

# Modification of the Quick Aphasia Battery (QAB) to improve ease of scoring and rater agreement for research and clinical use

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## Introduction

- The Quick Aphasia Battery (QAB) is a multidimensional language assessment originally developed for use in research<sup>1</sup>
- Requires only 15 minutes for administration
- Probes language across domains and estimates overall severity

## Objectives

- To expand upon scoring definitions to clarify the graded scoring system
- To develop a tool to aid in scoring the connected speech subtest

## Methods

Initial training phase

- Focus on connected speech features
- Clarification + expansion of scoring definitions with training examples
- First set of ratings (14 chronic stroke survivors from AphasiaBank<sup>2</sup>)

Second review

- Clarification + expansion of scoring definitions for untrained subtests with examples
- Reexamination of connected speech definitions
- Monthly ratings of acute stroke survivors

Score form development

- Implemented procedure for transcription of conversation sample<sup>3</sup>
- Developed additional guidelines for rating connected speech
- Monthly ratings of acute stroke survivors and controls

## Results

### Initial Phase: Connected Speech

	Normal (4)	Mild (3)	Moderate (2)	Marked (1)	Severe (0)
<b>Connected speech features</b>	Not present or within the normal range	Detectable but infrequent. Occasional utterances. Barely noticeable	Frequent but not pervasive. In a lot of utterances, but NOT in most utterances	Pervasive but not ubiquitous. In most of the utterances but NOT in all or NOT in almost all of the utterances	Evident in most or all or almost all utterances.
<b>Overall level of impairment</b>	No impairment evident. The participant can elaborate on topics without assistance.	Impairment evident but can discuss all topics. The participant can discuss all topics without significant limitation on ideas expressed or form of expression.	Can discuss everyday topics with little or no assistance. However, aphasia makes conversation about other topics difficult or impossible. limited beyond that.	Communication limited; With familiar topics, participant shares the burden of communication. However, there are frequent failures to convey the idea.	All communication fragmentary; examiner carries burden. There is great need for inference and questioning.

#### Notes:

- A feature must appear 2 or more times to rate as mild or higher
- Consider all connected speech across evaluation
- For speech rate and utterance length, count these for best reliability
- Count fillers or pauses as a sign of anomia if greater than 2 seconds

### Second Review: Subtests

Issue	Example	Solution
<b>Timing</b>	A person responds correctly near the 6 second deadline	<ul style="list-style-type: none"> <li>Calibrate your alligators (good)</li> <li>Use a timer (better)</li> </ul>
<b>Repetitions</b>	<ul style="list-style-type: none"> <li>A person repeats the prompt out loud before answering</li> <li>The person didn't hear or attend to the prompt</li> </ul>	<ul style="list-style-type: none"> <li>A person's own repetition is not a 'repetition' for scoring purposes</li> <li>No penalty for repetitions due to noise, hearing impairment, inattention</li> </ul>
<b>First complete response</b>	"pe-pale-pe-pel-pale-palcil" for <i>pencil</i>	<ul style="list-style-type: none"> <li>Must have(1) the correct number of syllables or (2) falling intonation followed by a pause</li> </ul>
<b>At least half of phonemes correct</b>	"The creative architect understood what we'd be doing" for ... <i>who we'd be seeing</i>	<ul style="list-style-type: none"> <li>Syllables/words must be in the same syllable/sentence position as the target</li> </ul>
<b>Some relation to the target</b>	"sea animal" for <i>seahorse</i> "It's something you read" for <i>book</i>	<ul style="list-style-type: none"> <li>At least 2 phonemes/words (in same position as target) but less than half</li> <li>Don't forget effective circumlocution!</li> </ul>

#### Notes:

- Don't count prosodic differences, imprecision, or distortions as errors
- Transcribe connected speech sample and divide into C-units<sup>3</sup>
- Controls will often have 1-2 features rated as mild

### Score Form Development

#### Implemented a transcription feature checklist

- Enter one C-unit per line
- Identify features utterance by utterance
- Ratings guided by proportion of affected utterances

#### Motor Speech Disorders Rating

- Not trained to date
- Agreement usually .7 – .8
- Slightly better agreement for presence v absence of MSDs compared to severity rating (severe, marked, mod, mild, normal)

## Discussion

- Modifications and clarifications made to the QAB resulted in greater agreement between raters utilizing the assessment for research purposes.
- Raters subjectively reported more confidence in scoring accuracy and less time required for scoring given these changes
- With less time required for scoring, ease of utilization in a clinical setting may be improved

