

Articulation II: Consonant Clusters L, R, S, and other Consonant Clusters

Objective The client will see a picture, hear it labelled, record their imitation of the word, sounds, phrase, or sentence, and determine accuracy of the production.

Monitoring and Self-Monitoring: The client or clinician can determine if the target sound has been produced Correctly (C), Incorrectly (I), or Distorted (D). Use the “Record and Play” features to record and listen to the client's production of the target. Alternate between the model and the client's recorded words. Stress the importance of the concept that, “Contrast aids perception.” Listen for the samenesses and differences between the two productions. Have the client monitor their own speech and determine accuracy using the *CDI* button. Compare the client's perception of accuracy with your own. You may use the *CDI* button each time the client says the target word to keep a running tally of accuracy.

Transfer activities can include writing on the homework sheets and recording new phrases and sentences for the target word. These recordings cannot be saved but can be repeated at the time of recording.

Generalization can be practiced through recording “spontaneous conversations” that have the target word used somewhere in the conversation. The record feature will allow several minutes of recording if there is room on your hard drive to save the file temporarily.

How to Play The clinician will assist the client in choosing a target sound cluster. The client will listen to the word as it is pronounced and try to replicate the sound cluster. The client may listen to the word again by clicking on the *Word* button. Use the VCR-like buttons to record their voice. They may click on the *Sounds* button to listen and imitate the word segmented into individual phonemes. When there is accuracy at the phoneme and single word level, the client can use the *Phrase* button to hear the word used in a phrase or abbreviated sentence. After listening carefully, the client will repeat the phrase. Then the client will click on the *Sentence* button to hear the word used in a sentence. The client will repeat the sentence and may say another sentence using the word.

Phonological Processing The client may click on the *Exaggerated* button to hear the word pronounced with the target phoneme or cluster exaggerated. Focusing on the processing and imitation of phonemes as presented on the *Sounds* button can develop central auditory processing of speech sounds, a difficult task for those with Central Auditory Processing Disorder (CAPD). Extensive practice imitating, sequencing, and representing each sound with a colored block or felt will help to improve reading and spelling skills.

Response Options Use the touchscreen or mouse to select the *Word*, *Sounds*, *Phrase*, *Sentence*, or *Exaggerated* button to hear the target word spoken. By typing the numbers 1, 2, 3, 4, or 5 you will hear the sound corresponding to the Word(1), Sounds(2), etc.

When you are finished with a screen, click on the *right arrow* or use the right arrow key to move to the next screen. The *left arrow* allows you to repeat the previous screen. The up arrow key or the *up arrow* on the *volume* button increases the volume and the down arrow decreases the volume. If you turn the volume off, you can scroll faster through the pictures using the right or left arrow keys. *H* takes you to the *Help* screen. *X* allows a quick exit from the program. The *Print* button allows you to print the picture on a homework page. Refer to the *I Like Keys* insert for more keyboard shortcuts.

Options Random/Sequential, Hide Words/ Display Words, Lock Finish Button, Always Finish Speech/Allow Interrupt, Lower Sound Quality, Play Sound and Go to Next Picture, Choose First Speech Stimulus.

Random on: Words and pictures appear in random order within a group.
Random off: Words and pictures are ordered within a group from easy to hard.
Hide Words: Choose this option to hide the word, phrase, and sentence. *Option H* will toggle the hide word/display word while on the screen to allow auditory memory practice or decoding practice.
Lock Finish Button: Choose to prevent the client from ending program before the clinician is ready.
Always Finish Speech: Choose to prevent the client from interrupting the computer's speech model.
Lower Sound Quality: Choose if you're running out of space on the hard drive.
Sound--Next Picture: Computer will play all five models, then go to the next picture automatically.
Play Each Sound then go to the Next Picture: Computer will play all five models, then go to the next picture automatically.
Options Page 2: The password to get to Page 2 is **options**.
Choose Picture Sets: Choose groups of words and save the choices for future use.
Lock Finish Button: Choose to prevent the client from ending program before the clinician is ready.
First Speech Stimulus: Clinician can choose what the client will hear when the picture comes up. This includes having the client hear nothing unless a button is clicked.

Categories The main screen has four predefined categories to choose from: R-Controlled Vowels, R Clusters, Challenge (words with more than one r sound), and All. There are also eight buttons that the clinician can use to define and save categories for later use. Select groups of words for these buttons from Options page 2. (The password to get to Page 2 is **options**.) You may also choose groups of words by clicking on the *Choose Words* button. Clicking on this button takes you to the first of three screens for choosing word groups. Click on the button for the word group or groups that you wish to practice in this session. Use the arrow keys to move to the next or previous screen. You can deselect a group by clicking on it to turn off its highlight. When you have finished your selection, click on the *Play Game* button at the bottom of the screen. All of the words in the groups that you have highlighted will be displayed when the game is played. They will play approximately from left to right, starting on page 1 and moving to page 3.

Screens There are a total of 766 photographs. The 98 groups are of uneven sizes. Some categories are used more frequently in English so there are more words for practice.

Game Results By Trial: Category, % Correct, % Distorted, % Incorrect, and Average Time.

