# Got /r/ Problems? A Phonetically Consistent Approach to /r/ Remediation™

## Facts About /R/

• /r/ can be consonantal (e.g. red) or vowel-like (e.g. star)

• Consonantal /r/ and the 11 initial blends easier to evaluate and treat

• Vocalic /r/'s more complex because comprised of 2 sounds: (the vowel + the /r/)

• Vocalic /r/ can be separated into 6 variations: [ar], [air], [ear], [ire], [or], and [er]

• One of the most frequently misproduced sounds

• One of the last sounds to be mastered

• Post-vocalic /r/ is influenced by vowel (i.e. floor, car, tower)

• Regarded by SLPs as one of the most difficult disorders to correct

• Manner and place of articulation not easily described/categorized

## Age to Begin Treatment

• Developmental: 7-8 years old

• Normative Sequence: muscles are mature around age seven and /r/ controlled vowels are taught in 2nd grade curriculum.

• Consider the speech normalization boundary 8:5 (Shriberg, Kwiatkowski & Gruber, 1994): after this age much more difficult to remediate a sound.

## Changing Nature of /r/



The Changing Nature of /r/

The phoneme /r/ in the word "CAR" (/ar/ final) is pronounced differently from the word "FOR" (/or/ final) or the word "BUTTER" (/er/ final).
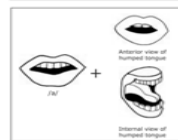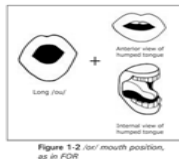
However, the final /r/ phoneme in the word "ANCHOR" is pronounced the same as the /r/ phoneme in the word "BUTTER". This is because they are both phonetically /er/ final words despite the spelling differences.

## Categories of /r/

• Prevocalic, Initial, or Consonantal /r/ e.g. ring, run, race

• Initial /r/ Blends e.g. price, break, straight

• Vocalic /r/ or r-controlled e.g. door, star, skier

• Medial/final /r/ e.g. girl, swirl, barrel

## /r/ Blends

| [pr] | [br] | [tr] |
|------|------|------|
| pride | brought | tried |
| [dr] | [fr] | [kr] |
| drain | frog | crash |
| [gr] | [shr] | [str] |
| great | shrug | string |
| [spr] | | [thr] |
| spring | | thread |

## Vocalic Variations of /r/

| [er] | [or] | [ar] |
|------|------|------|
| Ernie | Orville | Archie |
| buttercup | corn | barn |
| feather | four | star |
| [air] | [ire] | [ear] |
| Erin | Ireland | Erie |
| ferry | fire | cereal |
| fair | fireman | deer |

## Traditional /r/ Approach

• One of the major sources of frustration in the field of speech-language pathology is that /r/ has been evaluated and treated primarily for its consonantal qualities, while either ignoring the more complex vocalic /r/ or grouping it into a single category.

| Initial | Medial | Final |
|---------|--------|-------|
| ribbon | barefoot | car |
| run | buttercup | fear |
| rain | thorn | four |
| race | wireless | butter |
| ring | barn | software |

## Phonetic Approach

| [air] Initial | [air] Medial | [air] Final |
|---------------|--------------|-------------|
| Arizona | dairy | millionaire |
| Erin | ceremony | square |
| heiress | haircut | scare |
| arrowhead | barefoot | tear |
| aerosol | stairs | pair |

## Does Your Method of /r/ Treatment:

• Evaluate all variations of /r/?

• Evaluate /r/ in all word positions?

• Have phonetically consistent probe lists for treatment?

• Focus heavily on [er] to exclusion of other phonemes?

• Provide a specific starting point for remediation?

• Provide measurable progress?

• Allow for targeting treatment on just the specific misproduced /r/'s?

• Establish/use natural tongue production?

## Why Evaluate All Different Types of /r/?

• To find a starting point for treatment; research shows that almost all students can produce at least 1 type of /r/ (Curtis & Hardy, 1959)

• To simplify treatment by determining a successful point of production

• To help strategize treatment by determining an intervention target based on the facilitating context

• To properly diagnose the problem: Are some word positions produced correctly, but not others?

