4														
7.	MapSense5 Trial 1	<input type="text" value="0-2=0, 3-4=1, 5=2"/>	<input type="text"/>	<input type="text" value="0-2=0, 3-4=1, 5=2"/>	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td>1</td><td></td></tr><tr><td></td><td>2</td><td>3</td></tr><tr><td>5</td><td>4</td><td></td></tr></table>		1			2	3	5	4		<input type="text"/>	<input type="text"/>
	1															
	2	3														
5	4															
8.	MapSense5 Trial 2	<input type="text" value="0-2=0, 3-4=1, 5=2"/>	<input type="text"/>	<input type="text" value="0-2=0, 3-4=1, 5=2"/>	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td>1</td><td></td></tr><tr><td></td><td>2</td><td>3</td></tr><tr><td>5</td><td>4</td><td></td></tr></table>		1			2	3	5	4		<input type="text"/>	<input type="text"/>
	1															
	2	3														
5	4															
9.	MapSense5 Trial 3	<input type="text" value="0-2=0, 3-4=1, 5=2"/>	<input type="text"/>	<input type="text" value="0-2=0, 3-4=1, 5=2"/>	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td></td><td>1</td><td></td></tr><tr><td></td><td>2</td><td>3</td></tr><tr><td>5</td><td>4</td><td></td></tr></table>		1			2	3	5	4		<input type="text"/>	<input type="text"/>
	1															
	2	3														
5	4															

C.1 TOTAL VISUOSPATIAL MEMORY ACCURACY SCORE

C.2 TOTAL VISUOSPATIAL MEMORY RHYTHM/COORDINATION SCORE

SCORE 0 - 18

SCORE 0 - 12

D. BILATERAL COORDINATION

ACCURACY

RHYTHM

**each pass get up two rhythm points; one for each beat*

		RAW	CONVERTED	RAW	CONVERTED	
1.	Bi-manual Ball Pass—Slow	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="Passes correct: 0 - 4 = 0, 5- 6 = 1, 7- 8 = 2"/>
2.	Bi-manual Ball Pass—Fast	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="Rhythm: 0 - 8 = 0, 9- 12 = 1, 13- 16 = 2"/>

D.1 TOTAL BILATERAL COORDINATION

D.2 TOTAL BILATERAL COORDINATION

ACCURACY SCORE 0- 4

RHYTHM SCORE 0- 4

E. AUDITORY UPPER BODY ACCURACY, RHYTHM AND RESPONSE INHIBITION

*0: moves during both beats, 1: moves only on first, 2: still

Green Lights correct:
0 - 5= 0, 6- 8= 1, 9- 10= 2

Red Lights correct: 0 - 6 = 0, 7-10= 1, 11-12= 2

Green Lights Rhythm:
0 - 10 = 0, 11-16= 1, 17- 20= 2

	<u>GREEN LIGHTS CORRECT</u>		<u>RED LIGHTS CORRECT</u>		<u>GREEN RHYTHM CORRECT</u>	
	RAW	CONVERTED	RAW	CONVERTED	RAW	CONVERTED
Bi-manual Ball Pass Red/Green Light						
1. Auditory—Slow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Auditory —Fast	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Green/Yellow Lights correct:
0 - 6= 0, 7- 10= 1, 11- 12= 2

Red Lights correct: 0 - 4 = 0, 5-6= 1, 7-8= 2

Green/Yellow Lights Rhythm:
0 - 12 = 0, 13-20= 1, 21-24= 2

	<u>GREEN/YELLOW LIGHTS CORRECT</u>		<u>RED LIGHTS CORRECT</u>		<u>G/Y RHYTHM CORRECT</u>	
	RAW	CONVERTED	RAW	CONVERTED	RAW	CONVERTED
Ball Pass Red/Green/Yellow Light						
3. Auditory—Slow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Auditory —Fast	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

