INTERACTIVE METRONOME® ONDEMAND CERTIFICATION & COACHING

MODULE 3

IM ASSESSMENTS & INTERPRETATION OF DATA

MODULE 3
IM ASSESSMENTS & INTERPRETATION OF DATA

95 MINUTES

LEARNING OBJECTIVES:

- IM Assessments & Interpretation of Data
- Short Form Test
- Long Form Assessment
- Attend Over Time

LOG YOUR ACTIVITY TIME HERE!
In each Module evaluation, you will be asked to log the amount of time it takes you to complete each course activity. This information will be used to ensure that the course CEUs have been calculated accurately. Please use this space provided to log your start time.

VIDEO START TIME

_____ AM/PM

ESTIMATED TOTAL TIME FOR THIS ACTIVITY IS 57 MINUTES

START

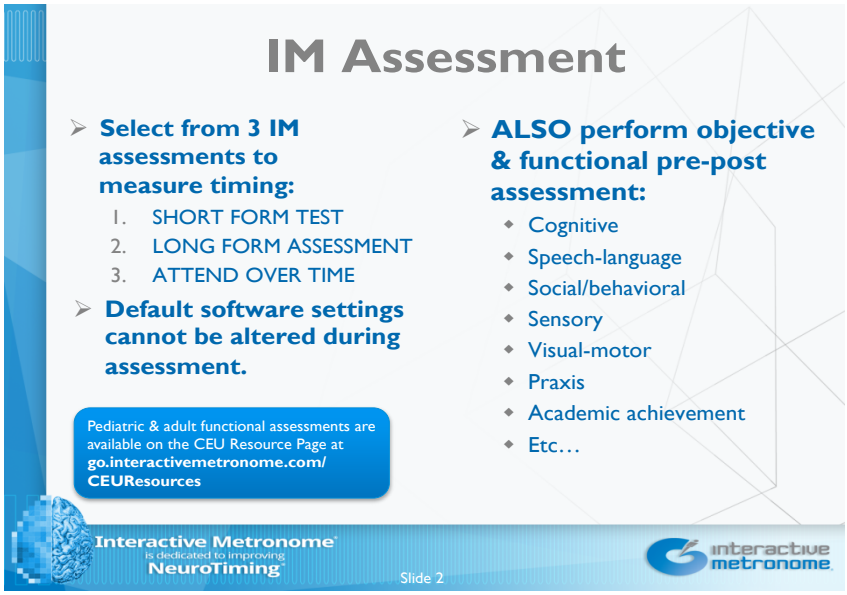
GATHER NEEDED EQUIPMENT & MATERIALS

You will need the following to complete Module 3:

- Computer with good internet connection
- IM equipment (set up, connected to computer and ready to use)
- IM software (open software on your computer)
- IM training file (open the file you created for yourself in the previous module) then minimize the IM software so you can begin the next module.
- Pencil to take notes

WATCH THE VIDEO
57 minutes

Access the Module video here:
https://www.interactivemetronome.com/im-ondemand-certification-coaching-materials/module-3



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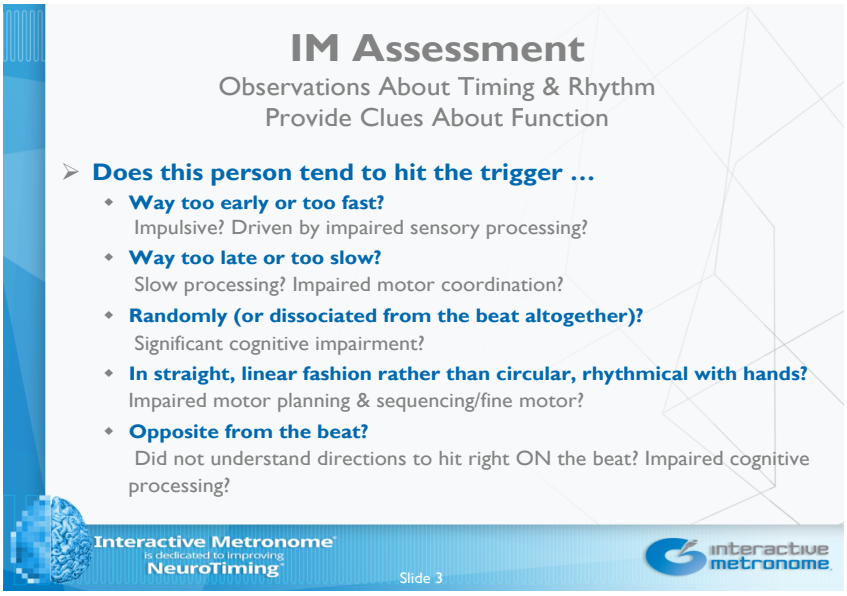

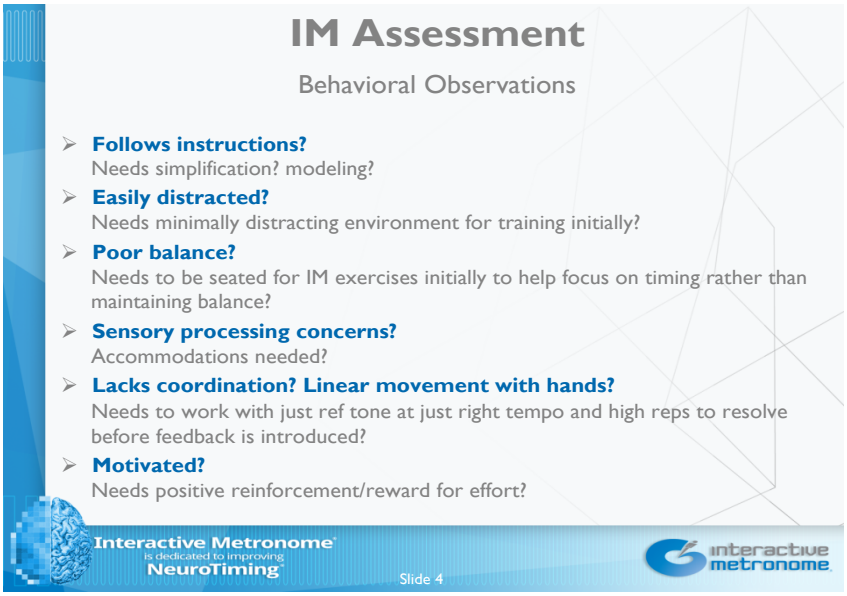

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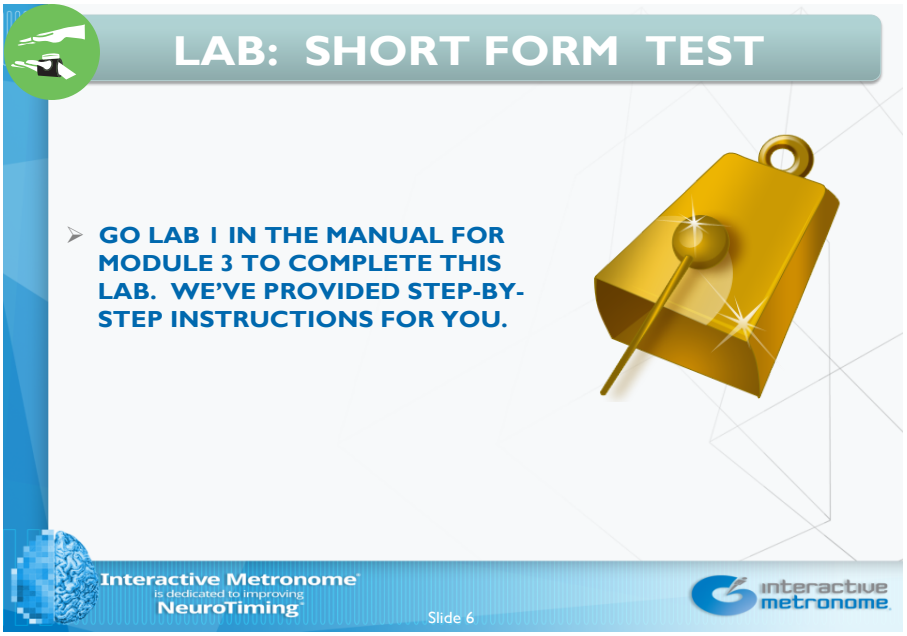
MODULE 3