Rationale This task requires the ability to attend to a series of complex auditory stimuli, analyze the sound segments, and imitate these sounds in sequence. It requires auditory processing at the sound, syllable, phrase, and sentence levels with imitative or spontaneous expressive articulatory production.

Word Selection The Consonant Clusters CD has four major categories. They are L Clusters, R Clusters, S Clusters, and Other Clusters. Speech is practiced with commonly used words that have at least one consonant-consonant combination in the initial, medial, and/or final position. If your client needs practice on a particular target sound before putting it into a cluster, the Articulation I CD has 20 phonemes in initial, medial, and final positions. Sound segmentation is based on the *LocuTour Guide to Letters, Sounds, and Symbols*.

Pronunciation We used the *Webster's New Collegiate Dictionary* as our reference for pronunciation, and, in general, we chose the most common pronunciation if there was more than one choice. There were exceptions to this general rule based on my knowledge of stimulating articulation. For example, "yel*low" is most effectively taught as a three syllable word, "ee, el, oe" but is pronounced, "yellow" once learned. The syllable breaks do not necessarily coincide with the dictionary syllabification rules. Syllabification is based on ease of speech production. For example, we broke the word, "hospital" as ho*spit*al to facilitate the /sp/ blending. This does not follow the dictionary rules for syllabification but does make speech production easier. The rule for exaggeration was to elongate the target sound or sounds for imitation during the initial stages of therapy. As for the way I talk, I was born in Pennsylvania, have lived in Ohio, Georgia, Maryland, Washington D.C., and five cities in California. I know my speech does not represent the entire country, but does approximate the "Midwestern American Dialect."

Color Highlights Usually in a doubled consonant, the first consonant was "grayed-out" and the second consonant was pronounced, e.g., "wal*let." Once again, if this was not done, it was decided that the alternative was easier to produce. Grayed-out letters meant that the sound was silent as in, **kn, wr, gn, ight, mb, ll, ff, gg, ck**, etc. Some notice for spelling irregularities was made by highlighting the sounds that did "not play fair," belonged together, or needed special notice. I dubbed these, "notice me letters" and used the color *maroon* to highlight them, e.g., **ate, ph, tch, dge, ce, ge, ti, ci, si, eo**, etc. If a vowel combination did "not play fair" as listed in the *Guide*, then these vowels were highlighted.



Alternative Uses for the *Articulation* CD Program

Central Auditory Processing Disorder

Recent research indicates that phonemic processing is critical to auditory processing of connected speech. This CD allows for auditory processing of speech sounds at the phoneme level using the *Sounds* button. This slow segmentation of the word allows the listener to process the phonemic units that make up the word, imitate the units, record their production, and play back their speech to self-monitor. Self-correction and self-monitoring are the first steps in automatic integrated auditory processing and accurate verbal expression.

Literacy Development and Dyslexia

This game is appropriate for children and adults learning to read or those with reading and spelling difficulty. The gray colored letters indicate the silent letters such as: *kn, gh, mb, rh, mn, gn* and *ck*. The “e” rule allows the letter “e” to jump over one sound, (b, t, th, ch, sh, m, etc.) or one letter, (never tt, or bb, etc.) to make the vowel say its name. Silent “e” is highlighted in the color *maroon*. For example, the vowel sound in “cape” says, “ae” but the spelling is, “*cape*”, not “*caep*.” We teach that the, “e” jumps over and bops the “a” on the head to make him say his name. This single rule, the “e-rule” can make a huge difference in a person's ability to sound out new words. Other rules that can be taught include the “*c and g - rules*.” Any spelling book has a description of these rules but in essence, “*c*” followed by *i, e, or y* says its sound /s/, otherwise, “*c*” says /k/. (*pencil, ice, bicycle, coat, cap*, etc.). “*g*” followed by *i, e, or y* can say the sound /j/, (*engine, package, gym*), but doesn't have to. It can say its sound, /g/, (give, get, etc). The /sh/ sound can be spelled many different ways, such as “*ti*” (carnation) or “*ci*” (musician). We used the maroon color to highlight what we call, “*notice me*” sounds. These are sounds that don't quite play fair and need to be noticed for spelling or pronunciation. Refer to the *LocuTour Guide to Letters, Sounds, and Symbols* for more information about spelling and pronunciation rules. *Transfer activity*: Use the homework pages to practice copying the word and spelling new sentences. If the client copies the word from the computer screen to a word list, they are also developing shifting attention skills, visual perceptual and motor sequencing skills.

Vocabulary Development

While this CD series is titled, “*Articulation*” there is no reason why it could not be used for language therapy. On the [Options](#) page, choose the pictures you would like to make up a set, then label the set, “*Vocabulary*.” This is a fun way to build receptive and expressive language skills. We tried to incorporate pictures from around the world to help develop general fund of knowledge about people, places, and things.