E.1 TOTAL AUDITORY ACCURACY

SCORE 0 - 8

E.2 TOTAL AUDITORY RESPONSE INHIBITION

SCORE 0 - 8

E.3 TOTAL AUDITORY RHYTHM

SCORE 0 - 8

E.4 TOTAL G/Y LIGHT ACCURACY

SCORE 0 - 4

E.5 TOTAL RED LIGHT ACCURACY

SCORE 0 - 4

F. VISUAL UPPER BODY ACCURACY, RHYTHM AND RESPONSE INHIBITION

** No beats (rhythm)

0: movement during the whole video

1: self-correct (move and then keep still)

2: no movement — still

Green/Yellow Lights correct:
0 - 6= 0, 7- 10= 1, 11- 12= 2

Red Lights correct:
0 - 4 = 0, 5-6= 1, 7-8= 2

	<u>GREEN/YELLOW LIGHTS CORRECT</u>		<u>RED LIGHTS CORRECT</u>	
	RAW	CONVERTED	RAW	CONVERTED
Bag Pass Red/Green/Yellow Light				
1. Visual—Slow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Visual —Fast	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

F.1 TOTAL VISUAL ACCURACY

SCORE 0 - 4

F.2 TOTAL VISUAL RESPONSE INHIBITION

SCORE 0 - 4

G. BI-LATERAL COORDINATION AND SELF-REGULATION

*Accuracy Raw Score = total number of body parts touched at least once

*Rhythm/Coordination Raw Score = total number of times correctly touching body part with the opposite hand all three times, accurately keeping the beat for all three touches. Starting late and rushing to catch the beat is not correct

	Accuracy		Rhythm/Coordination			
	RAW SCORE	CONVERTED	RAW SCORE	CONVERTED		
1. Trial 1—Ears, Shoulders, Hips and Knees <i>*If Converted Accuracy score = 0, go to H.</i>	0-1=0, 2-3=1, 4=2	<input type="checkbox"/>	<input type="checkbox"/>	0-6=0, 7-10=1, 11-12=2	<input type="checkbox"/>	<input type="checkbox"/>
2. Trial 2—Opposite Ears and Knees <i>*If Converted Accuracy score = 0, go to H.</i>	0-4=0, 5-7=1, 8=2	<input type="checkbox"/>	<input type="checkbox"/>	0-12=0, 13-20=1, 21-24=2	<input type="checkbox"/>	<input type="checkbox"/>
3. Trial 3—Opposite Hips and Shoulders <i>*If Converted Accuracy score = 0, go to H.</i>	0-4=0, 5-7=1, 8=2	<input type="checkbox"/>	<input type="checkbox"/>	0-12=0, 13-20=1, 21-24=2	<input type="checkbox"/>	<input type="checkbox"/>
4. Trial 4—Opposite Ears, Knees, Hips and Shoulders	0-6=0, 7-10=1, 11-12=2	<input type="checkbox"/>	<input type="checkbox"/>	0-18=0, 19-32=1, 33-36=2	<input type="checkbox"/>	<input type="checkbox"/>

G.1 TOTAL ACCURACY SCORE

SCORE 0 - 8

G.2 TOTAL RHYTHM/COORDINATION

SCORE 0 - 8

G.3 WORKING MEMORY ACCURACY

SCORE (#2—#4)

SCORE 0 - 6

H. Embodied Memory Recall

ACCURACY

RHYTHM/COORDINATION

		ACCURACY			RHYTHM/COORDINATION											
		RAW	CONVERTED		RAW	CONVERTED										
1. MapSense3 Recall	0-1=0, 2=1, 3=2	<input type="checkbox"/>	<input type="checkbox"/>	<table border="1"><tr><td></td><td></td><td>1</td></tr><tr><td>3</td><td>2</td><td></td></tr><tr><td></td><td></td><td></td></tr></table>			1	3	2					0-1=0, 2=1, 3=2	<input type="checkbox"/>	<input type="checkbox"/>
		1														
3	2															
2. MapSense4 Recall	0-1=0, 2-3=1, 4=2	<input type="checkbox"/>	<input type="checkbox"/>	<table border="1"><tr><td>1</td><td></td><td></td></tr><tr><td></td><td>2</td><td></td></tr><tr><td></td><td>3</td><td>4</td></tr></table>	1				2			3	4	0-1=0, 2-3=1, 4=2	<input type="checkbox"/>	<input type="checkbox"/>
1																
	2															
	3	4														
3. MapSense5 Recall	0-2=0, 3-4=1, 5=2	<input type="checkbox"/>	<input type="checkbox"/>	<table border="1"><tr><td></td><td>1</td><td></td></tr><tr><td></td><td>2</td><td>3</td></tr><tr><td>5</td><td>4</td><td></td></tr></table>		1			2	3	5	4		0-2=0, 3-4=1, 5=2	<input type="checkbox"/>	<input type="checkbox"/>
	1															
	2	3														
5	4															