COMPLETE THE LABS
9 minutes

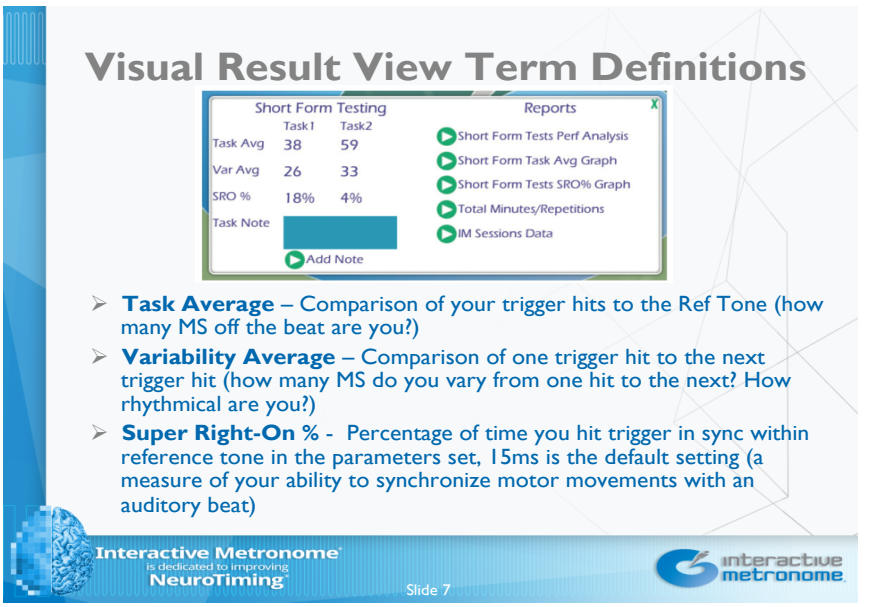
LAB 1: PERFORM THE SHORT FORM TEST (SFT)

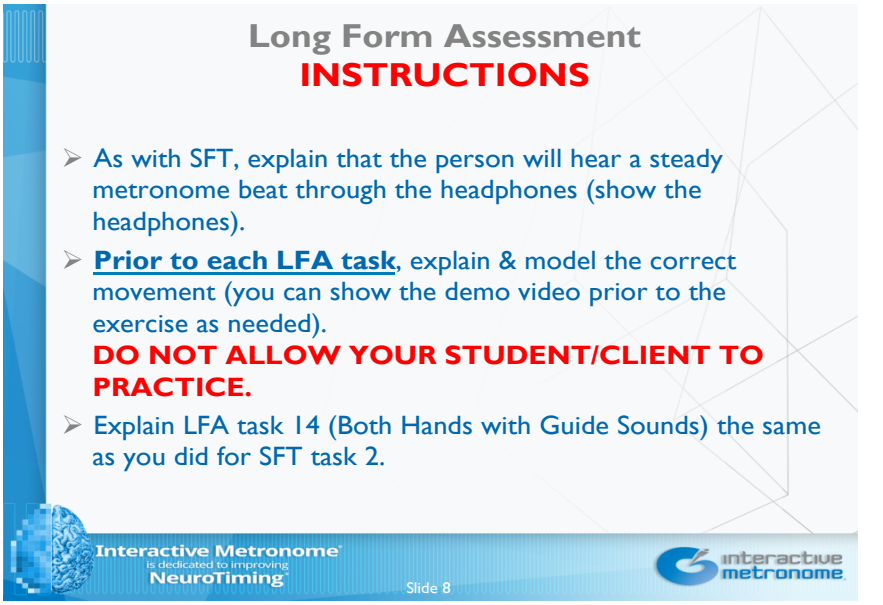
1. Your IM equipment should be set up and ready to use for this lab.
2. Your IM software should have already been installed in the previous lab and should be open on your computer.
3. If you've not done so already, open the IM training file you created during the previous module.
4. When your IM training file is first opened, it should default to Short Form Test. You may also select it by going to the Training box on the top right side of the screen. Click on the arrow for Task Mode to select Short Form Test.
5. Put the headphones on, making sure they are on the correct ear (look for the small L and R on the headphones).
6. Put the glove and button trigger on your dominant hand.
7. Press GO. DO NOT LOOK AT THE COMPUTER SCREEN. Begin clapping in sync with the reference tone for Short Form Test Task 1. You will NOT hear guide sounds during this task.
8. When finished with Short Form Test Task 1, the software automatically advances you to Short Form Test Task 2. Keep your headphones and button trigger on. Press GO. DO NOT LOOK AT THE COMPUTER SCREEN. Begin clapping in sync with the reference tone. This time, you will also hear guide sounds.
    a. Guide sounds heard in the LEFT ear mean you are hitting ahead of the reference tone (or early). Buzzer is very far ahead & rubberband twang means you are closer to the beat, but still ahead of it instead of on it.
    b. Guide sounds heard in the RIGHT ear mean you are hitting after the reference tone (or late). Buzzer is very far after & rubberband twang means you are closer to the beat, but still after of it instead of on it.
    c. High pitch rewarding guide sound heard in both ears simultaneously

means you are hitting in sync with the beat. Your goal is to hear this guide sound and stay in sync as much as possible. When you get off the beat, your goal is to get back on it to where you are hearing this sound again.

9. Once you have completed both Task 1 and Task 2 of the Short Form Test, remove the headphones, glove and button trigger. Resume watching the online video. We will review your Short Form Test results in a few minutes.

RESUME VIDEO





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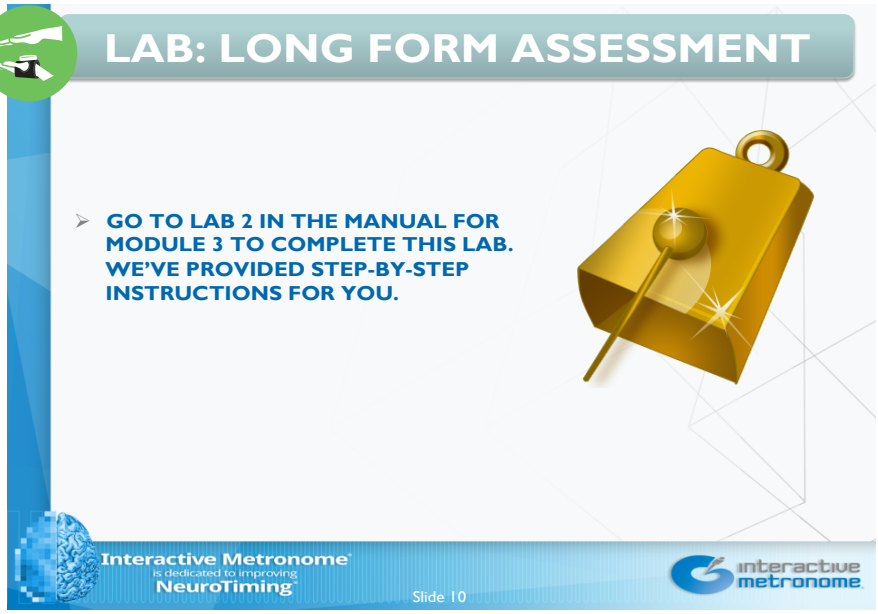
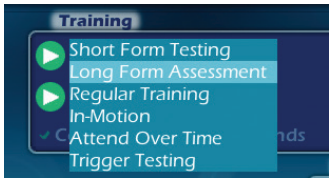
MODULE 3

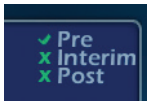


LAB 2: PERFORM THE LONG FORM ASSESSMENT (LFA)

1. With your IM training file open, go to the Training box in the upper, right corner of the screen. Go to the Task Mode Selector and click on the arrow to choose Long Form Assessment.



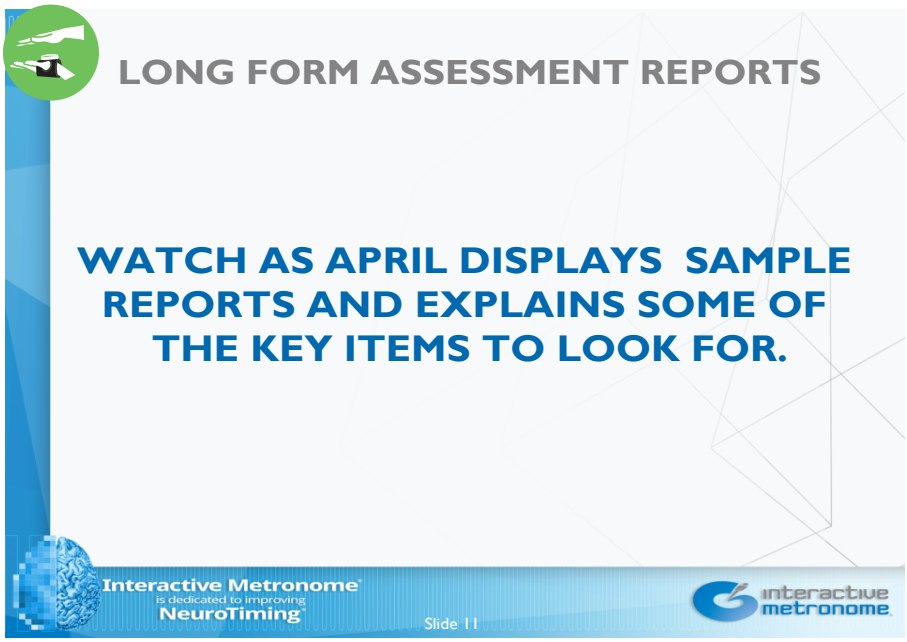
2. Three X's will appear to the right of the Task Mode Selector when Long Form Assessment is chosen to indicate pre, interim, and post Long Form Assessment. Select "Pre" by clicking the X to display a checkmark.
NOTE: *The Long Form Assessment will not respond until one of these options has been selected each time.*



3. Task 1 - Both Hands should be showing in the Exercise Selector (top right box on screen). Put the headphones on, making sure they are on the correct ear. Put the glove and button trigger on your dominant hand for the first task. Press GO. DO NOT LOOK AT THE COMPUTER SCREEN. Begin clapping in a rhythmical, circular motion in sync with the reference tone. You will not hear guide sounds on Tasks 1-13, but only on Task 14.