• To plan evidence-based treatment: Allows for using effective and proven methods, adds accountability, and addresses No Child Left Behind Act

## Evaluating Across /r/ Types in Single Words or Words, Phrases and Sentences

**Single words**



**Words, Phrases and Sentences**



## Choosing Targets

• Choose sound most likely to correct → highest correct percentage below 80%

• Correct productions within sound class ( [AR] initial correct, but [AR] final is not)

• Cognate pairs (i.e. great/crate)

## Remediation Plan

• Base intervention on target selected

• Consistently focus only on target until corrected

• Choose appropriate elicitation strategies matched to target selection

• Use phonetically consistent probe lists

## Why Focus on One Sound and Word Position at a Time?

• Enhances motor planning

• Provides consistent practice

• Ensures students know their goals.

• Allows productions of other /r/ word combinations not yet targeted to generalize
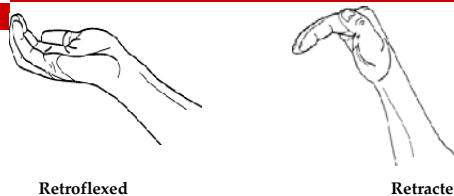
## Ways To Produce /r/
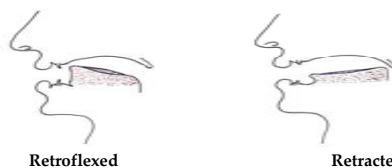


Retroflexed          Retracted

## Why Establish A Natural Production?

• To know which verbal cues and hand signals to use as your starting point

• To use what the student's tongue does naturally

## Hand Signals



Retroflexed          Retracted

## Elicitation Techniques

• Write target /r/ controlled vowel on board to increase student's awareness that there are two or more sounds he/she needs to produce

• Use as many modalities as possible: visual, auditory and tactile cues

• Have student use a mirror so that she can see her own mouth. This eliminates any lip rounding and ensure that the student is producing both the /r/ plus the vowel

• Use phonetically consistent probe lists for production practice

• Shaping one /r/ into another: a successfully produced prevocalic /r/ can be used to shape other /r/ variations Example: ear red slowly fade out red.

## Coarticulation

• Coarticulation: Use student's success in one word position to help shape the other misarticulated word positions

• Technique: Elongate the sound. Stretch the /r/ controlled vowel (e.g. [ar]) 2-3 seconds to ensure that both the vowel plus the /r/ are being pronounced.



Coarticulation: Use Final (flowER) to get Initial (ERnie) and then quickly phase out facilitative word through the whisper technique

## Moving Onto Next Target (Sound or Word Position)

• Once a word position for target /r/ is mastered (criterion is 80% for 5 consecutive sessions at sentence level), readminister screening to assist in choosing the next target.

• Readminister advanced screening to choose next intervention target.

## Does a Phonetically-Consistent /r/ Approach Work?

• 31 Students, 12 Speech-Language Pathologists from San Diego City Schools

• Ages 6-14 with average time in therapy of 1.66 years

• Single subject design

• 2 Baselines

• 6 month period (Jan. – July)

• <15 hours treatment. End 20 hours.

• Method: Single target until 80% acc in sentences 5 consecutive times. Retest for generalization.

• Used screening tool targeting words, phrases and sentences. (See diagram on poster in the second column, bottom section.) Enabled researcher to logically choose intervention targets.

## Improvement: Baseline to Final Performance



Baseline Performance   Final Performance
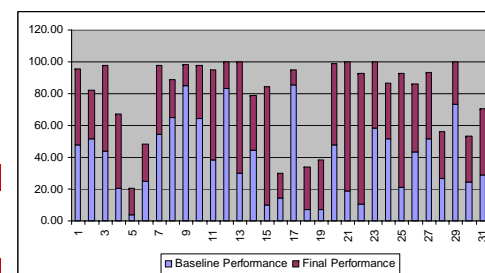
## Start and Final Errors
### Out of 21 Types Tested



Start Errors   End Errors
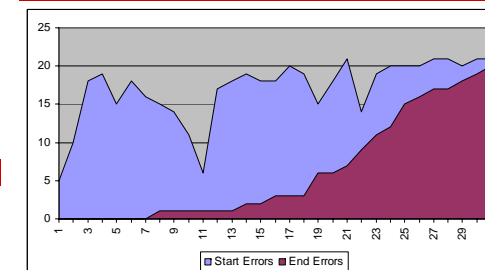
## Study Results

• Generalization occurred for 100% of students

• 58% ended with 3 or fewer errors, 7 dismissed

• 4 out of 5 students corrected 5 or more /r/ errors

• SLPs surprised how well their students did and positive response to treatment

• Screening of words, phrases and sentences proved to be an excellent tool in choosing a target and determining present level of performance

Please visit our website at www.sayitright.org for materials and resources

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