H.1 TOTAL VISUOSPATIAL MEMORY RECALL ACCURACY SCORE

SCORE 0 - 6

H.2 TOTAL VISUOSPATIAL MEMORY RECALL

RHYTHM/COORDINATION SCORE

SCORE 0 - 6

I. RAPID/SEQUENTIAL MOVEMENTS SCORING CRITERIA

****Fluidity Score ALL TASKS**— Smoothness and accuracy of motion (freezes up or other movements intrude).

1. FOOT TAP -Rapidity Raw score = total number of correct foot taps in 10 seconds.
0-9 =0; 10-19 = 1; >20 = 2

Stops and doesn't restart or switches to another movement and doesn't change back to the correct movement = 0.

2. FOOT STOMP - Rapidity Raw score = total number of correct foot stomp movements in 10 seconds.
0-9 =0; 10-19 = 1; >20 = 2

Stops but restarts, has intrusive movements but returns to correct movements or has mirror movements = 1.

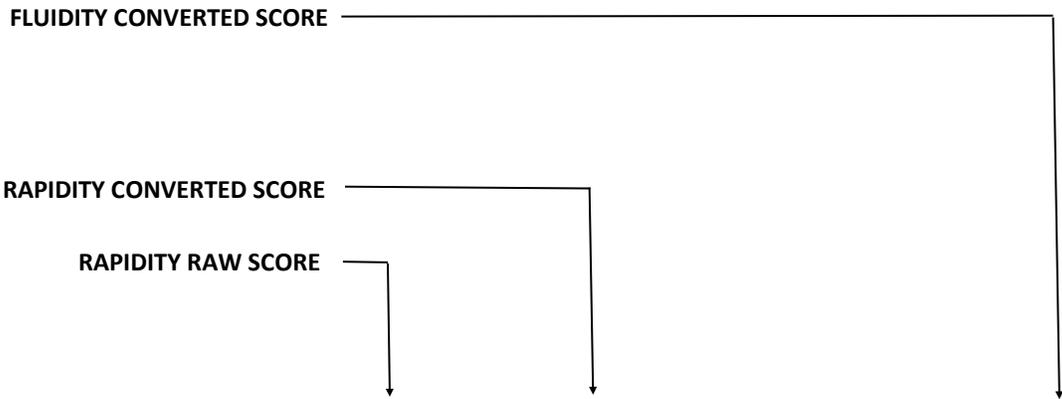
3. FIST OPEN CLOSE -Rapidity Raw score = total number of correct fist opening times in 10 seconds.
0-9 =0; 10-19 = 1; >20 = 2

Continuous correct movement = 2.

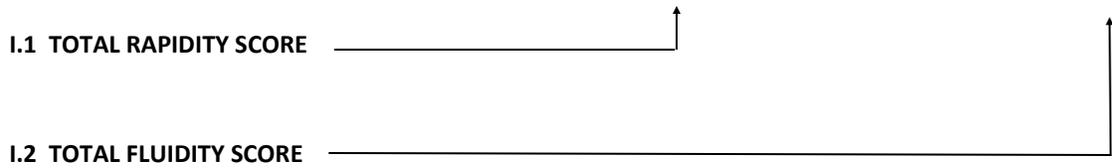
4. HAND PRONATE/SUPINATE -Rapidity Raw score = total number of correct Pronate/Supinate movements in 10 seconds. 0-5 =0; 6-9 = 1; >10 = 2