4. Once each Long Form Assessment task is completed, the software will automatically advance you to the next task. Simply look at the Exercise Selector (top, right box on the screen) to see which task is next, make sure you have the trigger on the correct hand and are using the correct trigger for the task (button trigger for hand and tap matt for lower extremities). If you need help remembering what to do for each exercise, you can click on EXERCISES at the top of the screen for a refresher. To start each task, press GO. MAKE SURE YOU ARE NOT LOOKING AT THE COMPUTER SCREEN.
5. Upon completion of the entire LFA (all 14 tasks), take off your headphones, glove and button trigger and resume watching the video. We will go over your scores in just a few minutes.

RESUME VIDEO



NOTES

LOG YOUR ACTIVITY TIME HERE!

VIDEO END TIME _____ AM/PM

TOTAL ACTIVITY TIME (IN MINUTES) _____ MIN.

ESTIMATED TOTAL TIME FOR THIS ACTIVITY IS 57 MINUTES

LOG YOUR ACTIVITY TIME HERE!

READING START TIME

_____ AM/PM

ESTIMATED TOTAL TIME FOR THIS ACTIVITY IS 9 MINUTES.

NOTES

LAB: LFA & AOT REPORT
Compare YOUR Scores to Indicator Table

- **SELECT**
  - Reports
  - Long Form Assessment
  - LFA Calculations
- **Compare LFA Tasks 1 & 14**
  - Did you find guide sounds helpful?
  - Did you perform worse with guide sounds?
- **Did you appear to be getting better at timing over the course of the LFA?**

NOTE:
AOT score is reported at the bottom of the LFA Calculations Report
We cannot view YOUR AOT reports today. ***Why?*** *(because you didn't complete it!)*

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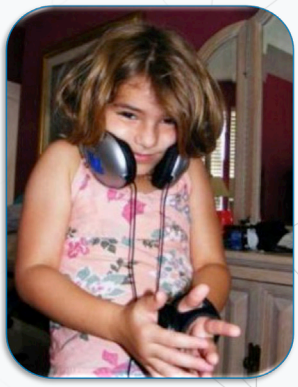
Slide 12
interactive metronome

Assessment Modifications

- **Skip IM assessment (i.e., infant, toddler, low functioning) & go directly to total hands-on IM**
- **Seated**
- **Assist for balance**
- **Skip tasks**
- **Rest breaks**
- **Complete over more than one session**
- **Speakers**
- **Placement/type of headphones**
- **Alternative triggers/switches**
- **Decrease volume**
- **Visual mode (i.e., hearing loss)**



RECORD modifications **FOR LATER COMPARISON**

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Review of Settings and Definitions

- ***REF:*** Reference Tone (Cowbell)
- ***GUIDE:*** Buzzer sound when you're way too early or way too late
- ***RO:*** Rubber Band Twang that tells you when you're within the set difficulty range of training
- ***SRO:*** Reward tone that tells you if you are within the set SRO range.
- ***IAR:*** Highest number of consecutive SRO hits during a task
- ***Burst:*** A setting to help motivate your clients to get SRO hits! Several bursts can be earned during each task. The more bursts achieved, the more neural synchronization is taking place!
- ***Difficulty:*** The setting that determines when your client hears the "Guide" sound
- ***Tempo:*** Beats per minute or speed of the metronome (default is 54 bpm)

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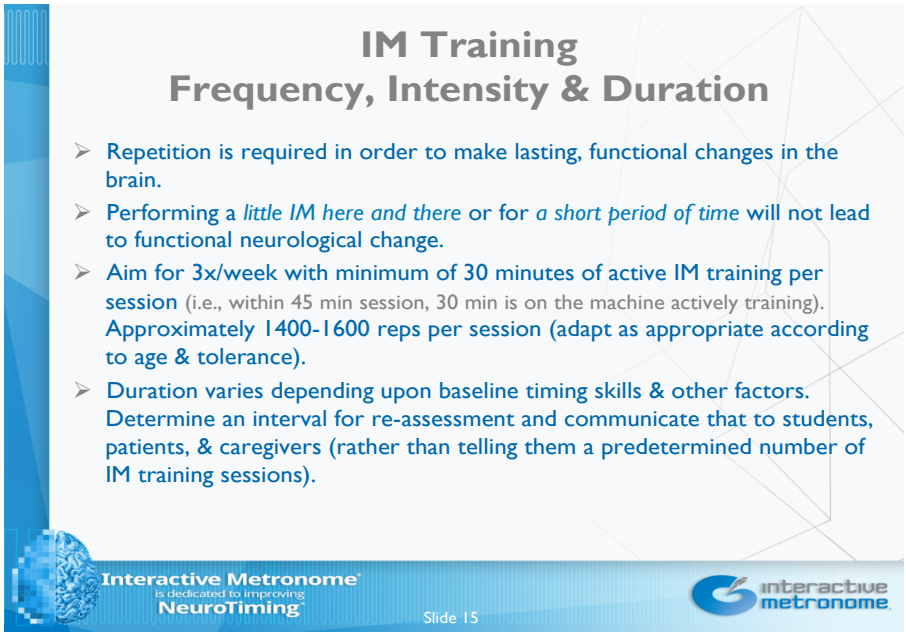


COMPLETE THE ADDITIONAL READING
9 minutes

SCREEN HEARING BEFORE IM ASSESSMENT

Elderly clients, some children, and those individuals who have suffered head trauma have increased likelihood of hearing loss that will impact daily function, cognition, communication, and performance during IM assessment and training. You are strongly encouraged to screen your client's hearing prior to IM assessment. Referral for ENT evaluation and more complete audiological assessment should be made in cases where a pure tone hearing screening is failed.

INTERPRETING SHORT FORM TEST RESULTS

The SF is a very brief screening that can be used in lieu of the Long Form Assessment. It provides you with important information about your client's timing and rhythm in the event that the more complete Long Form Assessment cannot be completed, or when the SF is used as a brief screening or a quick reassessment at the beginning or end of IM training sessions.

Upon completion of the Short Form Test, note the Task (MS) Averages for SF Task 1 and SF Task 2, and compare them to the Indicator Table based upon your client's age.

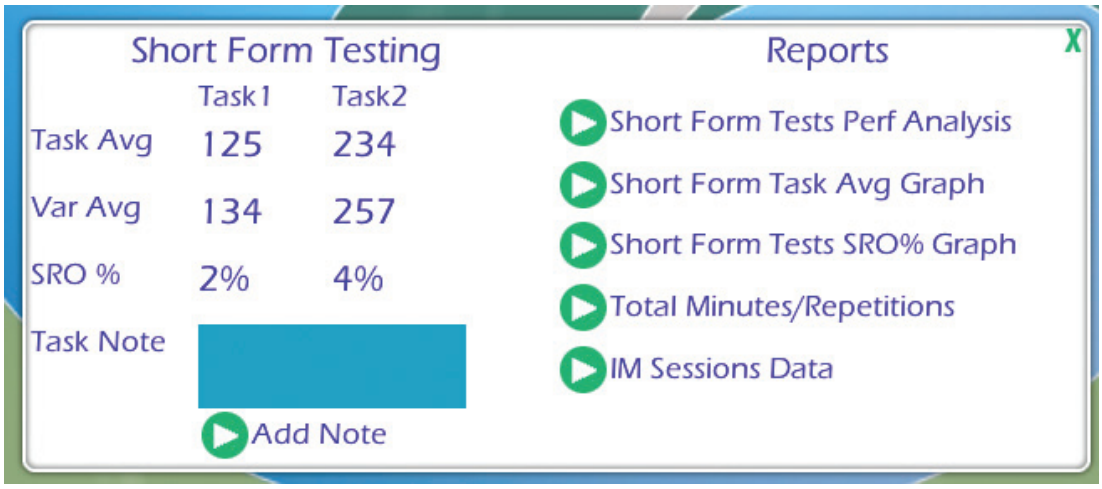
INDICATOR TABLE

Age	6	7 to 8	9 to 10	11 to 12	13 to 15	16+
Extreme Deficiency	280+	270+	260+	240+	215+	200+
Severe Deficiency	175–279	170–269	160–259	155–239	150–214	147–199
Below Average	120–174	90–169	80–159	75–154	72 –149	70–146
Average	90–119	65–89	55–79	45–74	43–71	41–69
Above Average	56–89	45–64	38–54	36–44	33–42	30–40
Exceptional	40–55	32–44	28–37	26–35	23–32	22–29
Superior	Below 40	Below 32	Below 28	Below 26	Below 23	Below 22

NOTES

NOTES

Observe whether your client appeared to perform better or worse on SF Task 2 when the guide sounds were turned on compared to SF Task 1 with just the Reference Tone. If your client performed significantly worse on SF Task 2, this may indicate that your client was somewhat distracted by the guide sounds, had difficulty with auditory/cognitive processing, and/or had difficulty coordinating fine motor movements (impaired motor planning and sequencing).