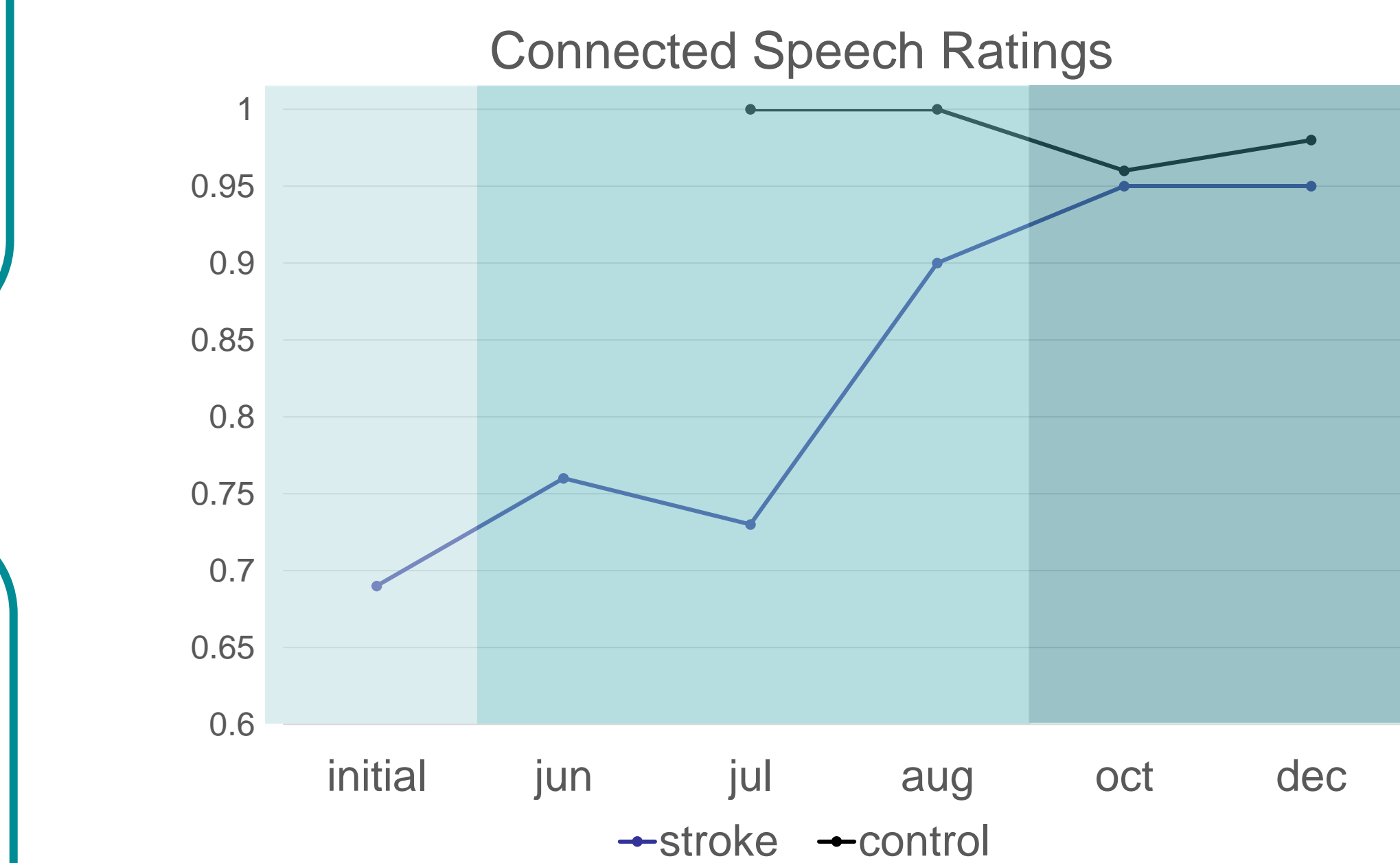
## Resources

- Wilson SM, Eriksson DK, Schneck SM, Lucanie JM. A quick aphasia battery for efficient, reliable, and multidimensional assessment of language function. PLoS ONE. 2018 Feb 9;13(2):e0192773.
- MacWhinney B, Fromm D, Forbes M, Holland A. AphasiaBank: Methods for studying discourse. Aphasiology. 2011;25:1286-1307.
- SALT Software, LLC. C-Unit segmentation rules. Updated November, 2016. Accessed July 13, 2022. <https://saltsoftware.com/pub/media/wysiwyg/tran aids/CunitSummary.pdf>.

## Rater Agreement

	STR (N)	CTRL (N)	Str only	Ctrl only
Initial	14	0	.69	N/A
Jun	5	0	.76	N/A
Jul	6	2	.73	1.0
Aug	1	5	.90	1.0
Oct	2	6	.95	.96
Dec	8	5	.95	.98

STR: stroke CTRL: control



	STR (N)	CTRL (N)	SC	PN	Rep	Read
Initial	14	0	.87	.74	.76	.69
Jun	5	0	.95	.93	.9	.76
Jul	6	2	.94	.96	.85	.92
Aug	1	5	1.0	1.0	1.0	1.0
Oct	2	6	.97	.96	1.0	1.0
Dec	8	5	.97	.96	.97	.99

STR: stroke CTRL: control

SC: sentence comprehension  
 PN: picture naming  
 Rep: repetition  
 Read: reading