Auditory Memory and Working Memory

Requiring *forward and backward repetition* of the words, phrases and sentences can help those with short term memory problems, sustained, and shifting attention difficulties. Use felt squares on the table to “anchor” the sounds in sequence. I have used this process of backward repetition to increase the amount of information a client can hold in working memory. The process of forward repetition can teach the compensatory strategy of “*reauditorization*.” If you can develop your “*internal tape recorder*” you have a chance to replay and thus comprehend auditory information.

Aphasia Therapy

The pictures in this CD can be used to stimulate conversational speech, check auditory comprehension, and practice repetition, naming, writing, and reading skills. Use the record features to make your own cueing strategies. The program is designed to present a speech model at the sound, word, phrase, and sentence levels. You can record your own, “*It's a ...*” phrases, sentence completion, or phonemic cue sentences for individualized cueing. The record feature will allow several minutes of recording but will



not save the recording when you move to the next page.

Right Hemisphere Syndrome

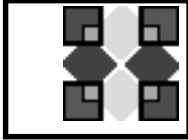
The treatment of Right Hemisphere dysfunction includes visual scanning, reading, writing, speech intonation, perception of affect, comprehension of humor, idioms, metaphors, and logic. The pictures can be used as a launching point for describing the details of visual images such as, color, size, shape, number, smell, taste, sound, perspective, movement, mood, and background. The main idea of the picture can be identified to assist with focusing on relevant stimuli and ignoring irrelevant details. One extension activity that can be used is to have the individual tell what could happen next. The individual will need to understand the gestalt of the picture story before making their own extension sentences or inferring meaning from the picture. Questions such as, "What was the dog doing?" and, "Why do you think he might be feeling that way?" encourage them to tell brief stories. These can be taped using the recording feature and played back to allow some processing of their own speech. You could track topic maintenance, or appropriateness of responses.

Traumatic Brain Injury

The communication deficits related to TBI often include dysarthria, auditory and reading comprehension problems, anomia, and pragmatic language disorders. In a small group setting, the CD can be used to present a stimulus and allow the individuals to practice turn taking, appropriate conversation, and topic maintenance. It is possible to use the recording features for feedback and self-monitoring on perseverative responses, inappropriate laughter, swearing, and off task responses. Use of the *Sequential* presentation option allows the clinician to present the same stimuli each day. As the client progresses, the variability for responses can be increased by using the *Random* option. Repeating the words, phrases, and sentences forward and backward on a level at which your client is 85% successful will develop working memory, short-term memory skills, and mental flexibility. I always use felt squares to "anchor" the words.

Dysarthria and Apraxia

Auditory feedback is critical for self-monitoring of dysarthric speech. The pictures were chosen for content, phonemic complexity, and "picturability." The screen was designed to allow printed and/or auditory stimuli. An Apraxic client may prefer to have the words displayed and use the *Word* and *Phrase* buttons for self-paced imitative speech practice. The Dysarthric client may choose to practice sounds in words, phrases, and sentences for improved intelligibility. Most clients can practice on their own or with an assistant. Use of the *CDI* button will allow the client to keep track of their perception of the accuracy of reproduction of the stimulus. The comparison of *their* perception of intelligibility and *your* perception of intelligibility can be insightful when planning therapy goals.



I Like Keys: Articulation

Main Screens

- (right arrow) go to the next word
- ← (left arrow) go to the previous word
- ↑ (up arrow) increase the sound volume
- ↓ (down arrow) decrease the sound volume

- “Option” and “R” toggle between random and sequential
- “Option” and “H” toggle between displaying/hiding the text
- “Option” and “N” go to the Enter Names Screen
- “Option” and “P” print the picture and homework

- “F” return to the main screen
- “?” go to the Help Screen
- “H” go to the Help Screen
- “E” exit, quit the program

- “R” record the word
- “S” stop recording the word
- “P” play back the word

- “C” score the pronunciation as correct
- “D” score the pronunciation as distorted
- “E” or “I” score the pronunciation as incorrect (error)

- “1” play the sound for the word
- “2” play the sound for the sounds
- “3” play the sound for the phrase
- “4” play the sound for the sentence
- “5” play the sound for the exaggerated target sound in word

Note: If the shortcut says “Option” and “key” then the “Option” key is acting like the shift key. Press the “Option” key and while holding it down, press the other key in the command. (Windows users should press the Control Key.)



Menu Screen

“O” go to the “Options” screen

“F” Finish the program

“?” go to the Help Screen

“H” go to the Help Screen

RETURN start or continue the practice session **without resetting** the counter or the random number generator and to replay the words in the that were selected using the *Choose Words* button

SPACEBAR start the practice session and reset counters and the random number generator

Results Screen

“F” quit the program

“M” return to the Main Screen

“?” go to the Help Screen

“H” go to the Help Screen

“P” page setup

“Option” and “P” print the results page

Options Screen

“Option” and “R” toggle between random and sequential

“Option” and “H” toggle between displaying the word and hiding it

“Option” and “N” go to the Enter Names Screen

“Option” and “H” go to the Help Screen

“D” or RETURN return to main menu

Help Screen

“D” or RETURN return to main menu

Names Screen

TAB toggle between names fields

RETURN record the names and return to main menu

ABC 123 Game

The keys for *And a One, Two, Three* will work with *ABC 123*.