Upon completion of the SF, you should be able to answer the following questions in order to determine the best course for IM training.

- What is my client's timing tendency? Too fast (hits way ahead of the beat consistently) or too slow (hits after the beat consistently)?
- Does my client *try to synchronize* with the beat when he hears the reference tone? Or is my client hitting opposite of the beat or randomly?
- Does my client do better when the guide sounds are turned on (SF Task 2 is better than SF Task 1), indicating he benefits from the feedback and will do well with the guide sounds turned on early in training?
- Does my client do much worse when the guide sounds are turned on (SF Task 1 is much better than SF Task 2) that may indicate he will do better if guide sounds are introduced more gradually?
    - Did I observe difficulty with motor coordination that may be impacting performance?
    - Does my client appear bothered or distracted by the guide sounds? (demeanor changes, hesitations in performance, stops/starts, etc)
- Does my client appear to have difficulty with motor skills (linear rather than circular clapping, stiff movements, awkward, and/or extraneous movements) as he claps to the beat that may indicate he will benefit from adjustments in IM settings to facilitate better coordination?
- Does my client have weakness on one side of the body that impacts timing and coordination (i.e., hemiplegia)? If so, he will benefit from training with the good extremity first.
- Does my client display any signs of discomfort due to Sensory Processing Disorder? Is the volume comfortable? Does my client tolerate wearing the headphones/glove and trigger?
- Is my client motivated to participate in IM training? How will I reward my client for effort to elicit maximum effort and cooperation?

LIMITATIONS OF THE SHORT FORM TEST

The SF is only a 2 minute quick assessment of timing and rhythm with the hands. It is important to assess attention and processing over a longer period of time and to evaluate timing and rhythm in all of the extremities, therefore whenever possible the Long Form Assessment should be completed instead of the SF.

INTERPRETING LONG FORM ASSESSMENT RESULTS

NOTES

It is important to observe and make notations about the following during the LFA in order to obtain baseline timing data and plan IM training.

INDICATOR TABLE

Age	6	7 to 8	9 to 10	11 to 12	13 to 15	16+
Extreme Deficiency	280+	270+	260+	240+	215+	200+
Severe Deficiency	175–279	170–269	160–259	155–239	150–214	147–199
Below Average	120–174	90–169	80–159	75–154	72 –149	70–146
Average	90–119	65–89	55–79	45–74	43–71	41–69
Above Average	56–89	45–64	38–54	36–44	33–42	30–40
Exceptional	40–55	32–44	28–37	26–35	23–32	22–29
Superior	Below 40	Below 32	Below 28	Below 26	Below 23	Below 22

A. SCORES

1. Compare Task (MS) Averages (see Sample LFA Calculations Report below) for each LFA task to the IM Indicator Table based upon your client's age. The Indicator Table provides a ballpark estimate of where your client's timing should be. As you view the Indicator Table, notice how timing is a developmental skill and gets better with age. Once a person reaches age 16, timing ability tends to level out. So, for clients age 16 and older, you will compare LFA (MS) scores to the Indicator Table column for age 16+. Likewise, for clients that are 5 years of age and younger, you will expect their (MS) scores to be less proficient than a 6 year old. Currently, there is no available data on children younger than 6; however, knowing where a 6 year old should be in terms of timing does help you make an educated guess as to where a 5 year old should be.
2. On which task(s) did your client perform best with regard to timing? These tasks are the best place to begin with IM training.
3. On which task(s) did your client struggle the most with regard to timing? It may be best to introduce these tasks later in IM training once your client gains better attention, processing, motor coordination , and a sense of timing & synchronization.
4. Did your client perform MUCH worse on Task 14 (with guide sounds) compared to Task 1 (without guide sounds)? If your client performed significantly worse when the guide sounds were turned on, this may indicate that your client is struggling with attention, information processing and/or motor coordination. In this case, it would be best to begin IM training with just the reference tone and introduce guide sounds later in a more gradual manner and/or with modified IM settings to make them easier to process.

SAMPLE LFA CALCULATIONS REPORT

Long Form Assessment Calculations

IM Long Form Assessment Date: 6/24/2013
Trainee ID: D
IM Trainer Name: John Smith

Date of Birth: 04/07/2002
Preferred Hand: Left
Gender: Female

Task	MS	Early Hits	Late Hits
1. Both Hands	46	50	5
2. Right Hand	19	41	14
3. Left Hand	21	42	13
4. Both Toes	37	45	8
5. Right Toe	29	39	15
6. Left Toe	29	38	16
7. Both Heels	51	44	9
8. Right Heel	34	39	16
9. Left Heel	44	46	9
10. R Hand/L Toe	60	45	10
11. L Hand/R Toe	45	40	15
12. Bal. Right Foot	31	45	10
13. Bal. Left Foot	57	42	13
14. #1 -w Guide ends	26	45	10
Total Unadjusted	38	601 (78.66492%)	163 (21.33508%)

IM Long Form Assessment Battery Results:
Millisecond Accuracy
a) Hands ms avg. (includes Task 1, 2, 3, 14) = 28
b) Feet ms avg. (includes Task 4, 5, 6, 7, 8, 9, 12, 13) = 39
c) Both Hands ms avg. (includes Task 1, 14) = 36
d) Both Feet ms avg. (includes Task 4, 7) = 44
e) Left Side ms avg. (includes Task 3, 6, 9) = 31
f) Right Side ms avg. (includes Task 2, 5, 8) = 27
g) Bilateral ms avg. (includes Task 10, 11) = 52
h) Adjusted ms avg. ((a + b) / 2) = 34

Long Form Assessment Battery Achievements
Highest In-A-Row: 7, Task = 0
Total Number of IAR Bursts: 5
Percentage within 15 MS: 4%

Optional - Attend Over Time Test
Both Hands 500 reps: Not Taken

B. TIMING TENDENCY:

1. Look at the Early Hits column (see sample reports below for Predominantly Early Hits and Predominantly *Very* Early Hits). Were hits predominantly Early (a higher number compared to Late Hits)? The tendency to anticipate the beat and hit a little ahead of the beat is fairly common and not necessarily an indicator that a person is impulsive. Hits that are consistently WAY AHEAD of the beat (Very Early) may indicate trouble with impulse control. To see whether hits were predominantly Very Early, look at the more detailed Data List View. If your client is clapping way ahead of the beat consistently (Very Early), this may indicate impulsivity.

SAMPLE REPORT: PREDOMINANTLY EARLY HITS

Long Form Assessment Calculations

IM Long Form Assessment Date: 04/02/2013 Date of Birth: 10/14/1967
Trainee ID: A Preferred Hand: Right
IM Trainer Name: Joe Smith Gender: Female

Task	MS	Early Hits	Late Hits
1. Both Hands	64	52	2
2. Right Hand	94	31	
3. Left Hand	64	28	3
4. Both Toes	70	29	2
5. Right Toe	44	27	4
6. Left Toe	64	26	3
7. Both Heels	69	31	
8. Right Heel	72	31	
9. Left Heel	68	30	1
10. R Hand/L Toe	88	31	
11. L Hand/R Toe	82	29	2
12. Bal. Right Foot	88	30	
13. Bal. Left Foot	80	30	
14. #1 -w Guide ends	87	56	
Total Unadjusted	74	461 (96.44351%)	17 (3.556485%)

IM Long Form Assessment Battery Results:

Millisecond Accuracy

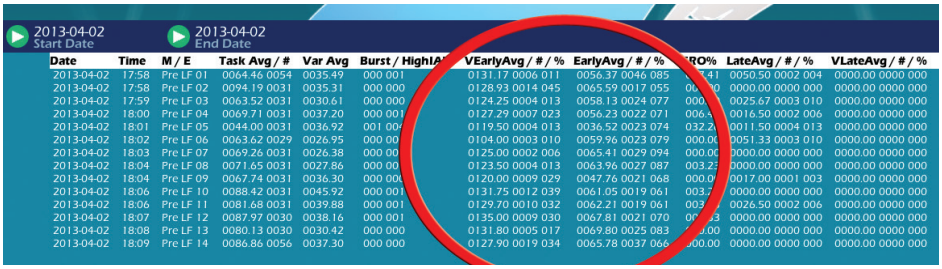
a) Hands ms avg. (includes Task 1, 2, 3, 14) = 77
b) Feet ms avg. (includes Task 4, 5, 6, 7, 8, 9, 12, 13) = 69
c) Both Hands ms avg. (includes Task 1, 14) = 76
d) Both Feet ms avg. (includes Task 4, 7) = 70
e) Left Side ms avg. (includes Task 3, 6, 9) = 65
f) Right Side ms avg. (includes Task 2, 5, 8) = 70
g) Bilateral ms avg. (includes Task 10, 11) = 85
h) Adjusted ms avg. ((a + b) / 2) = 73

Long Form Assessment Battery Achievements

Highest In-A-Row: 4, Task = 4
Total Number of IAR Bursts: 1
Percentage within 15 MS: 4%

Optional - Attend Over Time Test

Both Hands 500 reps: Not Taken



This LFA report above shows a client who is hitting predominantly Early. Upon closer examination of her timing in the more detailed Data List View screen (above image), you can see that the majority of her hits were within 100 ms of the reference tone and are considered Early. It is important to note her hits are not predominantly Very Early. Early or hyperanticipatory hits are typical for most individuals when they first try IM, and they are not an indication of impulsivity.
NOTE: *Data List View is an alternate report in the IM software that breaks performance down even further than the LFA Calculations Report. In just a few minutes, you will get a chance to look up your own LFA scores in Data List View & explore this valuable report.*

NOTES

MODULE 3

SAMPLE REPORT: PREDOMINANTLY *VERY* EARLY HITS

Long Form Assessment Calculations

IM Long Form Assessment Date: 04/02/2013
Trainee ID: J
IM Trainer Name: Jane Smith

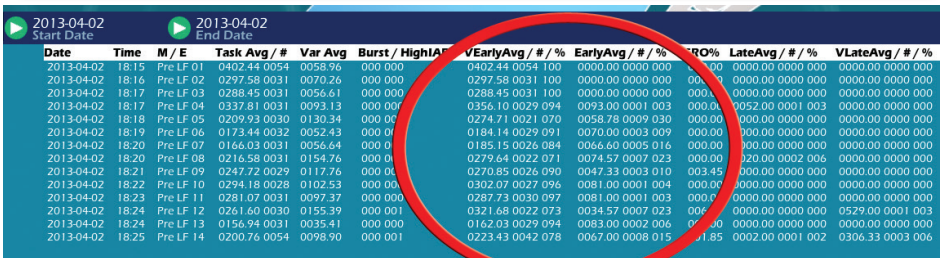
Date of Birth: 03/22/2002
Preferred Hand: Left
Gender: Male

Task	MS	Early Hits	Late Hits
1. Both Hands	402	54	
2. Right Hand	298	31	
3. Left Hand	288	31	
4. Both Toes	338	30	1
5. Right Toe	210	30	
6. Left Toe	173	32	
7. Both Heels	166	31	
8. Right Heel	217	29	2
9. Left Heel	248	29	
10. R Hand/L Toe	294	28	
11. L Hand/R Toe	281	31	
12. Bal. Right Foot	262	29	1
13. Bal. Left Foot	157	31	
14. #1 -w Guide ends	201	50	4
Total Unadjusted	252	466 (98.31223%)	8 (1.687764%)

IM Long Form Assessment Battery Results:
Millisecond Accuracy
a) Hands ms avg. (includes Task 1, 2, 3, 14) = 297
b) Feet ms avg. (includes Task 4, 5, 6, 7, 8, 9, 12, 13) = 221
c) Both Hands ms avg. (includes Task 1, 14) = 302
d) Both Feet ms avg. (includes Task 4, 7) = 252
e) Left Side ms avg. (includes Task 3, 6, 9) = 236
f) Right Side ms avg. (includes Task 2, 5, 8) = 242
g) Bilateral ms avg. (includes Task 10, 11) = 288
h) Adjusted ms avg. ((a + b) / 2) = 259

Long Form Assessment Battery Achievements
Highest In-A-Row: 1, Task = 14
Total Number of IAR Bursts: 0
Percentage within 15 MS: 4%

Optional - Attend Over Time Test
Both Hands 500 reps: Not Taken



The LFA report shown above is for a client who also has a tendency to hit predominantly Early. Upon closer examination of his timing data via Data List View (above image), you can see that unlike the previous client, many more of his hits are Very Early or greater than 200ms from the reference tone. This profile is more concerning, and may be an indication of impulsivity (when the individual does not have a condition like ataxia that would contribute to severe dyscoordination).

Viewing these results in light of other assessments you've performed may help you see a more complete picture and draw more accurate conclusions about how poor timing is impacting your client functionally.

2. Look at the Late Hits column (see sample report below for Predominantly Late Hits). Were hits predominantly Late (a higher number compared to Early Hits)? The tendency to fairly

consistently hit after the beat (even within 100ms of the beat) may be an indication of impaired auditory/information processing. Typically, as an individual attempts to hit on the beat, he will necessarily hit around the beat (some early, some late), and sometimes exactly on the beat. So it is normal to see some early and late hits. However, if the overwhelming majority of hits are Late and your client does not have a motor skill impediment like hemiplegia or ataxia that is interfering with performance, suspect a problem with processing.

SAMPLE REPORT: PREDOMINANTLY LATE HITS

Long Form Assessment Calculations

IM Long Form Assessment Date: 04/02/2013
Trainee ID: J
IM Trainer Name: April Rain

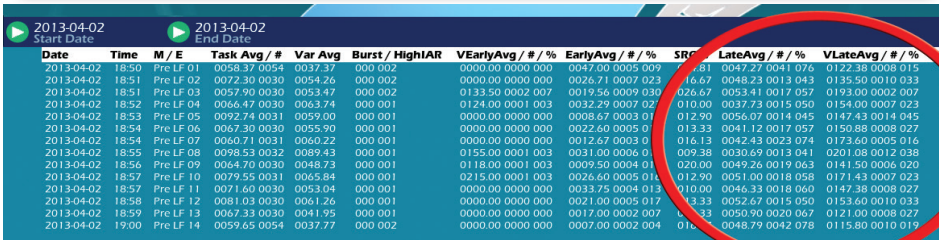
Date of Birth: 08/15/1970
Preferred Hand: Right
Gender: Male

Task	MS	Early Hits	Late Hits
1. Both Hands	58	5	49
2. Right Hand	72	7	23
3. Left Hand	58	11	19
4. Both Toes	66	8	22
5. Right Toe	93	3	28
6. Left Toe	67	5	25
7. Both Heels	61	3	28
8. Right Heel	99	7	25
9. Left Heel	65	5	25
10. R Hand/L Toe	80	6	25
11. L Hand/R Toe	72	4	26
12. Bal. Right Foot	81	5	25
13. Bal. Left Foot	67	2	28
14. #1 -w Guide ends	60	2	52
Total Unadjusted	71	73 (15.4334%)	400 (84.5666%)

IM Long Form Assessment Battery Results:
Millisecond Accuracy
a) Hands ms avg. (includes Task 1, 2, 3, 14) = 62
b) Feet ms avg. (includes Task 4, 5, 6, 7, 8, 9, 12, 13) = 75
c) Both Hands ms avg. (includes Task 1, 14) = 59
d) Both Feet ms avg. (includes Task 4, 7) = 64
e) Left Side ms avg. (includes Task 3, 6, 9) = 63
f) Right Side ms avg. (includes Task 2, 5, 8) = 88
g) Bilateral ms avg. (includes Task 10, 11) = 76
h) Adjusted ms avg. ((a + b) / 2) = 68

Long Form Assessment Battery Achievements
Highest In-A-Row: 2, Task = 14
Total Number of IAR Bursts: 0
Percentage within 15 MS: 4%