5. FINGER TAP -Rapidity Raw score = total number of correct Finger taps in 10 seconds.
0-15 =0; 16-29 = 1; >30 = 2

H. RAPID/SEQUENTIAL MOVEMENTS



FOOT TAP—RIGHT FOOT (10 SEC)				
FOOT TAP—LEFT FOOT (10 SEC)				
FOOT STOMP—RIGHT FOOT (10 SEC)				
FOOT STOMP—LEFT FOOT (10 SEC)				
FIST OPEN CLOSE —RIGHT HAND (10 SEC)				
FIST OPEN CLOSE —LEFT HAND (10 SEC)				
HAND PRONATE/SUPINATE—RIGHT HAND (10 SEC)				
HAND PRONATE/SUPINATE—LEFT HAND (10 SEC)				
FINGER TAP—RIGHT HAND (10 SEC)				
FINGER TAP—LEFT HAND (10 SEC)				
TOTAL SCORE				



SUMMARY OF SCORES

BALANCE

Gait/Balance Total (A.1)		Balance Total (A.2)			Balance Total
<input style="width: 40px; height: 30px;" type="text"/>	+	<input style="width: 40px; height: 30px;" type="text"/>	=	=	<input style="width: 40px; height: 30px;" type="text"/>
0-1 = 0; 2-3 = 1; 4-5 = 2; 6-8 = 3; 9-10 = 4; 11-12 = 5					BALANCE CONVERTED SCORE
					<input style="width: 40px; height: 30px;" type="text"/>

WORKING MEMORY

Yellow Light Accuracy Total (E.1+F.1)		Cross Body Opposites (G.3)			MapSense (C.1)		Working Memory Total
<input style="width: 40px; height: 30px;" type="text"/>	+	<input style="width: 40px; height: 30px;" type="text"/>	+	=	<input style="width: 40px; height: 30px;" type="text"/>	=	<input style="width: 40px; height: 30px;" type="text"/>
0-6 = 0; 7-13 = 1; 14-21 = 2; 22-27 = 3; 28-32 = 4; 33-36 = 5					WORKING MEMORY CONVERTED SCORE		<input style="width: 40px; height: 30px;" type="text"/>

RESPONSE INHIBITION

Bag Pass Response Inhibition Total (E.2+F.2)		Cross Body Rhythm Total (G.2)			Response Inhibition Total
<input style="width: 40px; height: 30px;" type="text"/>	+	<input style="width: 40px; height: 30px;" type="text"/>	=	=	<input style="width: 40px; height: 30px;" type="text"/>
0-3 = 0; 4-6 = 1; 7-10 = 2; 11-14 = 3; 15-17 = 4; 18-20 = 5					RESPONSE INHIBITION CONVERTED SCORE
					<input style="width: 40px; height: 30px;" type="text"/>

SELF-REGULATION

Cross Body Accuracy (G.1)		Cross Body Rhythm Total (G.2)			Self-Regulation Total
<input style="width: 40px; height: 30px;" type="text"/>	+	<input style="width: 40px; height: 30px;" type="text"/>	=	=	<input style="width: 40px; height: 30px;" type="text"/>
0-1 = 0; 2-3 = 1; 4-8 = 2; 9-12 = 3; 13-14 = 4; 15-16 = 5					SELF-REGULATION CONVERTED SCORE
					<input style="width: 40px; height: 30px;" type="text"/>

Rhythm/Coordination

Upper Body Rhythm Total (D.2+E.3)		Whole Body Rhythm Total (G.2)			MapSense (C.2)			MapSense Recall Rhythm/Coordination (H.2)		Rhythm/ Coordination Total
<input style="width: 40px; height: 30px;" type="text"/>	+	<input style="width: 40px; height: 30px;" type="text"/>	+	=	<input style="width: 40px; height: 30px;" type="text"/>	+	=	<input style="width: 40px; height: 30px;" type="text"/>	=	<input style="width: 40px; height: 30px;" type="text"/>
0-5 = 0; 6-12 = 1; 13-18 = 2; 19-25 = 3; 26-32 = 4; 33-38 = 5										RHYTHM/COORDINATION CONVERTED SCORE
										<input style="width: 40px; height: 30px;" type="text"/>