Optional - Attend Over Time Test
Both Hands 500 reps: Not Taken


2013-04-02 Start Date
2013-04-02 End Date

Date	Time	M / E	Task Avg / #	Var Avg	Burst / HighIAR	VEarlyAvg / # / %	EarlyAvg / # / %	SRC	LateAvg / # / %	VLateAvg / # / %
2013-04-02	18:50	Pre LF 01	0058.37 0054	0037.37	000 002	0000.00 0000 000	0047.00 0005 009	81	0047.27 0041 076	0122.38 0008 015
2013-04-02	18:51	Pre LF 02	0072.30 0030	0054.26	000 002	0000.00 0000 000	0026.71 0007 023	16.67	0048.23 0013 043	0135.50 0010 033
2013-04-02	18:51	Pre LF 03	0057.90 0030	0053.47	000 002	0133.50 0002 007	0019.56 0009 030	026.67	0053.41 0017 057	0193.00 0002 007
2013-04-02	18:52	Pre LF 04	0066.47 0030	0063.74	000 001	0124.00 0001 003	0032.29 0007 02	010.00	0037.73 0015 050	0154.00 0007 023
2013-04-02	18:53	Pre LF 05	0092.74 0031	0059.00	000 001	0000.00 0000 000	0008.67 0003 01	012.90	0056.07 0014 045	0147.43 0014 045
2013-04-02	18:54	Pre LF 06	0067.30 0030	0055.90	000 001	0000.00 0000 000	0022.60 0005 0	013.33	0041.12 0017 057	0150.88 0008 027
2013-04-02	18:54	Pre LF 07	0060.71 0031	0060.22	000 001	0000.00 0000 000	0012.67 0003 0	016.13	0042.43 0023 074	0173.60 0005 016
2013-04-02	18:55	Pre LF 08	0098.53 0032	0089.43	000 001	0155.00 0001 003	0031.00 0006 0	009.38	0030.69 0013 041	0201.08 0012 038
2013-04-02	18:56	Pre LF 09	0064.70 0030	0048.73	000 001	0118.00 0001 003	0009.50 0004 01	020.00	0049.26 0019 063	0141.50 0006 020
2013-04-02	18:57	Pre LF 10	0079.55 0031	0065.84	000 001	0215.00 0001 003	0026.60 0005 01	012.90	0051.00 0018 058	0171.43 0007 023
2013-04-02	18:57	Pre LF 11	0071.60 0030	0053.04	000 001	0000.00 0000 000	0033.75 0004 013	010.00	0046.33 0018 060	0147.38 0008 027
2013-04-02	18:58	Pre LF 12	0081.03 0030	0061.26	000 001	0000.00 0000 000	0021.00 0005 017	13.33	0052.67 0015 050	0153.60 0010 033
2013-04-02	18:59	Pre LF 13	0067.33 0030	0041.95	000 001	0000.00 0000 000	0017.00 0002 007	33	0050.90 0020 067	0121.00 0008 027
2013-04-02	19:00	Pre LF 14	0059.65 0054	0037.77	000 002	0000.00 0000 000	0007.00 0002 004	016	0048.79 0042 078	0115.80 0010 019

This LFA Calculations Report is for a client who demonstrates predominantly Late hits. If the majority of hits are late, this is atypical and a sign of delayed information processing (if motor function is intact). A more detailed look at this client's timing data via Data List View shows you whether this client's processing speed is slightly delayed (mostly Late hits within 100ms of the reference tone) or is significantly delayed (many more Very Late hits that are > 100ms from the reference tone).

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3. Did your client hit opposite of the beat consistently (see sample report below for Predominantly Opposite of the Beat) with scores in the high 400ms and 500ms range? This may indicate he did not understand your instructions to hit exactly on the beat and that he waited until he heard the beat to clap, or that his cognitive processing is impaired.

SAMPLE REPORT: PREDOMINANTLY OPPOSITE OF THE BEAT

Long Form Assessment Calculations

IM Long Form Assessment Date: 04/02/2013
Trainee ID: A
IM Trainer Name: Summer Weather

Date of Birth: 12/01/1950
Preferred Hand: Left
Gender: Female

Task	MS	Early Hits	Late Hits
1. Both Hands	497	40	10
2. Right Hand	528	18	10
3. Left Hand	532	18	6
4. Both Toes	514	31	
5. Right Toe	496	29	2
6. Left Toe	489	30	1
7. Both Heels	490	29	2
8. Right Heel	489	27	3
9. Left Heel	493	29	2
10. R Hand/L Toe	486	29	2
11. L Hand/R Toe	432	20	9
12. Bal. Right Foot	536	13	12
13. Bal. Left Foot	534	19	6
14. #1 -w Guide ends	262	49	6
Total Unadjusted	484	381 (84.29204%)	71 (15.70796%)

IM Long Form Assessment Battery Results:
Millisecond Accuracy
a) Hands ms avg. (includes Task 1, 2, 3, 14) = 455
b) Feet ms avg. (includes Task 4, 5, 6, 7, 8, 9, 12, 13) = 505
c) Both Hands ms avg. (includes Task 1, 14) = 380
d) Both Feet ms avg. (includes Task 4, 7) = 502
e) Left Side ms avg. (includes Task 3, 6, 9) = 505
f) Right Side ms avg. (includes Task 2, 5, 8) = 504
g) Bilateral ms avg. (includes Task 10, 11) = 459
h) Adjusted ms avg. ((a + b) / 2) = 480

Long Form Assessment Battery Achievements
Highest In-A-Row: 2, Task = 0
Total Number of IAR Bursts: 0
Percentage within 15 MS: 4%

Optional - Attend Over Time Test
Both Hands 500 reps: Not Taken

2013-04-02 Start Date 2013-04-02 End Date

Date	Time	M / E	Task Avg / #	Var Avg	Burst / HighIAR	VEarlyAvg / # / %	EarlyAvg / # / %	SRO%	LateAvg / # / %	VLateAvg / # / %
2013-04-02	19:13	Pre LF 01	0496.98 0050	0042.75	000 000	0488.10 0040 080	0000.00 0000 000	000.00	0000.00 0000 000	0532.50 0010 020
2013-04-02	19:14	Pre LF 02	0527.71 0028	0014.92	000 000	0532.67 0018 064	0000.00 0000 000	000.00	0000.00 0000 000	0518.80 0010 036
2013-04-02	19:14	Pre LF 03	0531.58 0024	0018.78	000 000	0531.50 0018 075	0000.00 0000 000	000.00	0000.00 0000 000	0531.83 0006 025
2013-04-02	19:15	Pre LF 04	0513.65 0031	0042.19	000 000	0513.65 0031 100	0000.00 0000 000	000.00	0000.00 0000 000	0000.00 0000 000
2013-04-02	19:16	Pre LF 05	0496.16 0031	0038.92	000 000	0493.76 0029 094	0000.00 0000 000	000.00	0000.00 0000 000	0531.00 0002 006
2013-04-02	19:17	Pre LF 06	0488.77 0031	0066.55	000 000	0487.73 0030 097	0000.00 0000 000	000.00	0000.00 0000 000	0520.00 0001 003
2013-04-02	19:17	Pre LF 07	0489.97 0031	0046.40	000 000	0487.79 0029 094	0000.00 0000 000	000.00	0000.00 0000 000	0521.50 0002 006
2013-04-02	19:18	Pre LF 08	0488.83 0030	0041.25	000 000	0494.70 0027 090	0000.00 0000 000	000.00	0000.00 0000 000	0436.00 0003 010
2013-04-02	19:19	Pre LF 09	0492.52 0031	0043.19	000 000	0490.66 0029 094	0000.00 0000 000	000.00	0000.00 0000 000	0519.50 0002 006
2013-04-02	19:19	Pre LF 10	0485.81 0031	0047.64	000 000	0486.86 0029 094	0000.00 0000 000	000.00	0000.00 0000 000	0470.50 0002 006
2013-04-02	19:20	Pre LF 11	0432.31 0029	0100.32	000 000	0477.85 0020 069	0000.00 0000 000	000.00	0000.00 0000 000	0331.11 0009 031
2013-04-02	19:21	Pre LF 12	0535.68 0025	0013.17	000 000	0538.08 0013 052	0000.00 0000 000	000.00	0000.00 0000 000	0533.08 0012 048
2013-04-02	19:22	Pre LF 13	0534.40 0025	0016.41	000 000	0536.58 0019 076	0000.00 0000 000	000.00	0000.00 0000 000	0527.50 0006 024
2013-04-02	19:23	Pre LF 14	0262.44 0055	0179.42	000 002	0313.63 0041 075	0053.00 0008 015	005.45	0029.50 0004 007	0516.50 0002 004

This LFA Calculations Report shows a client who is hitting opposite of the beat rather than ON the beat. This is evident based upon behavioral observation during the LFA and (MS) scores that are in the high 400-500's. After the first few hits during LFA Task 1, the assessment was stopped and this client was reinstructed to hit ON each beat in sync with it (and this was demonstrated for her). Upon resuming the LFA, she continued to hit opposite of the beat. In this case, if you look at the LFA Calculations Report you see predominantly Early hits. Upon closer examination of her timing data via Data List View (above image), you see that most of

her hits were Very Early and were greater than 400ms from the beat. Interestingly, when the guide sounds were turned on during Task 14, she gained greater awareness that she was not hitting ON the beat and made an attempt to synchronize with the reference tone, earning a better (MS) score on that particular task.

4. Did your client hit randomly to the beat or appear to have no sense of timing at all (see sample report below for Predominantly Random Hits)? This indicates more significant difficulty with information processing/cognition. When this occurs, (MS) scores will typically range between 300-500ms. Behavioral observations during the LFA are the key factor in determining whether hits are random.

SAMPLE REPORT: PREDOMINANTLY RANDOM HITS

Long Form Assessment Calculations

IM Long Form Assessment Date: 04/02/2013
Trainee ID: N
IM Trainer Name: Autumn Leaves

Date of Birth: 02/18/2003
Preferred Hand: Right
Gender: Male

Task	MS	Early Hits	Late Hits
1. Both Hands	296	46	8
2. Right Hand	289	25	2
3. Left Hand	294	24	9
4. Both Toes			
5. Right Toe			
6. Left Toe			
7. Both Heels			
8. Right Heel			
9. Left Heel			
10. R Hand/L Toe			
11. L Hand/R Toe			
12. Bal. Right Foot			
13. Bal. Left Foot			
14. #1 -w Guide ends	276	42	10
Total Unadjusted	289	137 (82.53012%)	29 (17.46988%)

IM Long Form Assessment Battery Results:
Millisecond Accuracy
a) Hands ms avg. (includes Task 1, 2, 3, 14) = 289
b) Feet ms avg. (includes Task 4, 5, 6, 7, 8, 9, 12, 13) = 0
c) Both Hands ms avg. (includes Task 1, 14) = 286
d) Both Feet ms avg. (includes Task 4, 7) = 0
e) Left Side ms avg. (includes Task 3, 6, 9) = 294
f) Right Side ms avg. (includes Task 2, 5, 8) = 289
g) Bilateral ms avg. (includes Task 10, 11) = 0
h) Adjusted ms avg. ((a + b) / 2) = 289

Long Form Assessment Battery Achievements
Highest In-A-Row: 1, Task = 14
Total Number of IAR Bursts: 0
Percentage within 15 MS: 4%

Optional - Attend Over Time Test
Both Hands 500 reps: Not Taken

2013-04-02 Start Date — 2013-04-02 End Date

Date	Time	M / E	Task Avg / #	Var Avg	Burst / HighIAR	VEarlyAvg / # / %	EarlyAvg / # / %	SRO%	LateAvg / # / %	VLateAvg / # / %
2013-04-02	19:34	Pre LF 01	0296.30 0054	0164.98	000 001	0351.90 0041 076	0054.40 0005 009	003.70	0030.00 0003 006	0242.00 0005 009
2013-04-02	19:35	Pre LF 02	0288.96 0027	0177.04	000 001	0354.43 0021 078	0052.00 0004 015	003.70	0075.50 0002 007	0000.00 0000 000
2013-04-02	19:35	Pre LF 03	0293.79 0033	0164.43	000 000	0327.29 0024 073	0000.00 0000 000	000.00	0054.00 0004 012	0324.80 0005 015
2013-04-02	19:37	Pre LF 14	0275.56 0052	0171.56	000 001	0343.63 0035 067	0052.57 0007 013	003.85	0048.33 0003 006	0255.57 0007 013

This LFA Calculations Report is for a client who demonstrated a very poor sense of timing, hitting randomly rather than attempting to synchronize with the reference tone. The LFA Calculations Report shows predominantly Early Hits. A closer look at this client's timing data via Data List View (above image), shows that most of her hits were Very Early, but there were also hits within the Early, Late, and Very Late range. It is important to note here the critical importance of observing your client during the LFA. Your observations help you to interpret the objective data in this

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report to explain the reason for this pattern of timing. This client's timing bounced all over (very early, late, very late, early) as she hit the trigger in a random fashion – she did not attempt to synchronize. At times she clapped very rapidly, at times much slower than the beat, and at times she stopped clapping completely for a few beats. In this case, it was readily apparent to the IM provider that her client had a very poor sense of timing. Because she was likely going to hit random on all of the LFA tasks, the provider opted to shorten the LFA to just include Tasks 1-3 and Task 14 to evaluate whether feedback for timing (guide sounds) would be helpful. Based upon a comparison of the (MS) score for Task 14 to Tasks 1-3 and behavioral observations, the provider determined that her client did not appear to benefit from the guide sounds at this time to recognize she needed to try to synchronize with the beat.

5. The more balanced the Early and Late hits are and the better your client responds to Guide Sounds on.

   Task 14 (compared to Tasks 1-13 without guide sounds), the more likely it is that your client will proceed through the IM training phases more expediently and with just a little help from you for timing.

SAMPLE REPORT: BALANCED EARLY TO LATE HITS

Long Form Assessment Calculations

IM Long Form Assessment Date: 04/02/2013
Trainee ID: A
IM Trainer Name: Winter Snow

Date of Birth: 10/14/1968
Preferred Hand: Right
Gender: Female

Task	MS	Early Hits	Late Hits
1. Both Hands	50	46	9
2. Right Hand	60	30	1
3. Left Hand	78	30	1
4. Both Toes	61	31	
5. Right Toe	62	30	1
6. Left Toe	81	31	
7. Both Heels	64	28	3
8. Right Heel	87	31	
9. Left Heel	67	30	1
10. R Hand/L Toe	115	31	
11. L Hand/R Toe	120	29	1
12. Bal. Right Foot	77	28	2
13. Bal. Left Foot	62	27	5
14. #1 -w Guide ends	34	41	13
Total Unadjusted	73	443 (92.29166%)	37 (7.708333%)

IM Long Form Assessment Battery Results:
Millisecond Accuracy
a) Hands ms avg. (includes Task 1, 2, 3, 14) = 56
b) Feet ms avg. (includes Task 4, 5, 6, 7, 8, 9, 12, 13) = 70
c) Both Hands ms avg. (includes Task 1, 14) = 42
d) Both Feet ms avg. (includes Task 4, 7) = 62
e) Left Side ms avg. (includes Task 3, 6, 9) = 75
f) Right Side ms avg. (includes Task 2, 5, 8) = 70
g) Bilateral ms avg. (includes Task 10, 11) = 118
h) Adjusted ms avg. ((a + b) / 2) = 63

Long Form Assessment Battery Achievements
Highest In-A-Row: 6, Task = 7
Total Number of IAR Bursts: 1
Percentage within 15 MS: 4%

Optional - Attend Over Time Test
Both Hands 500 reps: Not Taken

C. MOTOR SKILLS

1. Did your client display movement that was circular, rhythmical, & coordinated? Or were his movements more linear or at times hesitant?
    - Linear and/or hesitant movements may indicate a problem with the brain's ability to plan and carry out smooth, coordinated motor sequences on demand or when "thinking" about it. This condition, called dyspraxia, is important to identify during IM assessment and/or early in IM training in order to remediate it before introducing guide sounds.
    - Dyspraxia may co-occur with many developmental disorders like SPD, ADHD or Autism. It may also be present in clients who have suffered from stroke or brain injury.
    - Clients who display dyspraxia will benefit from a slower tempo when you get to IM training – we will cover more on this subject in a bit.
2. Did your client tend to hit the trigger really hard or clap in a hard or ballistic fashion? This pattern may be combined with a linear rather than circular pattern of clapping and may be seen in individuals with Sensory Processing Disorder.
3. Did your client display weakness or limited function of one arm/ hand that impacted performance when clapping? A slower tempo may be helpful for facilitating timing & rhythm.
4. Did your client have difficulty maintaining balance while standing, moving the lower extremities, or when standing on one foot? If needed, your client can be seated initially for IM training to allow him to focus all of his attentional resources on synchronizing with the beat. You can work in IM training exercises later in standing position as he gains proficiency.

LIMITATIONS OF THE LFA

All of the LFA tasks, with the exception of Task 14 (Both Hands with Guide Sounds) are performed with the reference tone only. Some individuals can perform fairly well with just the reference tone, but they are more challenged when the guide sounds are turned on, and this is where performance may break down for them. So, if you have a client who does fairly well on the LFA, it is worth a trial of IM training with guide sounds turned on to assess performance to get a better picture of cognitive processing skills.

LFA tasks are very short, 30 seconds to 1 minute in duration each. The LFA is not intended to be a thorough assessment of sustained, focused attention. If your client performs well on the LFA, this is an indication that he can focus well for short periods of time. In addition to completing the LFA, your client should participate in other standardized and functional assessments to gather information about speech, language, cognitive, sensory and/or motor function. It is important to measure these abilities pre, interim, and post-IM training to measure progress both objectively and functionally.

NOTE: *If your client must complete the LFA over more than one session, the data will not be aggregated into one single report. Rather, the report for the LFA will reflect only those LFA tasks completed on that particular date.*

If your client does not hit the trigger on at least 80% of the time during the LFA task or does not step cleanly on/off the tap mat during the lower extremity tasks (i.e., remains standing on it so that trigger hits cannot be captured), the score for that task will not appear on the LFA Calculations Report. If that happens, don't worry. All of the data is recorded within Data List View (an alternate & more detailed view of the assessment & training data that can be selected in the software). You can retrieve the data by selecting the date of the LFA while in Data List View.