ATTENTION

Bag Pass Accuracy
Total (D.1+E.1+F.1)



Cross Body Accuracy Total
(G.1)



MapSense
(C.1)



Attention Total

0-5 = 0; 6-13 = 1; 14-20 = 2; 21-30 = 3; 31-37 = 4; 38-42 = 5

ATTENTION CONVERTED SCORE

MOTOR SPEED

Rapidity Total (I.1)



Fluidity Total (I.2)



Motor Speed Total

0-5 = 0; 6-13 = 1; 14-20 = 2; 21-30 = 3; 31-36 = 4; 37-40 = 5

MOTOR SPEED CONVERTED SCORE

EMBODIED MEMORY RECALL

Visual Memory Recall Accuracy (H.1)



Visual Memory Recall Total

0= 0; 1= 1; 2 = 2; 3-4 = 3; 5 = 4; 6 = 5

VISUAL MEMORY CONVERTED SCORE

AMC TOTAL SCORE

BALANCE CONVERTED SCORE



WORKING MEMORY CONVERTED SCORE



RESPONSE INHIBITION CONVERTED SCORE



SELF-REGULATION CONVERTED SCORE



RHYTHM/COORDINATION CONVERTED SCORE



ATTENTION CONVERTED SCORE



EMBODIED MEMORY RECALL CONVERTED SCORE



MOTOR SPEED CONVERTED SCORE



AMC TOTAL SCORE

Performance Categories

Very Severely Impaired	0—15	<input type="checkbox"/>
Severely Impaired	16—18	<input type="checkbox"/>
Moderately Severely Impaired	19—22	<input type="checkbox"/>
Moderately Impaired	23—27	<input type="checkbox"/>
Mildly Impaired	28—32	<input type="checkbox"/>
Minor Difficulties	33—36	<input type="checkbox"/>
No Difficulties	37—40	<input type="checkbox"/>

SUPPLEMENTARY SCORES

Discrepancy - Right / Left

Right	Left
A.5	A.6
H.1	H.2
H.3	H.4
H.5	H.6
H.7	H.8
H.9	H.10
Total =	Total =

$$\square - \square = \square$$

Discrepancy - Auditory / Visual

Auditory	Visual
E.4	F.1
E.5	F.2
Total =	Total =

$$\square - \square = \square$$

Discrepancy

Timed Up & Go / Dual Attention

$$\square - \square = \square$$

Discrepancy - Accuracy / Response Inhibition

Accuracy	Response Inhibition
E.1	E.2
F.1	F.2
Total =	Total =

$$\square - \square = \square$$

Participant Experience Questionnaire
ACTIVATE TEST OF EMBODIED COGNITION

ID Number _____

Date _____

Please rate the following statements about the ATEC assessment experience using a scale of 1 to 5, where **1 indicates that you STRONGLY DISAGREE** and **5 indicates you STRONGLY AGREE**.

	Strongly Disagree			Strongly Agree	
1. I found that some of the tasks were challenging.	1	2	3	4	5
2. I was often bored during the assessment.	1	2	3	4	5
3. I liked the video host, and thought the demonstrations were helpful.	1	2	3	4	5
4. I liked doing some tasks I had never done before.	1	2	3	4	5
5. I always felt safe doing the tasks.	1	2	3	4	5
6. I thought the assessment was relevant to my medical and physical health.	1	2	3	4	5
7. I would not hesitate to take this assessment again.	1	2	3	4	5
8. Instructions were confusing, and I usually didn't understand what I was supposed to do.	1	2	3	4	5
9. Overall, I felt comfortable with the assessment process.	1	2	3	4	5
10. Overall, I enjoyed doing the tasks.	1	2	3	4	5