Lastly, all of your client's data is automatically saved. You never have to manually save any data.

COMPLETE ADDITIONAL LABS
15 minutes

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LOG YOUR ACTIVITY TIME HERE!

READING END TIME
_____ AM/PM

TOTAL ACTIVITY TIME (IN MINUTES)
_____ MIN.

ESTIMATED TOTAL TIME FOR THIS ACTIVITY IS 9 MINUTES.

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LOG YOUR ACTIVITY TIME HERE!

LAB START TIME

_____ AM/PM

ESTIMATED TOTAL TIME FOR THIS ACTIVITY IS 15 MINUTES.

ADDITIONAL LAB 1: PERFORM ATTEND OVER TIME ASSESSMENT*

1. With your IM training file open, select Attend Over Time (top right side of screen, select from drop down menu).
2. Put on your headphones.
3. Put the button trigger on your dominant hand.
4. Press GO. Begin clapping in sync with the reference tone (you will not hear guide sounds during this assessment). DO NOT LOOK AT THE COMPUTER SCREEN.

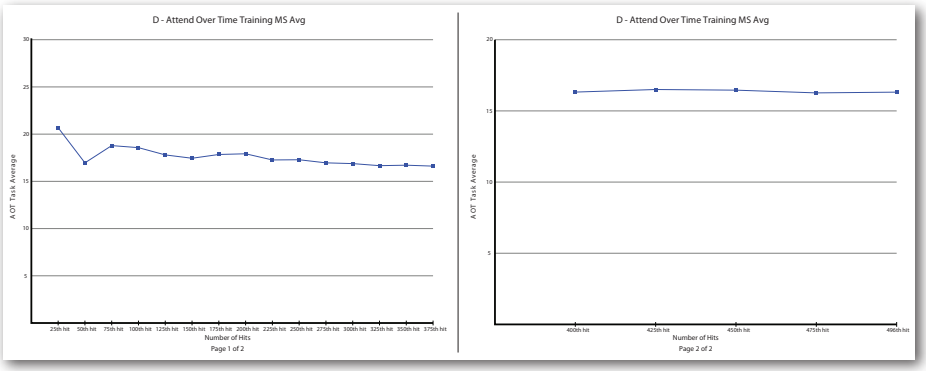
**If you complete this portion of Module 3 on the same day that you completed the LFA, results for Attend Over Time will appear at the bottom of your LFA Calculations Report. If you complete it on a separate day from the LFA, it will not appear in that report. Alternatively, you may obtain the results by going to Data List View or the Attend Over Time Reports.*

INTERPRETING ATTEND OVER TIME RESULTS

Results of the Attend Over Time test are included at the bottom of the Long Form Calculations Report (if it was completed on the same date as the LFA). There are also two additional graphs that will assist you in evaluating your client's ability to sustain focused attention. They are described below.

A. TASK MS AVERAGE GRAPH

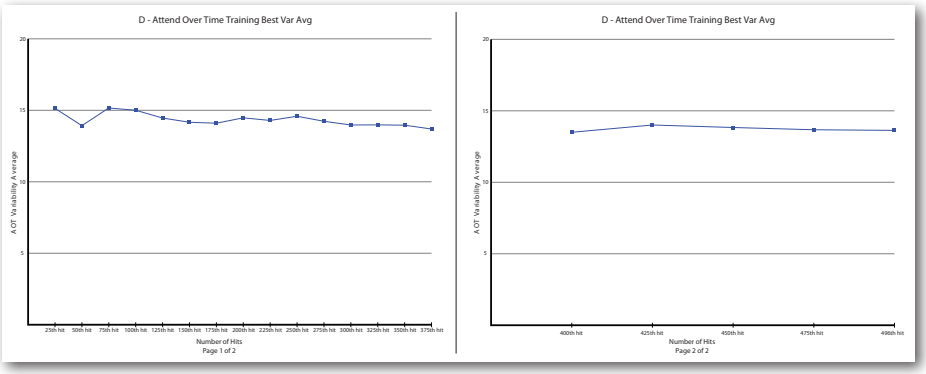
The Task MS Average Graph plots your client's ability to synchronize with the beat every 25th trigger hit over the course of the entire AOT.



1. Compare your client's Task Average (MS) scores over time to the Indicator Table.
2. Note whether your client can maintain the same degree of focus over a longer period of time (in the absence of feedback/prompting from the guide sounds or training visuals).
3. Note whether your client can self-monitor and self-correct to get back on focus if performance degrades at any point during the AOT.

B. VARIABILITY AVERAGE GRAPH

The Variability Average Graph plots your client's ability to maintain a steady rhythm. The difference in timing between one hit to the next hit is averaged and plotted on the graph showing the variability in performance over the course of the entire AOT.



1. Does your client maintain steady performance over time, indicating good rhythm?
2. Or does your client display more variability in performance over time (more of a saw tooth pattern)?

Greater accuracy (lower Task Average scores) and better rhythm (lower Variability Average scores) is ideal and is the goal by the end of IM training. According to research, individuals that demonstrate more accuracy & rhythm with auditory-motor synchronization have more mature neural profiles & better neural network synchronization for cognitive and motor tasks.

ADDITIONAL LAB 2: VIEW YOUR LONG FORM ASSESSMENT RESULTS

1. With your IM training file open, select:
   a. Reports
   b. Long Form Assessment
   c. LFA Calculations
2. When viewing the LFA Calculations Report, notice that each task is assigned a millisecond (MS) Task Average Score according to how well you were synchronized with the reference tone. Use the IM Indicator Table in the Appendix of this certification handbook to determine where your LFA (MS) Task Average Scores fall according to your age.
3. Determine whether your trigger hits were predominantly early or late.
4. Performance is broken down into the following performance domains for a more detailed analysis: "Hands", "Feet", "Both Hands", "Both Feet", "Left Side", "Right Side", and "Bilateral" at the bottom of the LFA Calculations Report. Viewing the data this way allows you to see whether there is a difference in right vs. left performance, whether there is a greater degree of dyscoordination in the lower versus upper extremities, and whether performance breaks down on bilateral versus unilateral tasks. Do you see any discrepancies in your timing data based upon this breakdown?
5. The LFA Calculations Report also provides scores for overall timing performance, including the Total Unadjusted Average (MS) and a Total Adjusted Average (MS) scores. The Unadjusted Average includes all LFA Tasks 1-14. The Adjusted Average excludes the bilateral tasks where you are required to use opposing limbs (Task 10 – Right Hand/Left Toe and Task 11 – Left Hand/Right Toe). What were your Total Unadjusted and Total Adjusted (MS) scores?
6. Results for Attend Over Time can be seen at the bottom of the LFA Calculations Report (if it was completed on the same day as the LFA). What was your Task (MS) Average score for Attend Over Time?
7. Now, let's take a more detailed look at your LFA results in Data List View.
   a. Close out of the LFA Calculations Report
   b. Go to the top of the screen and click on Result View

   c. Select the start date and end date you wish to view. In this case, it will be the date that you completed the LFA in this module.
   d. Detailed data will appear on the screen with a breakdown according the raw number of hits that were very early, early, late, very late or super right-on. When looking at client data in this view, it is helpful to observe whether hits were predominantly early or ***very*** early. Early hits are, generally speaking, more typical whereas a trend toward ***very*** early hits may indicate impulsivity.

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LOG YOUR ACTIVITY TIME HERE!

LAB END TIME _____ AM/PM

TOTAL ACTIVITY TIME (IN MINUTES) _____ MIN. ESTIMATED TOTAL TIME FOR THIS ACTIVITY IS 15 MINUTES

DON'T FORGET TO REFERENCE YOUR NOTES FOR THE TIME LOGGED ACTIVITIES IN THIS MODULE, WHICH WILL BE ASKED IN THE EVALUATION.

ADDITIONAL LAB 3: VIEW ATTEND OVER TIME REPORTS

1. With your IM training file open, select:
   a. Reports
   b. General Reports
   c. Attend Over Time Reports
      i. View your Task MS Average Graph. This graph plots your timing accuracy over the course of almost 10 minutes without any feedback to tell you if you are getting off track. How did you perform over the course of the AOT? Did you remain focused the entire time or did your performance degrade at any point?
      ii. View Variability Average Graph. This graph plots your rhythm over the course of the AOT. How rhythmical were you? Remember, the more rhythmical and consistent your auditory-motor synchronization, the more mature your neural system is for information processing.

TAKE THE ONLINE POST-TEST & EVALUATION FOR MODULE 3

5 minutes

To view the course materials for this Module visit:
https://www.interactivemetronome.com/im-ondemand-certification-coaching-materials/module-3

CONTACT US WITH ANY QUESTIONS

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